

**CARRIZO PLAIN NATIONAL MONUMENT
PROPOSED RESOURCE MANAGEMENT PLAN
AND
FINAL ENVIRONMENTAL IMPACT STATEMENT**

Bakersfield Field Office

Volume 1

OCTOBER 2009

**United States Department of Interior
Bureau of Land Management**



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**U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**



**PROPOSED
RESOURCE MANAGEMENT PLAN
AND
FINAL ENVIRONMENTAL IMPACT STATEMENT
CARRIZO PLAIN NATIONAL MONUMENT
BAKERSFIELD, CALIFORNIA**

Prepared by the
Bakersfield Field Office

Approved

A handwritten signature in black ink that reads "James Wesley Abbott". The signature is written in a cursive, somewhat stylized font.

James Wesley Abbott
Acting State Director, California

October 2009

**U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**



**PROPOSED
RESOURCE MANAGEMENT PLAN
AND
FINAL ENVIRONMENTAL IMPACT
STATEMENT
CARRIZO PLAIN NATIONAL MONUMENT
BAKERSFIELD, CALIFORNIA**

Prepared by the
Bakersfield Field Office
September 2009

Mike Pool
State Director, California

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United States Department of the Interior



BUREAU OF LAND MANAGEMENT

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Dear Reader:

Enclosed for your review is the Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) for the Bureau of Land Management's (BLM's) Carrizo Plain National Monument (CPNM). This document was prepared by BLM in cooperation with the Monument's Managing Partners (The Nature Conservancy and California Department of Fish and Game), the Monument Advisory Committee, and members of the public who submitted comments during the scoping phase and public comment period of this planning effort. The PRMP/FEIS is open for a 30-day review and protest period beginning on the date the Environmental Protection Agency (EPA) publishes the Notice of Availability of the PRMP/FEIS in the Federal Register.

Summary of Planning Process

The purpose of this planning effort is to complete a separate, stand-alone RMP to provide overall guidance for CPNM management and land uses, which fulfills the requirements contained in the Monument Proclamation and is consistent with the *Federal Land Policy and Management Act of 1976* (FLPMA) and other laws, rules and regulations as required. This PRMP replaces the Carrizo Plain Natural Area Management Plan of 1996.

This PRMP/FEIS has been developed in accordance with the *National Environmental Policy Act of 1969* (NEPA), the Carrizo Plain National Monument Presidential Proclamation, and FLPMA. The PRMP contains a Proposed Plan Alternative that is based on the Preferred Alternative in the Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) with changes incorporated in response to public comments. All alternatives remain viable under NEPA until the Record of Decision (ROD) is signed by the BLM California State Director at the conclusion of the RMP/EIS process. This document and the Draft RMP/EIS can both be accessed at www.BLM.gov/ca/bakersfield. The main document text and summary tables of alternatives and their environmental effects identify changes made between the Draft RMP/EIS and PRMP/FEIS. Chapter 5 contains a summary of the written and verbal comments received during the public review period of the Draft RMP/EIS, and responses to the comments received.

As stated above, BLM has made a number of changes from the Draft RMP/EIS to the PRMP/FEIS in response to public comments. Only street-legal vehicles would be allowed on designated travel routes. Acreage has been added to be managed for wilderness character. Language has been added regarding management of livestock within the Monument to address public concerns and further clarify how its application would be used on a limited basis for wildlife habitat restoration. Language in the plan related to stipulations placed on oil and gas exploration and development has been clarified. A Reader's Guide is included to help you navigate through the chapters of this document, and is located directly after the Abstract.

Land Use Plan-Level vs. Implementation-Level Decisions

The PRMP/FEIS contains both land use plan-level decisions and implementation-level decisions. Plan-level decisions are marked with a “P” in Chapter 2 and can be protested based on the guidance below. Implementation-level decisions include more site-specific objectives and on-the-ground actions to implement the broader plan-level decisions (such as the specific motorized vehicle route designations). Implementation-level decisions are not subject to protest at this time under BLM planning regulations. Instead, they will be subject to appeal after the ROD is signed. Implementation-level decisions are marked with an “I” in Chapter 2.

Protest Process for Land Use Plan-Level Decisions

Release of the PRMP/FEIS initiates a 30-day protest period for proposed land use plan-level decisions. The 30-day protest period begins on the date the EPA publishes its notice of availability for the PRMP/FEIS in the Federal Register. During this protest period, any person who participated in the planning process and has an interest that may be adversely affected by approval of the land use plan-level decisions may submit a protest.

Instructions for filing a protest regarding the PRMP/FEIS are provided in 43 CFR 1610.5-2. A protest may only raise those issues that were submitted for the record during the planning process. E-mailed and faxed protests will not be accepted as valid protests, unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. In such a case, the faxed and/or emailed correspondence will be considered an advance copy of the protest. If you wish to provide BLM with such an advance notification, please direct faxed protests to the attention of the BLM protest coordinator at 202-452-5112, and e-mails to Brenda_Hudgens-Williams@blm.gov. Please direct the follow-up letter to the appropriate address provided below. The protest must contain:

1. The name, mailing address, telephone number, and interest of the person filing the protest;
2. A statement of the issue or issues being protested;
3. A statement of the part or parts of the plan or amendment being protested;
4. A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
5. A concise statement explaining why the State Director's decision is believed to be wrong.

All protests must be in writing and mailed to one of the following addresses:

Regular Mail:
Director (210)
Attention: Brenda Williams
P.O. Box 66538
Washington, D.C. 20035

Overnight Mail:
Director (210)
Attention: Brenda Williams
1620 L Street, N.W., Suite 1075
Washington, D.C. 20036

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations and businesses, and from individuals identifying

themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

The Director will promptly render a decision on the protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the Director is the final decision of the Department of the Interior.

Upon resolution of any protests, an Approved Plan and ROD will be issued. The Approved Plan will be available to all parties through the "Planning" page of the BLM national or California website (<http://www.blm.gov>) or by mail upon request. The Approved RMP and ROD will describe the process for appealing implementation-level decisions.

FOR FURTHER INFORMATION: For further information or to have your name added to the project mailing list, contact Judith Sackett at 661-391-6088, or email your request to Judith_Sackett@ca.blm.gov.

SUPPLEMENTARY INFORMATION: Copies of the PRMP/FEIS have been sent to affected federal, state, and local government agencies and to interested parties. Copies of the PRMP/FEIS are available for public inspection at the BLM Bakersfield Field Office, 3801 Pegasus Drive, Bakersfield, California 93308. Interested persons may also review the PRMP/FEIS on the Internet at www.BLM.gov/ca/bakersfield

BLM would like to thank our managing partners, The Nature Conservancy and California Department of Fish and Game, for their cooperative efforts on this document. They have provided support and expertise to facilitate focusing the issues and developing alternatives to help resolve the many compelling resource concerns. The Monument Advisory Committee has volunteered countless hours to provide invaluable input and to encourage individuals and organizations to be involved in the process. We also extend thanks to those individuals and organizations which have provided extensive information and many excellent ideas that have been considered during this process.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Z. Smith". The signature is written in a cursive style with a large initial 'T'.

Timothy Z. Smith
Field Manager
Bakersfield Field Office

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**CARRIZO PLAIN NATIONAL MONUMENT
PROPOSED RESOURCE MANAGEMENT PLAN / FINAL
ENVIRONMENTAL IMPACT STATEMENT**

[] Draft Environmental Impact Statement [X] Final Environmental Impact Statement

Department of the Interior, Bureau of Land Management

Type of Action: [X] Administrative [] Legislative

Abstract:

This Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) describes and analyzes the Preferred Alternative that constitutes the proposed action for managing the Carrizo Plain National Monument in California, along with three additional alternatives including a no action alternative. All alternatives provide management recommendations to guide the multiple use management of all resources to implement the requirements of the Monument Proclamation and other relevant laws and policies.

Protest:

Release of the PRMP/FEIS initiates a 30-day protest period for proposed land use plan-level decisions. The 30-day protest period begins on the date the Environmental Protection Agency publishes its notice of availability for the PRMP/FEIS in the Federal Register. During this protest period, any person who participated in the planning process and has an interest that may be adversely affected by approval of the land use plan-level decisions may submit a protest.

Instructions for filing a protest regarding the PRMP/FEIS are provided in 43 CFR 1610.5-2. A protest may only raise those issues that were submitted for the record during the planning process.

For further information contact:

Sue Porter, Planning Coordinator
Bureau of Land Management
Bakersfield Field Office
3801 Pegasus Drive
Bakersfield, CA 93308
(661) 391-6000
FAX (661) 391-6143

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Readers' Guide

Introduction

The Carrizo Plain National Monument Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) is divided into six chapters, and includes maps (of the planning area and the alternatives), an Executive Summary, Appendices, a Glossary, and an Acronyms List. Text additions and revisions, except for minor editorial changes, are identified by a vertical bar in the left margin, while in the summary tables of alternatives in Chapter 2, text to be deleted is shown in ~~strikeout~~, and text that has been inserted is underlined.

Executive Summary

The Executive Summary addresses the entire document and highlights the key issues brought forth in the planning process.

Chapter 1

Chapter 1 identifies the purpose and need for the plan, defines the planning area, and explains public participation in the planning process. This chapter identifies the planning criteria used as guidelines influencing all aspects of the process. These guidelines are based on the Monument Proclamation and other applicable law, regulation, and policy. Also included in this chapter is a description of the involvement of state, local, and federal governments and tribal agencies. The issues developed through public participation and the planning processes are described therein.

Chapter 2

Chapter 2 presents the details of BLM's preferred alternative (which is carried forward in the planning process as the proposed plan) and three other management alternatives including a no action alternative. All alternatives remain viable under NEPA until the Record of Decision is signed by the BLM California State Director at the conclusion of the RMP/EIS process. The PRMP/FEIS includes a detailed description of the goals, objectives, and management actions for each resource or program. The actions in this PRMP/FEIS are designed to provide general management guidance in most cases, although some specific implementing actions are included. Specific projects for a given area or resource will be detailed in future activity plans or site-specific proposals developed as part of interdisciplinary project planning or other means. These plans and processes address more precisely how a particular area or resource is to be managed and additional National Environmental Policy Act analysis and documentation would be conducted as needed.

An *Alternatives Summary Table* is included in this chapter. This table provides the reader a general summary of the key management actions for each of the four alternatives developed for the Draft RMP EIS, with revisions to the preferred alternative (proposed plan) in response to public comments on the Draft RMP EIS.

An *Impacts Summary Table* is also included at the end of Chapter 2. This table provides the reader a comparison summary of the main adverse and beneficial impacts that would result from implementing each of four alternatives that were developed for the Draft RMP EIS, with revisions to the preferred alternative (proposed plan) in response to public comments on the Draft RMP EIS.

Maps are also supplied to assist the reader in comprehending proposed management actions as described in Chapter 2.

Chapter 3

Chapter 3 (Affected Environment) provides an overview of the planning area and describes the existing situation for each of the resource programs. It describes both the biological and physical components that may be affected by the alternatives. Other components of the environment that will not be affected by the proposed actions are also described, such as hazardous materials and solid waste, wild and scenic rivers, and public safety.

Chapter 4

Chapter 4 (Environmental Consequences) analyzes the beneficial and adverse effects of the proposed plan and alternatives. Assumptions used in the analysis are specified at the beginning of each resource discussion to help guide the reader through the assessment process. At the end of the analysis of each resource, a discussion of the cumulative effects is provided.

Chapter 5

Chapter 5 summarizes key events in the consultation and coordination process prior to and during preparation of the PRMP / FEIS. It also lists those agencies, organizations, and individuals who were contacted or provided input into the planning process, and the document team members who prepared this plan. Chapter 5 includes a summary of the public comments received on the Draft RMP EIS, and presents BLM's responses to those comments.

Chapter 6

Chapter 6 lists the references cited throughout Chapters 1 through 5.

Appendices

The appendices include supplemental material referenced in the PRMP/FEIS.

EXECUTIVE SUMMARY

Introduction

The Bureau of Land Management (BLM) has prepared this Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) to provide direction for managing the Carrizo Plain National Monument (CPNM) and to analyze the environmental effects resulting from implementing the proposed plan alternative, the no action alternative, and two action alternatives.

The CPNM includes approximately 246,817 BLM-managed surface acres in California. The CPNM is located in the Coast Range of central California, approximately 90 miles west of Bakersfield and 60 miles east of San Luis Obispo. Most of the area is in the eastern portion of San Luis Obispo County but it also includes small portions of western Kern County. The planning area for the RMP includes all lands managed by BLM within the boundary of the CPNM. BLM's mission is to sustain the health, diversity, and productivity of the public lands it manages for the use and enjoyment of present and future generations.

The PRMP was prepared using BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976. A FEIS is also included in this document to meet the requirements of the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality regulations for implementing NEPA (40 Code of Federal Regulations 1500-1508), and requirements of BLM's NEPA Handbook, H-1790-1.

Purpose and Need

The CPNM was established on January 17, 2001, by President William J. Clinton, using authority under Section 2 of the Antiquities Act. The Monument Proclamation identifies the exceptional objects of scientific and historic interest that the Monument is intended to protect. The Monument Proclamation directed the Secretary of the Interior to "... prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation." The Secretary in turn instructed the Director of BLM to "... review relevant management plans for the Monument to ensure consistency with the Proclamation." Furthermore, the Secretary acknowledged that the Bakersfield BLM office had already prepared a management plan for the area, and directed that it be amended to ensure its consistency with the Proclamation.

The public has helped to develop the two previous plans that guide activities in the Carrizo Plain. The Caliente RMP was approved in May 1997 and provides general guidance on a landscape level. The Carrizo Plain also has an interagency activity plan (this is the plan identified in the Monument Proclamation). Following many years of work with The Nature Conservancy (TNC) and the California Department of Fish and Game (CDFG), this plan was signed by BLM and TNC in November 1996 and by CDFG in November 1999. In addition, in 2003, BLM completed public scoping for an RMP with an environmental assessment (EA) level of analysis, but a draft document was never issued. This current RMP was initiated as a new start to that effort, with an EIS level of analysis.

BLM has established a bureau-wide policy that all National Monuments have stand-alone RMPs because of their significance and specific management direction associated with the proclamations/legislation. The purpose of this planning effort is to complete a separate, stand-alone RMP to provide overall guidance for CPNM management and land uses.

Planning and Public Comment Process

There has been a long history of public involvement and support in the acquisition of lands and management of the CPNM before it was formally designated as a National Monument. As stated above, the Monument Proclamation recognizes this existing planning history. The initial Notice of Intent for the current planning process was published in the Federal Register on April 24, 2002. A revised Notice of Intent was published in the Federal Register on March 2, 2007, when the planning effort was changed from an EA to an EIS level of analysis.

The scoping process for an RMP / EIS identified issues and concerns from the public, other agencies, and organizations to frame the scope of the RMP and environmental analysis. A formal scoping period for the CPNM RMP was held from April 12 to June 12, 2007. Based on the scoping comments and public outreach process, the themes and priorities listed below were identified to be addressed in and to help guide the planning process.

- Undeveloped Character
- Resource Conservation and Management
- Wilderness Values
- Access and Travel Management
- Recreation Development and Facilities
- Vegetation Management and Grazing Use
- Cultural and Historic Resources
- Oil and Gas Development Impacts

The 90-day public comment period for the CPNM Draft RMP/EIS opened with publication of the notice of availability (NOA) in the Federal Register on January 23, 2009 (Volume 74, Number 14). During three public meetings and through letters and emails, BLM received 15,580 comments on the Draft RMP EIS, including 15,485 submissions of three different form letters and 95 additional comment submissions from federal and state agencies, interest groups, and members of the public. BLM reviewed the comments, prepared responses, and revised the RMP information where appropriate to develop the PRMP/FEIS. Revisions to the RMP include the following:

- Only street-legal vehicles would be allowed on designated travel routes;
- Acreage has been added to be managed for wilderness character;
- Language has been added regarding management of livestock within the Monument to address public concerns and further clarify how its application would be used on a limited basis for wildlife habitat restoration;
- Language in the plan related to stipulations placed on oil and gas exploration and development has been clarified.

Other changes include minor clarifications, corrections, and updates in acreage and/or mileages due to refined Geographic Information System (GIS) data. Text additions and revisions, except for minor editorial changes, are identified with a vertical bar in the left margin, while in the summary tables of alternatives in Chapter 2, text to be deleted is shown in ~~strikeout~~, and text that has been inserted is underlined.

Collaboration

BLM approaches planning with community-based collaboration, in which interested groups and people—often with varied or opposing interests—work together to devise solutions with broad public support for managing BLM-administered lands. Cooperating local, state, tribal, and federal agencies have been part

of the planning team for the RMP/EIS to the fullest extent possible. During plan implementation, BLM will continue partnerships with these public and local, state, and tribal governments and agencies to select high priority projects and to resolve emerging issues.

The Council on Environmental Quality defines a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any federal, state, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency. CDFG is a formal cooperating agency for this RMP/EIS.

BLM's managing partners for the CPNM are CDFG and TNC. The Secretary of the Interior recognized that the managing partnership was key to the successful acquisition and restoration of much of the land that now encompasses the Monument. After the President signed the Monument Proclamation, the Secretary provided direction that BLM continue working with the managing partners in administering the area and update the Memorandum of Understanding guiding this collaborative relationship. The partners will continue to collaborate on management and planning for the Monument. Final decisions regarding management actions on each of the partner's lands still rest with the respective agency / organization.

The Secretary of the Interior directed BLM to establish a formal advisory committee, whose purpose is to advise BLM on management of the Monument. The Monument Advisory Committee has been an integral part of the RMP process, serving as a conduit for additional public input and advising BLM during preparation of the document.

BLM has also collaborated with Native American groups with regional cultural ties to the land in the Monument, and has consulted with the U.S. Fish and Wildlife Service and the State Historic Preservation Office.

Management Alternatives

BLM developed management alternatives for the CPNM RMP/EIS using input and comments from public scoping meetings, written comments, as well as from staffs of BLM and other collaborating and consulting partners. NEPA regulations and BLM resource management planning regulations require the formulation of a reasonable range of alternatives that seek to address identified planning issues and management concerns. Each alternative must be evaluated to ensure that it would be consistent with resource goals and objectives, and current laws, regulations, and policy.

Alternatives are developed to establish a framework to evaluate the potential impacts on the planning area that might occur as a result of implemented management decisions. The four management alternatives developed for the CPNM RMP are summarized as follows:

No Action Alternative (required by NEPA): Retains current management through guidance and direction from current policies and existing management plans.

Alternative 1 represents a more "hands off" approach to resource management, and provides for more limited public uses of the Monument. For example, natural processes would be allowed to take their course with minimal interventions to stabilize fluctuations of wildlife and vegetation, except in instances where the populations are in jeopardy. No grazing would be authorized. The largest acreage would be allocated to the "primitive" recreation zone and managed for wilderness character. A smaller road network would be open for public vehicle use. Access to rock art sites would not be permitted, and minimal interventions would be taken to stabilize or restore historic and prehistoric sites from natural decay.

Alternative 2 (Proposed Plan Alternative) represents an approach that incorporates elements of the other alternatives as well as some unique elements to provide for protection of the Monument’s resources while allowing for compatible public uses. For example, this alternative identifies moderate acreage for wilderness character management and a mix of active biological restoration and hands-off approaches in different areas of the Monument. Recreation use and rustic improvements would be focused along the Soda Lake Road corridor, with the remainder of the area providing for dispersed opportunities. This alternative provides for a transition to grazing for vegetation management only. Access to Painted Rock would be allowed by permit and guided tour, and priority historic sites would be stabilized or restored.

Alternative 3 represents the most active approach to management and provides for a broader array and higher levels of public use and access while still retaining the overall rustic, undeveloped character of the Monument. For example, the managers would implement more intensive resource management and restoration actions for lands that have been impacted by past use. Only the existing Caliente Mountain Wilderness Study Area (WSA) would be managed for wilderness characteristics. Cultural sites would be actively restored, and a higher emphasis would be placed on environmental education programs and facilities linked to significant cultural and natural resources. Grazing would continue to be managed for forage production while meeting the Monument’s biological and cultural resource objectives.

The proposed plan alternative would enhance the ability of BLM to achieve the purpose and need of this document, as outlined in Chapter 1, as well as meet goals and objectives for specific resources, as outlined in Chapter 2. Alternative 2, the proposed plan alternative, provides the most effective balance of protection and restoration while allowing for a variety of compatible public use. Alternative 2 was developed based on planning criteria, the Monument Proclamation, and scoping comments to maximize these goals and minimize impacts to resources.

Each alternative has a somewhat different concept and emphasis on how natural resources and resource uses would be managed. Chapter 2 of this RMP /EIS describes in detail the management actions that are proposed to achieve the objectives of the each alternative. For the three action alternatives, all objectives and management actions support the goals listed in the following table.

RMP Goals for Action Alternatives
<p><i>Biological Resources</i></p> <ul style="list-style-type: none"> • Manage the landscape to enhance the CPNM as a significant unique and undeveloped portion of the once vast San Joaquin Valley ecosystem (which is of crucial importance and provides the context for management). • Restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem, including ecological processes that sustain them. Manage resources to emphasize an increase of native and indigenous species. • Manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, rare natural communities, and conservation of the regional landscape. • Identify core geographic areas for endangered species population management and recovery. Within these core areas, endangered species habitat will be a primary management priority relative to other resources and uses.
<p><i>Fire and Fuels Management</i></p> <ul style="list-style-type: none"> • Ensure that protection of human life is the single, overriding priority in all fire management activities. • Manage fuels and wildfire suppression actions to avoid resource damage from catastrophic fire. • Restore natural role of fire in the ecosystem.

RMP Goals for Action Alternatives

Air Quality

- Manage uses to maintain and improve air quality to meet federal and state ambient air quality standards.

Soils

- Achieve desired outcomes for soil resources, such as meeting or exceeding rangeland health standards for Central California.
- Conserve sensitive soils such as the clay dunes and those supporting biological crusts.

Water Resources

- Maintain and enhance surface and groundwater quality throughout the Monument.
- Protect Soda Lake and other water resources (such as springs).
- Maintain hydrologic processes and function of Soda Lake and other Monument watersheds.
- Protect a quantity of water sufficient to fulfill the purposes for which the Monument was established.
- Maintain groundwater quantity and quality throughout the portion of the Carrizo Plain Groundwater Basin located within the National Monument.

Wild and Scenic Rivers

- Meet the requirements of the Wild and Scenic Rivers Act to study stream segments for potential inclusion in the Wild and Scenic Rivers system.

Geology and Paleontology

- Identify, protect, and preserve paleontological values and unique geologic features and examples of geologic processes pursuant to the Monument Proclamation.
- Enhance scientific, educational, and recreational opportunities pertinent to paleontological and geological resources.

Cultural Resources

- Identify, protect, and preserve significant prehistoric and historic resources.
- Provide opportunities for Native American traditional cultural practice and access.
- Enhance opportunities for research, public education, and awareness of the fragile nature of heritage resources.

Visual Resources

- Protect and restore the unique scenic quality of the CPNM landscape.

Wilderness Study Areas and Other Lands with Wilderness Characteristics

- Manage the Caliente Mountain WSA and areas with wilderness character (vary by alternative) to preserve wilderness qualities.

Areas of Critical Environmental Concern

- The Carrizo ACEC designation would be dropped for all lands within the National Monument boundary.

RMP Goals for Action Alternatives

Livestock Grazing

- Manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes livestock forage, or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation.

Recreation and Interpretation

- Provide recreation opportunities and interpretive programs that enhance the public's appreciation of the objects of the Monument Proclamation and other Monument resource values that are not explicitly identified in the Proclamation.
- Manage Monument lands to provide quality recreation while protecting natural and cultural resources, promoting safety, and minimizing conflicts between users and wildlife.
- Identify specific management zones that will each offer distinct types of recreation settings and opportunities to Monument visitors.

Administrative Facilities

- Provide facilities that are consistent with the mission of the Monument and support the management goals identified in this RMP.

Travel Management

- Identify and manage an effective travel network that supports management activities and appropriate public uses while protecting the objects of the Monument Proclamation.

Minerals

- Manage the exploration and development of oil and gas on existing federal leases in a manner that protects the objects of the Monument Proclamation.
- Work with state, county, and local agencies to ensure that the mission and purpose of the CPNM are furthered and only reasonable uses of public lands are made to access and develop private mineral estate.
- Manage the development of mineral material borrow sites on federal mineral estate for emergency and / or administrative use in a manner compatible with the mission of the CPNM.

Lands and Realty

- Land tenure adjustments such as acquisition within the Monument would be managed to further the overall purposes of the Monument Proclamation, which are protection of the natural features present, including endangered, threatened, and rare animal and plant species; the San Andreas fault zone; Soda Lake; fossil resources; and cultural resources.
- All realty actions such as rights-of-way, land use permits, and others within the Monument would be managed in keeping with the overall purposes of the Monument Proclamation.
- Eliminate unauthorized use of public lands.

Research Management

- Conduct research within the Monument to improve understanding, management, and protection of Monument resources and to further scientific knowledge of those resources.

Environmental Consequences

The potential environmental consequences (or impacts) of the four alternatives were analyzed for each natural resource, resource use, and social and economic conditions in the PRMP/FEIS. Detailed descriptions of the direct and indirect impacts of resource management under the alternatives are provided in Chapter 4, along with a discussion of the possible cumulative impacts that could result from actions taken in this PRMP/FEIS. A comparative summary of these impacts (for all alternatives) is provided in the Impacts Summary Table in Chapter 2.

Alternative 2, the proposed plan alternative, would result in overall negligible to minor adverse impacts to resources and, through the use of standard operating procedures, stipulations in contracts, and best management practices, would further mitigate these impacts. Management actions under the proposed plan alternative would result in beneficial impacts to the following resources and management issues:

- 1) Biological Resources - moderate benefits on habitat structure from prescribed fire and livestock grazing as a vegetation management tool by expanding the amount of suitable habitat, and enlarging the effective size of the core areas when such management might be critical to maintaining viable populations on the Monument. Although restoration activities to reintroduce native plants would have minimal impact, there would be a benefit from long-term improvement in native plant species composition.
- 2) Air and Soil Quality - the proposed plan alternative would reduce fugitive dust and particulate matter emissions on and off roads throughout the Monument and takes an aggressive approach to help soils achieve proper functioning condition while educating users about soil resources and sensitivity.
- 3) Cultural Resources - would be protected and preserved while allowing for group and individual visitor access. Emphasis would be placed on preserving historic ranching and farming buildings and structures in the Monument.
- 4) Visual Resources, Wilderness, and Recreation - minor to moderate beneficial impacts from restoring campgrounds, removing or upgrading dilapidated fences, restoring wilderness qualities on approximately 44,000 acres, and closing approximately 42 miles of roads with rehabilitation or natural revegetation of these routes.
- 5) Social and Economic Conditions - the proposed plan alternative would provide the most support for preserving non-market values.

The proposed plan alternative, Alternative 2, best meets the direction provided by the Monument Proclamation and other management guidance for the area while responding to public concerns identified during the scoping and public comment period for the Draft RMP/EIS.

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Appendices

** Appendices L and V were removed from the PRMP/FEIS. However, the letter designations used in the Draft RMP/EIS for other appendices were retained for continuity; there are no Appendices L and V in this PRMP/FEIS.*

- A. Carrizo Plain National Monument Presidential Proclamation
- B. Secretary and BLM Direction for Monument Management
- C. Conservation Target Table
- D. Research Authorization Process and Example Permit Form
- E. Central California Standards for Rangeland Health and Guidelines for Grazing Management
- F. Wild and Scenic River Eligibility Analysis
- G. Cultural Resource Use Allocations
- H. Management of Lands with Wilderness Characteristics
- I. Supplementary Rules for Public Use
- J. BLM Road Maintenance Classifications
- K. Monument Wildlife List
- *L. Appendix L has been removed from the PRMP/FEIS*
- M. Existing Pasture Matrix, No Action
- N. Actual Grazing Use for Vegetation Management Since 1989
- O. Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment
- P. Minerals Standard Operating Procedures / Best Management Practices / Implementation Guidelines and Conditions of Approval
- Q. Grazing Implementation Table Alternative 1
- R. Grazing Implementation Table
- S. Grazing Implementation Table Alternative 3
- T. Grazing Implementation Table No Action Alternative
- U. Specific Livestock Management Guidelines
- *V. Appendix V has been removed from the PRMP/FEIS*
- W. Carrizo Plain National Monument Vascular Plant List
- X. Visitation Adaptive Management Strategy and Painted Rock Adverse Impacts Time-Line & Permit
- Y. Bureau of Land Management Spill Reporting and Cleanup Guidelines
- Z. Cooperative Management Agreement for the Carrizo Plain National Monument

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Chapter 1. Purpose and Need

1.1 Introduction

The Carrizo Plain National Monument (CPNM) was established by Presidential Executive Order on January 17, 2001. The Monument Proclamation (see Appendix A) followed years of land acquisition, planning, and a natural resource restoration effort led by the area’s managing partners: the Bureau of Land Management (BLM), The Nature Conservancy (TNC), and the California Department of Fish and Game (CDFG). Prior to its establishment as a National Monument, the area was managed under the Carrizo Plain Natural Area Management Plan of 1996. Under National Monument status, the Monument Proclamation calls for development of a new management plan.

BLM has prepared this Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) to provide a range of management approaches that could be implemented in the CPNM, and to analyze the environmental effects resulting from implementing these alternatives. This chapter provides background on the planning area and process, purpose of the effort, management policies, public concerns that were considered in the development of this plan, mission and vision, and other background information.

The CPNM was established on January 17, 2001, by President William J. Clinton, using authority under Section 2 of the *Antiquities Act* (Appendix A). This Presidential Proclamation provides the primary direction for management of the area and development of this RMP. Under the Proclamation, BLM is directed to protect the objects for which the Monument was designated.

Summary of Proclamation Objects and Management Direction

Biological Objects	
Flora and fauna characteristic of the San Joaquin Valley region	The migratory birds, cranes, curlews, and mountain plovers that use Soda Lake
Habitat for the long-term conservation of the many endemic plant and animal species that inhabit the area	Populations of pronghorn antelope and tule elk
Endangered, threatened, and rare animal species such as San Joaquin kit fox, California condor, blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelopes squirrel, longhorn fairy shrimp, and vernal pool fairy shrimp	San Joaquin grassland ecosystem flora, including rare and sensitive plant species such as California jewelflower, Hoover’s woolly- star, San Joaquin woolly-threads, pale-yellow layia, forked fiddleneck, Carrizo peppergrass, Lost Hills saltbush, Temblor buckwheat, recurved larkspur, and Munz’s tidy-tips
Geological and Paleontological Objects	
Soda Lake, which encompasses the largest remaining natural alkali wetland in southern California	The Caliente Formation, which is host to abundant and diverse terrestrial fossil mammal remains and fossils of mollusks pectens, turitellas, and oysters
The San Andreas Fault and its spectacular exposures of fault-generated land forms	
Human History Objects	
Bedrock mortar milling features, village middens, and elaborate world-class pictographs that are the primary manifestations of prehistoric occupation	Features from European expeditions and settlement, including artifacts and structures from livestock ranching, farming, and mining activities

In addition to protecting the objects listed above, the Proclamation directs that:

- Ø All federal lands and interests in lands within the boundaries of the Monument are withdrawn from all forms of disposition under the public land laws, including the mining laws, other than by exchange that furthers the protective purposes of the Monument;

Chapter 1: PURPOSE AND NEED

- Ø All motorized and mechanized vehicle use off road is prohibited, except for emergency or authorized administrative purposes;
- Ø Lands and interests in lands within the proposed Monument not owned by the United States shall be reserved as a part of the Monument upon acquisition of title thereto by the United States;
- Ø A management plan shall be prepared that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this Proclamation;
- Ø The establishment of this Monument is subject to valid existing rights;
- Ø The Proclamation does not change the jurisdiction of the State of California with respect to fish and wildlife management;
- Ø Subject to valid existing rights, a quantity of water is reserved sufficient to fulfill the purposes for which this Monument is established
- Ø Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases shall continue to apply with regard to the lands in the Monument.

The *Federal Land Policy and Management Act* (FLPMA) supports the Proclamation and provides a framework for the BLM's land use planning process. Land use plans for public lands managed by BLM are referred to as RMPs. RMP decisions establish goals and objectives for resource management as desired outcomes, and the measures needed to achieve these goals and objectives as management actions and allowable uses.

1.2 Purpose and Need for CPNM RMP

The purpose of this planning effort is to complete an RMP to provide direction for CPNM management and land use, which protects the objects of the Monument Proclamation, meets other requirements of the Proclamation (as described above in the introduction section of this chapter) and is consistent with FPLMA and other applicable laws, rules and regulations.

The need for the CPNM RMP is identified in the Monument Proclamation, which directs the Secretary of the Interior to "... prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this Proclamation." The Secretary in turn instructed the Director of BLM to "... review relevant management plans for the Monument to ensure consistency with the Proclamation." Furthermore, the Secretary acknowledged that the Bakersfield BLM office had already prepared a management plan for the area: "The management plan for the Carrizo Plain has been developed over the last three years and sets in place many important management goals. That plan should be amended to ensure its consistency with the Proclamation." Following the direction contained in the Monument Proclamation and additional guidance from the Secretary (see Appendix B), BLM initiated an amendment process for the existing plan in 2003. However, it was later determined that an EIS-level RMP should be completed to direct management of the Monument. Completion of this comprehensive EIS-level RMP is the purpose of this existing action.

The Caliente RMP (BLM 1997) was approved in May 1997 and currently provides general guidance on a landscape level for management of the CPNM. The current CPNM RMP, once completed, will replace this plan. The decisions to be made in this RMP include establishing objectives and associated management actions to protect the Monument objects and to provide direction for other aspects of Monument management, including determining allowable public uses.

1.3 Planning Area

The CPNM is located in the Coast Range of central California, approximately 90 miles west of Bakersfield and 60 miles east of San Luis Obispo. Most of the area is in the eastern portion of San Luis Obispo County but it also includes small portions of western Kern County (see Map 1-1, Vicinity Map). The planning area for the RMP includes all lands managed by BLM within the National Monument boundary. The decision area includes only BLM-administered lands and federal subsurface mineral estate; additional lands and interests purchased by BLM would also be managed under the guidance of this plan upon acquisition. The RMP does not apply to private or state/county lands or interests within the Monument (see Map 1-2, Physical Features and Planning Area Boundary). While the RMP will direct management of BLM-administered lands and federal subsurface mineral estate only, it has been developed in cooperation with CDFG and TNC as managing partners. BLM and the partners have agreed through a Memorandum of Understanding to manage their respective lands within the Monument boundary in a complementary fashion.

The planning area includes the following acreages of surface ownership:

BLM lands:	206,635 acres
CDFG lands:	8,702 acres
Other state lands:	607 acres
TNC lands:	75 acres
Private lands:	<u>30,798 acres</u>
Total planning area:	246,817 acres

The following acreages of mineral estate ownership are contained within the planning area:

Federal government minerals:	115,418 acres
Other/private mineral ownership:	131,434 acres

BLM planning guidance promotes making land use plan decisions at different geographic scales to ensure that issues are addressed in their entirety and to encourage public involvement. Similarly, environmental analysis must consider all reasonably foreseeable effects. For example, several communities outside the planning area boundary are directly linked to the area regarding tourism and recreation issues. The RMP includes goals for working with these surrounding communities. The planning effort recognizes that nearby lands, communities, resource values, and uses are all affected by management of the CPNM, and their use/values in turn affect management of the Monument. The plan includes recommendations for BLM to work with entities that manage areas or programs that are not under BLM's jurisdiction but directly affect Monument management (such as county roads, tourism information programs, and hunting). However, final decisions regarding these actions rest with the appropriate agency or community government.

1.4 Planning Themes and Issues

Planning themes or issues are defined as matters of concern or interest regarding resource management activities, the environment, or land uses that together serve to provide a framework for the alternatives considered and topics addressed in the RMP. The themes listed below were identified during scoping at the beginning of this planning process. Additional details about the public and agency involvement process are presented in Chapter 5 of this document. Based on the scoping comments and public outreach process, the themes and priorities described below were identified to be addressed in and to help guide the planning process.

1.4.1 Undeveloped Character

Comments showed a strong consensus opinion that people value the undeveloped, open character of the CPNM landscape and wish to see it maintained. The qualities that contribute to this undeveloped character include perceptions that the area is wild, relatively remote, expansive, and not crowded. Many indicated that protecting this character is central to their concerns about the area.

1.4.2 Resource Conservation and Management

Ecosystem protection and restoration is a top concern of the public. People stressed the importance of maintaining and restoring native habitats on the CPNM, particularly as an exemplar of mostly-lost San Joaquin Valley species and ecosystems. Controlling exotic species and avoiding habitat fragmentation both represent important aspects of the public's ecosystem concerns.

1.4.3 Wilderness Values

A specific approach to landscape protection that was raised as a priority is managing areas with wilderness characteristics to maintain those qualities as it would help to reduce habitat fragmentation, protect a wide range of natural and cultural resources, and allow for greater ecological resilience to habitat degradation across both space and time.

1.4.4 Access and Travel Management

Scoping revealed some disagreement about how best to maintain the road system within the CPNM. Some desire the existing network to be maintained or improved, to allow year-round all-weather access, and perhaps to improve road safety. Opposing this sentiment were comments calling for stricter controls on access, particularly with concern for off-road vehicle uses. People mentioned closing and restoring redundant or unnecessary roads, and preferred leaving some of the existing roads unpaved to help maintain the CPNM's undeveloped character.

1.4.5 Recreation Development and Facilities

There was also a range of opinions concerning the appropriate degree of development for CPNM recreation facilities and sites. Some people want to see campgrounds and other recreation sites within the CPNM remain few in number and relatively primitive in nature; others preferred improved facilities, either for greater comfort (shade structures were particularly mentioned as being needed) and/or to encourage visitors to stay overnight and experience a more personal connection with the landscape. Increasing visitation levels caused concern with quite a few commenters, urging proactive management or strategies to avoid the area being "loved to death."

1.4.6 Vegetation Management and Grazing Use

The grazing program within the CPNM is an area of management where there is significant public disagreement. Some commenters support continued grazing on the Monument, as a means for controlling invasive species and continuing a historic use of the landscape. Others expressed a desire for grazing to be considered subordinate to natural resources protection, and only used as a management tool if it could be shown to actively benefit native species (rather than harming or simply being neutral for native species), and to use permit authorizations that allow greater responsiveness to changing range conditions from year to year. A third group of people preferred to see livestock grazing eliminated or phased out entirely from the CPNM.

1.4.7 Cultural and Historic Resources

Commenters called attention to the long and rich human history in the CPNM, as evidenced by a wide range of cultural and historic resources. Many commenters want to see archaeological resources preserved, as well as restoration of ranch complexes with historic value. In addition, the public noted the sacredness of the CPNM area to the Chumash tribe and other Native American groups, and suggested that BLM work closely with native peoples to make management decisions. Of particular interest is the Painted Rock site. There is concern about providing a balance between allowing the public to view this important rock art site, while still providing adequate protection to sensitive archaeological resources.

1.4.8 Oil and Gas Development Impacts

There was considerable public concern about the impacts of oil and gas development and its negative impacts on the Monument, such as loss of species habitat and degraded visual quality. Oil company interest was also expressed in pursuing oil and gas development in the CPNM, hoping to utilize technological advances to improve economic viability and keep environmental impacts to a minimum.

1.5 Issues Considered but Not Further Analyzed and Concerns that are Outside the Scope of the Current Planning Process

Several topics identified during the scoping process or by the planning team that are not addressed in the RMP/EIS are identified below. These issues are either beyond the scope of the planning effort, are not necessary to make a reasoned choice between alternatives and their relationship to the purpose and need for the RMP/EIS, or can be addressed through existing policy or other non-planning means. The rationale for not addressing these items is noted.

1.5.1 Use of Lead Bullets

Public concern was expressed during the scoping process regarding the effects of lead bullet use on condors and other species from lead poisoning after inadvertently eating the lead. Commenters requested that BLM ban the use of lead shot in the Monument. The Governor of California signed Assembly Bill 821 on October 13, 2007 (after the scoping period ended), which bans lead ammunition use in condor habitat, including the Carrizo Plain. Therefore this concern has been addressed through state action and will not require further analysis.

1.5.2 Ban Oil and Gas Development/Acquire Private Mineral Rights

Many scoping comments requested that BLM bar any oil and gas leasing or drilling out of concern for possible environmental damage. The Monument Proclamation withdraws the Monument from future leasing. However, existing leases are considered to be valid existing rights and must be managed under the terms and conditions of those leases. Also, much of the Monument is underlain by private mineral estate. BLM can place protective stipulations on use of public lands to access these private mineral rights, but does not have the authority to prohibit access. See Section 2.19, Minerals, in Chapter 2 for a complete description of oil and gas management of existing leases and BLM surface/private minerals.

Commenters also recommended that BLM buy out private mineral estate in the CPNM or trade areas outside of the Monument for these rights. The RMP is written to allow for exchange/acquisition of both surface and subsurface estate to further the purposes of the Monument Proclamation. However, detailed acquisition proposals/strategies are outside of the scope of this plan.

1.5.3 Issues Relating to the Community of California Valley

Several members of the public expressed concern that the boundary between BLM land and private land is an artificial one as far as natural resources and impacts are concerned. They recommended that BLM and other agencies should pursue management actions beyond the CPNM boundary to protect natural resource values within the Monument from pollution, wildlife impacts, and other adverse effects. As stated in Section 1.4, BLM's management authority only encompasses public lands administered by the agency. However, BLM will work with adjoining landowners, agencies, and county and community governments to pursue complementary management and protection strategies. Also, this EIS includes an assessment of reasonably foreseeable off-site uses and their potential impacts on Monument resources. This includes impacts from the growth of California's Central Valley, potential development of solar plants, and other uses adjoining the Monument.

1.5.4 Grazing Lease Renewals

Concerns have been raised that the grazing lease renewals should not be completed for lands within the Monument until the RMP is completed. Otherwise the new leases may not reflect the management direction of the new plan. BLM has been directed by Congress to complete grazing lease renewals for all public lands by October 2009. The Draft CPNM RMP/EIS was released for public comment in the spring of calendar year 2009. However, the final RMP and Record of Decision will not be completed until after the October deadline and BLM does not have the discretion to delay the congressionally imposed deadline for grazing lease renewal. All grazing leases must meet the objectives of the RMP guiding management of an area. Therefore, if necessary, grazing leases within the CPNM would be amended upon completion of the RMP so that they conform to the new plan's goals and objectives. Analysis of grazing lease renewals is not necessary to make a reasoned choice between alternatives for this plan since they can be amended or cancelled to reflect RMP direction once the Record of Decision is signed.

1.5.5 Adequacy of Budget to Implement RMP

Members of the public have expressed concern that BLM may not be able to implement the objectives and actions within the RMP due to budget constraints, and have questioned how the plan will take budget issues into account. The RMP alternatives are developed based on an optimal but reasonable assessment of the level of management that needs to be provided to protect the objects of the Proclamation while allowing for compatible uses. However, the RMP is not a budget document, and alternative development is not based on specific funding projections. As stated in Section 1.7 Planning Process, below, a strategy will be developed upon RMP completion that outlines priorities and opportunities for implementing plan actions. The level and speed of implementation will be based on numerous factors including the availability of both BLM and partnership funding, and specific policy and regulatory direction that guides budget priorities (for example, threatened and endangered species protection).

1.5.6 Planning for Lands Adjoining the Monument and Expansion of Monument Boundaries

Enlarging or reducing the Monument boundary can only be accomplished by a Congressional act or Presidential Proclamation and not through the RMP process. Therefore, boundary changes are not within the scope of this planning effort. This RMP only addresses BLM-managed lands within the Monument boundary. The BLM policy to develop stand-alone RMPs for specially designated areas such as the CPNM allows these plans to specifically address the special protective requirements of the designation. BLM lands adjoining the Monument will be addressed in the Bakersfield RMP revision that is currently underway. The Bakersfield RMP will consider opportunities to manage adjoining lands in a manner that complements the goals of the CPNM.

1.5.7 Air to Ground Gunnery Range

Fifteen sections of BLM and private land (approximately 9,600 acres) in the northern part of the Monument were withdrawn during World War II for use as the Soda Lake Air to Ground Gunnery Range from 1943 to 1947. The withdrawn lands were transferred back to BLM by the military. BLM has since acquired the associated private lands so that the entire range is now on public lands. The range included 3 targets in the 15 sections and, as with all former ranges, there is a potential for unexploded ordnance or chemical contamination.

The U.S. Army Corps of Engineers conducted two on-site surveys of the range, first in 1996 to look for ordnance, and again in September 2007 to sample for chemical contamination. To date, no unexploded ordnance has been found. The Final Site Inspection Report Former Soda Lake Air-To-Ground Gunnery Range, San Luis, Obispo, California (FUDS project No. J09CA063201) chemical analysis showed soil and percolates contamination. Since these contaminants were found on federal lands, they are handled under the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), and the Department of the Army is the responsible party.

The chemical analysis reported contaminants exceeding screening criteria as detailed by the Department of the Army's report. None of these chemical concentrations are immediately hazardous to the public. If hazards are identified, appropriate actions would immediately be taken based on BLM and military policy. These could include, but are not limited to, closure of the hazard area, public information program dissemination, removal of the hazard, or other response. Analysis of these actions would take place if hazards are identified and is not necessary to make a reasoned choice between alternatives for this RMP.

The next step triggered in the clean-up process is the Army's completion of a remedial investigation/feasibility study, since the report shows an absence of any observed munitions or explosives of concern. Because of the relatively low sensitivity of the ammunitions site, a removal action is not warranted at this time. This separate, ongoing process to make the area safe for the public is governed by CERCLA and is outside the scope of the RMP.

1.6 Planning Criteria

Planning criteria identify the legal, policy, and regulatory constraints that direct or provide parameters for BLM to address planning issues and themes. They also help guide the development of alternatives and the selection of the proposed plan alternative. Planning criteria are based on standards prescribed by applicable laws and regulations; agency guidance; analysis of information pertinent to the planning area; the result of coordination with the public, government agencies, and Native American tribes; and professional judgment. The initial CPNM RMP planning criteria were presented at the scoping meetings for public input, and were also reviewed and revised based on input at subsequent Monument Advisory Committee (MAC) meetings.

- The plan decisions will recognize the CPNM's primary importance as habitat for threatened and endangered species, rare natural communities, species recovery, and regional conservation.
- The plan will recognize the uniqueness of the CPNM as a significant undeveloped portion of the once vast San Joaquin Valley ecosystem as identified in the Proclamation, which is of crucial importance and provides the context for management.
- The plan will identify core geographic areas for endangered species population management and recovery. Within these core areas, endangered species habitat will be a management priority relative to other resources and uses.

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- The plan will recognize the importance of restoring and maintaining a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem. Plan decisions will emphasize an increase of native and indigenous species.
- The planning process will involve Native American tribal governments and federally unrecognized Indian groups, councils, and families representative of the cultural region to provide strategies for protecting known traditional uses, cultural sites, and sacred places.
- Public uses will foster an appreciation of and be consistent with the requirements of the Monument Proclamation to protect the objects of geological, archaeological, historical, and biological value within the Monument.
- BLM will continue to work cooperatively with CPNM managing partners (CDFG and TNC), the MAC, the Native American Advisory Committee, state agencies of the State of California, San Luis Obispo and Kern Counties, the U.S. Fish and Wildlife Service (USFWS), and other interested groups, agencies, and individuals. Public participation will be encouraged throughout the process.
- The RMP will continue to promote an already strong program of scientific research and resource monitoring on the Monument.
- The RMP will recognize the state's responsibility to manage hunting within the Monument.
- The RMP will recognize valid and existing rights within the Monument. However, these rights will be reasonably regulated to protect the objects of the Monument Proclamation.

1.7 Planning Process

BLM uses an ongoing planning process to ensure that land use plans and implementation decisions remain consistent with applicable laws, regulations, orders, and policies. This process involves public participation, assessment, decision-making, implementation, plan monitoring, and evaluation, as well as adjustment through maintenance, amendment, and revision. This process allows for continuous adjustments to respond to new issues and changed circumstances.

BLM makes decisions using the best information available. These decisions may be modified as BLM acquires new information and knowledge of new circumstances relevant to land and resource values, uses, and environmental concerns. Modifying land use plans through maintenance and amendment on a regular basis should reduce the need for major revisions of land use plans.

Development of the CPNM RMP constitutes a major federal action and is therefore subject to the *National Environmental Policy Act* (NEPA) of 1969 and FLPMA. NEPA requires federal agencies to consider and disclose environmental consequences of actions, and to consider alternatives, so as to protect and enhance the environment through well-informed federal decisions. The President's Council on Environmental Quality (CEQ) issued regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), including provisions on the content and procedural aspects of the required environmental analysis. The most comprehensive level of analysis is the EIS, which is the level being applied to the CPNM RMP. Development of the alternatives considered in this RMP, and assessment of their effects, is required by NEPA. This document is a joint RMP/EIS and fulfills NEPA requirements, CEQ regulations for implementing NEPA, and the requirements of BLM's NEPA Handbook, H-1790-1.

Within the Carrizo Plain, there was a long history of ongoing public involvement and support in the acquisition of lands and management of the area before it was formally designated as a National Monument. As stated above, the Monument Proclamation recognizes this existing planning history. The

initial Notice of Intent for the current planning process was published in the Federal Register on April 24, 2002. A revised Notice of Intent was published in the Federal Register on March 2, 2007, when the planning effort was changed from an EA to an EIS level of analysis. The joint CPNM RMP development and EIS process involves the following steps:

- **Scoping** – The scoping process is intended to identify issues and concerns from the public, other agencies, and organizations to frame the scope of the RMP and environmental analysis. A formal scoping period for the CPNM RMP was held from April 12 to June 12, 2007. The results of this process are contained in the scoping report, which is available on the web at http://www.blm.gov/ca/st/en/fo/bakersfield/Programs/planning/cpnm_rmp.html
- **Draft RMP/EIS development** – This document is the product of an interdisciplinary team effort to develop and analyze an array of potential alternatives for management of the CPNM that address the issues identified in scoping, the direction in the Monument Proclamation, and other laws and policies. The EIS also includes an analysis and comparison of impacts associated with implementing each of the various management alternatives. This process included several opportunities (in addition to the scoping period) for public input through the MAC. After each of these meetings, BLM incorporated recommendations from the MAC into the RMP. Similarly, the Native American Advisory Council was briefed and input was incorporated into the draft. More detail on these two advisory groups is provided in Section 1.8, Collaboration, below.
- **Public comment on the Draft RMP/EIS** – The 90-day public comment period on the Draft RMP/EIS gives the public an opportunity to review the Draft RMP/EIS and provide input on the alternatives and associated environmental analysis. The comment process is described in more detail in the letter from the Bakersfield Field Manager at the beginning of this document.
- **Development of PRMP/FEIS** – The interdisciplinary planning team reviews public, agency, and organization comments on the Draft RMP/EIS and incorporates changes into the PRMP/FEIS. This document also includes a response to public comments, identifying how they were addressed in the analysis and whether they resulted in any changes to the document.
- **Publish PRMP/FEIS** – The PRMP/FEIS is published with a 30-day public protest period. The protest procedures in 43 CFR 1610.5-2 provide the public an administrative remedy for the State Director’s proposed RMP land use plan-level decisions. The BLM Director determines through this process whether the State Director followed established procedure, considered relevant information in reaching these proposed plan-level decisions (identified with a “P” under the proposed plan alternative), and whether the proposed decisions are consistent with BLM policy, regulation, and statute. The PRMP also goes through a Governor’s consistency determination to help ensure that it is consistent with relevant state plans and policies.
- **Publish approved RMP and Record of Decision** – This is the final step of the RMP process. If changes were made to the plan as a result of any protests, they are incorporated into the Record of Decision that is signed by the California State Director. Plan implementation can then begin. Where the plan includes implementation-level decisions (identified with an “I” in the proposed plan alternative), the Record of Decision describes administrative remedies for appealing those decisions.

Land management is, by nature, a dynamic, cyclic, and adaptive process. This is particularly true for habitat management, especially for threatened and endangered species, of which the Monument is host to one of the largest concentrations on public lands in the United States. The managing partners recognize that this plan must be able to adapt to changing circumstances such as new research findings, new laws,

changing environmental factors, and increasing public demand. For this reason, many of the proposed management actions in this plan have adaptive management components built into them. The adaptive management process is discussed in more detail in Chapter 2.

BLM policy requires the preparation of an RMP implementation strategy once the final plan is approved. This strategy establishes timeframes, priorities, and budget needs to successfully implement the plan. The strategy focuses on a 3- to 5-year horizon and is updated as needed. BLM encourages public, agency, and other partner involvement in the development of these strategies.

During implementation of the RMP, additional documentation may be required to comply with NEPA, such as EAs for site-specific actions. All such documents would be prepared with the appropriate level of public input. RMP decision implementation is monitored to ensure successful results and to incorporate adaptive management components. Amendments or revisions to the RMP would be completed as needed to accommodate changes in resource or user needs, policies, or regulations.

1.8 Collaboration

1.8.1 Cooperating Agencies

A cooperating agency assists the lead federal agency in developing an EA or EIS. The CEQ regulations implementing NEPA define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any federal, state, or local government jurisdiction or tribal government with such qualifications may become a cooperating agency by agreement with the lead agency. BLM approached the USFWS regarding cooperating agency status. While the USFWS has been involved in the development of the RMP/EIS, the agency has chosen not to become a formal cooperating agency. The CDFG, a managing partner of the CPNM, has established cooperating agency status.

Kern County and San Luis Obispo County, the two counties within which the CPNM lies, have not established cooperating agency status, but have members representing them on the MAC. Also, the State Historic Preservation Office was notified of the planning process and formal consultation is ongoing.

1.8.2 Managing Partners

BLM's managing partners for the CPNM are CDFG and TNC. The Secretary of the Interior recognized that the managing partnership was key to the successful acquisition and restoration of much of the land that now encompasses the Monument. After the President signed the Monument Proclamation, the Secretary provided direction that BLM continue working with the managing partners in administering the area and update the Memorandum of Understanding guiding this collaborative relationship (see Appendix B, Secretary and BLM Direction for Monument Management). TNC has been instrumental in convening a science review team established to garner independent reviews for scientific proposals and answering scientific questions on the Monument.

This project has become a model for other efforts within BLM, and the partners will continue to collaborate on management and planning for the Monument. Final decisions regarding management actions on each of the partner's lands still rest with the respective agency/organization.

1.8.3 Carrizo Plain National Monument Advisory Committee

The Secretary of the Interior directed BLM to establish a formal advisory committee, whose purpose is to advise BLM on management of the Monument. The MAC has been an integral part of the RMP process,

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servicing as a conduit for additional public input and advising BLM during preparation of the document. Committee duties and responsibilities are as follows:

- Develop recommendations for BLM regarding the development, revision, and implementation of the management plan for the Monument.
- Advise BLM on data needs, the use of science, management actions, and work priorities needed to protect the objects of the Monument.
- Advise BLM on opportunities to work collaboratively with others; on developing and working with external partners; on the use of volunteers; and on opportunities for environmental education, resource interpretation, and other outreach needs.

Members of the committee are to include the following representatives (see Chapter 5 for a list of committee members):

- The San Luis Obispo County Board of Supervisors
- The Kern County Board of Supervisors
- The Carrizo Native American Advisory Committee
- The Central California Resource Advisory Council
- Individuals or companies authorized to graze livestock within the Monument
- Four members selected from, but not limited to, the following groups or organizations: dispersed recreational community; mechanized recreational community; academia, to represent educators with experience in a variety of sciences; recognized environmental or resource conservation organizations; minerals and energy resources community; cultural resource representative (local or regional); and/or private landowners adjacent to the Monument.

1.8.4 Collaboration with Native American Groups

A charter agreement with the Carrizo Native American Advisory Committee was previously established to be inclusive of all Native American groups consisting of Chumash, Salinan, and Yokuts affiliations having regional cultural ties to the land in the Monument. Native American groups have a long history of collaboration with BLM in planning and managing cultural resources within the Monument and have played an integral role in development of this RMP. A letter inviting participation in the planning process was sent on June 19, 2007 to the Santa Ynez Band of Mission Indians, Santa Rosa Rancheria, and Tule River Reservation. Personal telephone invitations were also extended. Consultation will continue throughout the RMP process.

1.9 Related Plans and Policies Guiding Area Management

BLM planning regulations require that RMPs be consistent with resource-related plans of other federal agencies, state and local governments, and Native American tribes, so long as those plans are also consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands. Other agencies' plans relevant to the CPNM planning area include the San Luis Obispo, Kern, and Santa Barbara County General Plans. Other agency plans/programs include the following:

- **Biological opinions from the USFWS** – Caliente RMP Biological Opinion dated March 31, 1997 (Number 1-1-97-F-64); Carrizo Plain Natural Area Biological Opinion dated February 1, 1996 (Number 1-1-95-F-149); and the Carrizo Plain Natural Area Grazing Biological Opinion dated July 5, 1994 (Number 1-1-93-F-70) (USFWS 1994, 1996a, and 1997). The BLM has initiated consultation

with the Fish and Wildlife Service and a new Biological Opinion will be issued for this RMP. The new Biological Opinion will replace the existing ones described above.

- **USFWS recovery plans for endangered species** – Recovery Plan for the California Condor (USFWS 1996b), Recovery Plan for Upland Species for the San Joaquin Valley (USFWS 1998), and the Recovery Plan for the Kern Primrose Sphinx Moth (USFWS 1984).
- **Relationship to BLM programs** – BLM has established the National Landscape Conservation System (NLCS) to protect some of the nation’s most remarkable and rugged landscapes. The system includes national conservation areas, national monuments, wilderness areas, wilderness study areas, wild and scenic rivers, and national scenic and historic trails. The CPNM is included in the NLCS.
- **Additional policy guidance** – Several documents were used as guidance for this RMP. They include but are not limited to the BLM Planning Handbook H-1601-1; BLM Handbook H-8550-1, Interim Management Guidelines for Lands under Wilderness Review; BLM Handbook H-8410-1, Visual Resource Inventory; and BLM Manual 8100, Cultural Resources Management.

In addition to the primary direction provided by the Monument Proclamation, there is a broad range of federal laws and regulations that guide development of this RMP, including the following:

- Antiquities Act of 1906
- *Taylor Grazing Act* of 1934, as amended
- Federal grazing regulations at 43 CFR 4100
- Wilderness Act of 1964
- National Historic Preservation Act of 1966, as amended
- National Environmental Policy Act of 1969
- *Federal Land Policy and Management Act* of 1976 (BLM Organic Act), as amended
- Endangered Species Act of 1973, as amended
- American Indian Religious Freedom Act of 1978
- Archaeological Resources Protection Act of 1979, as amended
- Native American Graves Protection and Repatriation Act of 1990 (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001)
- *Omnibus Consolidated Rescissions Act* of 1996 (P.L. 104-134) (Recreational Fee Demonstration Program)
- 43 CFR 1610 (BLM planning guidance)
- Federal Register 68(151) 46684-46867 (Final Rule for designating critical habitat for vernal pool fairy shrimp and longhorn fairy shrimp)
- Rangeland Health Standards and Guidelines. This RMP incorporates the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management* developed by the Central California Resource Advisory Council and approved by the BLM California State Director and the Secretary of the Interior on July 13, 2000. The RMP includes objectives that are more site-specific and focused on specific aspects of the Monument Proclamation and CPNM ecosystem. However, all of these objectives meet or exceed the Rangeland Health Standards.
- U.S. Department of the Interior Secretarial Order 3270, Technical Guide, signed March 9, 2007 by Dirk Kempthorne (provides policy guidance and procedure for implementing adaptive management).

- Energy Policy Act of 2005

Additional legal and policy guidance is provided in Chapters 2 and 3, and in the Appendices of this document.

1.10 NEPA Compliance during Plan Implementation

During implementation of the RMP, additional documentation will be required to comply with NEPA and the federal laws and regulations listed in Section 1.9. Land use planning decisions that are implemented upon approval of the RMP do not require additional environmental analysis or documentation, but additional consultation under the *Endangered Species Act* or the *National Historic Preservation Act* may be required. Implementation actions such as habitat restoration, prescribed fire, facilities construction or expansion, new water sources, new oil and gas facilities, and third-party authorizations such as film permits or rights-of-way would normally require additional site-specific environmental analysis or documentation unless they have already been analyzed in detail in this document. These actions would be implemented within parameters established by the decisions in the RMP. Environmental documentation can vary from a statement of conformance with the Record of Decision to more complex documents that analyze several alternatives. In general, all proposed actions are reviewed by an interdisciplinary team to determine if they are in compliance with the Proclamation and the RMP. A key task for the team is to quantify and qualify the potential impacts of a proposed action. Impacts to a variety of Monument resource values are considered. The team then develops site-specific mitigation measures to minimize the potential impacts. The interdisciplinary team also evaluates whether additional steps specified under other laws or regulations may be required (such as the *National Historic Preservation Act*, *Archaeological Resources Protection Act*, *American Indian Religious Freedom Act*, or *Endangered Species Act*). All NEPA documents will be prepared under BLM NEPA Handbook guidance and will be prepared with the appropriate level of public input required by NEPA.

1.11 Monument Mission and Vision

The Mission is a focused summary of the Monument Proclamation and serves as the guiding principle for management of the CPNM and will not change over time. The Vision provides for management strategies that will help accomplish the Mission. Both the Mission and Vision were developed to implement the January 2001 Presidential Proclamation that established the CPNM. The Proclamation cited the following as the purpose of the CPNM: protect the largest undeveloped remnant of San Joaquin Valley grassland ecosystem, providing for the long-term conservation of the endemic plant and animal species; a refuge for endangered, threatened and rare plant and animal species, as well as important populations of pronghorn antelope and tule elk; Soda Lake, the largest remaining alkali wetland in Southern California; geologic processes and the San Andreas fault; significant fossil assemblages; and archaeological and cultural resources.

1.11.1 Mission

The mission within the CPNM is to protect and enhance the indigenous species and natural communities, within a dynamic and fully functioning ecosystem; conserve the unique geologic, paleontologic, scenic, and cultural resources; and provide opportunities for compatible scientific, cultural, educational, and recreational activities.

1.11.2 Vision

The vision is to cooperatively employ management strategies that conserve the integrity of the CPNM as an ecological system and natural landscape with its full array of natural and cultural features.

The management of the CPNM should protect and enhance the full spectrum of physical and chemical processes necessary to support indigenous species, biological diversity, and ecological function and processes within the natural range of variation.

1.12 Organization of This Document

This PRMP/FEIS is composed of the following sections:

- Chapter 1– Purpose and Need.
- Chapter 2 – Alternatives, describes BLM’s proposed plan (preferred) alternative, the other action alternatives, and the no action alternative in detail, and includes summary tables comparing the details and potential effects of the proposed plan to those of the no action alternative and two other action alternatives.
- Chapter 3 – Affected Environment, provides a description and analysis of the current environmental conditions and management practices in the CPNM.
- Chapter 4 – Environmental Consequences, presents an analysis of the effects, both beneficial and adverse, of implementation of the management goals, objectives, and actions for the proposed plan alternative, Alternatives 1 and 3, and the no action alternative.
- Chapter 5 – Coordination and Consultation, describes the processes of gathering public input and consulting with other agencies and jurisdictions during the development of this RMP. It also includes a schedule for public review and comment on the Draft RMP/EIS and a list of preparers of this document. Chapter 5 includes a summary of the public comments received on the Draft RMP/EIS, and presents BLM’s responses to those comments.
- Chapter 6 – References.
- Acronyms and Glossary.
- Appendices are included that support the analyses and conclusions of the planning process.

1.13 Summary of Comment Issues on the Draft RMP/EIS and How They Were Addressed in the PRMP/FEIS

Changes were made to the PRMP/FEIS based on responses to comments on the Draft RMP/EIS. In addition to those listed below, these changes include minor clarifications and updates in acreage and/or mileages due to refined geographic information system (GIS) data. Text additions and revisions, except for minor editorial changes, are identified with a vertical bar in the left margin, while changes in the summary tables of alternatives in Chapter 2 are denoted with ~~strikeout~~/underlined text.

Management of Areas with Wilderness Characteristics – Numerous individuals and organizations commented that additional acreage should be included in areas recommended for management for wilderness characteristics. Specifically, commenters felt that the Carrizo Plain itself (valley floor) should be represented. This prompted BLM to revisit the inventory originally conducted for the plan. Two additional units that include Soda Lake and adjoining lands to the north and west of Simmler Road (totaling 13,319 acres) have been added to the areas to be managed for wilderness characteristics under the proposed plan alternative. The remaining inventoried acreage has not been recommended for management for wilderness characteristics in the PRMP/FEIS. These lands meet the minimum inventory criteria, but it was determined that they do not provide for naturalness, outstanding opportunities for solitude, or other wilderness qualities at a level that merits their inclusion with the other units. However,

the PRMP/FEIS also does not include any actions that would prevent their reconsideration at a future time.

Use of Non-Street- Licensed Vehicles on BLM-Managed Roads and Travel Management

Designations—Many commenters felt that the use of all-terrain vehicles, dirt bikes, and other non-street-licensed vehicles (green sticker vehicles) was inappropriate given the types of recreation experiences and benefits called for under the RMP. Concerns were also expressed regarding the higher potential for illegal off-road use of vehicles in the Monument in conflict with the requirements of the Proclamation. The proposed plan has been changed so that only street-licensed vehicles would be permitted within the Monument. This would still allow for access to the road network by hunters and other recreation visitors using licensed four-wheel drive vehicles. BLM is proposing in the Bakersfield RMP (currently under development) to provide a managed riding area north of the CPNM which would allow for the use of non-street-licensed vehicles. Commenters also expressed concern about the “Limited” route designation in the Travel Management section and stated that it was unclear regarding which routes are open to public vehicle use. The terms used to describe route designations have been updated to clarify the allowable uses (motorized, non-motorized, non-mechanized, or pedestrian) on each road segment. This should eliminate the confusion related to the Draft RMP/EIS designations and also reflects the most recent BLM terminology for route designation.

Oil and Gas – Exploration and development of private mineral estate is a topic of considerable public concern within the CPNM. The split estate ownership pattern in parts of the Monument adds a degree of management complexity to the area and BLM’s authority over use of these private ownership rights is limited. Private oil and gas development has the potential to cause impacts to the surface resources and environment; these effects are described in Chapter 4. It is important to understand that, while the alternatives pose different options for managing the publicly owned surface resources of the CPNM, to a large degree, subsurface resource development decisions, with the resulting impacts, reside in private ownership. As a result, private mineral estate actions were a constant in the development of the alternatives for the RMP.

While BLM acknowledges that subsurface owners have the right to access and develop their privately owned minerals, the RMP includes actions and reasonable requirements that would be employed for the protection of publicly owned surface resources. As a result of public comments, the BLM added to and refined stipulations and standard operating procedures (SOPs) that would be employed to protect surface lands (Appendix P). Any exploration or development would also require additional site-specific environmental analysis and associated site-specific impact mitigation measures. Stipulations and SOPs have also been added and revised for existing oil and gas leases along the southern boundary of the CPNM in response to public recommendations.

With thoughtful planning, careful mitigation, monitoring of ongoing operations, and eventual well plugging, the private oil and gas resources, if developed, would be recovered in a manner that provides for the sustainability and ultimately, the reclamation of surface resources.

Livestock Grazing – Management of livestock grazing within the CPNM has been the largest source of concern and controversy during development of the plan, as reflected in public comments on the Draft RMP/EIS. Many commenters are concerned about potential resource damage and questioned whether grazing authorizations are appropriate at all within a National Monument. Confusion also remains regarding the differing types of grazing authorizations used on lands allocated as available for livestock grazing in the CPNM. The two types of authorizations and the proposed use of grazing under the RMP are summarized below. Additional information has also been provided within the Biology sections of the RMP to incorporate and respond to extensive input provided by the public during review of the draft.

BLM land use plans must identify which lands will be available or not available for livestock grazing. The RMP alternatives described differing levels of these allocations (see the allowable use decisions for each grazing alternative in Section 2.15, Livestock Grazing). Alternative 1 would have allocated all the lands in the Monument as unavailable for any livestock grazing. In Alternatives 2 and 3, lands allocated as available for livestock grazing are further divided into two sub-categories: those lands where livestock use is allowed to utilize available forage, and those lands where livestock are allowed only as a vegetation management tool to meet other land use plan objectives.

The CPNM has several BLM livestock grazing leases that long predate designation of the area as a national monument. These leases cover 55,900 acres of land that was allocated as available for grazing under previous land use plans and is located mostly in the mountains and foothills surrounding the Carrizo Plain itself. The Monument Proclamation directs BLM to follow existing laws, regulations, and policies relating to the administration of this grazing use. These authorizations are managed under Section 15 of the *Taylor Grazing Act*, so are commonly referred to as “Section 15” leases. Under the proposed plan alternative of the RMP, use of these allotments for forage production is allowed to continue as long as this use does not conflict with the Monument Proclamation and RMP objectives, and grazing would be reduced from historic and current levels to protect Monument objects and meet other plan objectives. Conservation targets and monitoring requirements are included to ensure use of the leases is compatible with the Proclamation. Livestock grazing on public lands is a privilege, but cancellation of these leases without data or cause would be in violation of the regulations at 43 CFR 4110.3-2, 4110.4-2, 4130.3-3, 4170.1-1, or 4170.1-2, which direct how and when grazing leases can be modified or cancelled. If monitoring actions required under the plan indicate that continued grazing on the Section 15 leases is not compatible with protecting objects or meeting other RMP goals, the grazing use authorizations would be further reduced or eliminated at that time by following the procedures in 43 CFR 4100.

On the majority of the CPNM, including much of the valley floor, lands were more recently acquired by the federal government, and no Section 15 grazing authorizations currently exist. Most of these lands, although they appear natural, were cultivated for dryland farming up until the late 1980s. The entire area also contains nonnative Mediterranean grasses. On this portion of the Monument (117,500 acres), vegetation management treatments have been used and are anticipated to continue to be needed to maintain suitable animal habitats impacted by previous land uses. All habitat management tools (such as grazing, prescribed fire, mowing, and others) have differing level of effectiveness and side effects or negative impacts associated with their use. Where the impacts of livestock grazing might be less than, or in some way preferable to, the impacts of prescribed fires of other techniques, retaining the option of using livestock grazing in a very limited fashion to create/maintain suitable habitat structure for the listed San Joaquin Valley animals (blunt-nosed leopard lizard, San Joaquin kit fox, San Joaquin antelope squirrel, and giant kangaroo rat) and other high priority wildlife (mountain plover) is considered to be important for those species (all are objects of the Proclamation). In order to allow for use of this tool, these lands must be allocated as “available” for grazing under the RMP. BLM anticipates that livestock grazing to benefit these species may be needed only in infrequent circumstances when nonnative grasses are too thick: perhaps two out of every 10 to 20 years. The impact analysis acknowledges that there are opposing views regarding the effectiveness of use of this tool, and that there are tradeoffs associated with its use, namely impacts to vegetation. Based on the most recent studies, the use of this tool has been reduced greatly from historic levels. Also, the plan includes actions to monitor and mitigate impacts to vegetation related to use of grazing and other management tools implemented for the benefit of wildlife. This and other plan objectives are designed to ensure that the vegetation objects of the proclamation are protected and enhanced. If future studies/monitoring indicate that grazing should be further reduced or not employed as a tool, then the plan objectives would require this reduction or elimination to conform to the plan; no modification or amendment of the RMP would be required.

Chapter 1: PURPOSE AND NEED

Two grazing-related appendices have been removed from the document. Appendix L, a rangeland health assessment form, was provided in the Draft RMP/EIS for information purposes only. Appendix V, the Pasture Management Table, is under development, and upon completion will serve as a guide for specific implementation actions. An initial draft of this table was included in the Draft RMP/EIS. However, the document was incomplete and contained a number of errors, so has been removed from the plan. This table will be completed as a plan implementation action.

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Chapter 2. Alternatives

2.1 Introduction

The *National Environmental Policy Act* (NEPA) requires federal agencies to consider a reasonable range of alternative approaches when proposing and analyzing federal actions, including those proposed in this resource management plan (RMP) and environmental impact statement (EIS). Three management alternatives have been developed for the Carrizo Plain National Monument (CPNM). In addition, a “no-action alternative” has been described and analyzed. The no-action alternative is required by the Council on Environmental Quality’s regulations for implementing NEPA (40 CFR 1502.14) and provides a benchmark description of current management to allow comparison of the action alternatives. For the purposes of this plan, the no action alternative constitutes continued implementation of the Carrizo Plain Natural Area (CPNA) Plan, the Caliente RMP, and the direction contained in the Monument Proclamation.

The preferred alternative, Alternative 2 from the Draft RMP/EIS, has been revised based on public comments and constitutes the proposed plan alternative in this Proposed RMP and Final EIS (PRMP/FEIS). Substantive changes from the Draft RMP/EIS are identified with a vertical bar in the left margin. All alternatives remain viable under NEPA until the Record of Decision is signed by the BLM California State Director at the conclusion of the RMP/EIS process. Each resource program in Sections 2.4 – 2.21 below first lists goals, objectives, and management actions common to all action alternatives, then objectives and actions specific to the proposed plan alternative and each of the other management alternatives. A summary table at the end of this chapter highlights changes made between the Draft RMP/EIS and this PRMP/FEIS. In this table, Alternative 2 has been updated as the “Proposed Plan Alternative” and changes are indicated with underlined text and strikeouts.

Section 2.2 of this chapter describes the alternative development process for the CPNM RMP and gives an overview of the focus of each of the three action alternatives considered. Section 2.3 discusses the adaptive management principles that are incorporated into this planning process.

For each of the following resources, resource uses, and special designations, the details of their management under each alternative are described in the remaining major sections of this chapter.

- 2.4 Biological Resources
- 2.5 Fire and Fuels Management
- 2.6 Air Quality
- 2.7 Soils
- 2.8 Water Resources
- 2.9 Wild and Scenic Rivers
- 2.10 Geology and Paleontology
- 2.11 Cultural Resources
- 2.12 Visual Resources
- 2.13 Wilderness Study Areas and Other Lands with Wilderness Characteristics
- 2.14 Areas of Critical Environmental Concern
- 2.15 Livestock Grazing
- 2.16 Recreation and Interpretation
- 2.17 Administrative Facilities
- 2.18 Travel Management
- 2.19 Minerals
- 2.20 Lands and Realty
- 2.21 Research Management

RMPs are broad-scale land management plans that establish desired outcomes (goals and objectives) for management of public lands and identify the management actions and allowable public uses that will achieve those outcomes. More specific implementation-level decisions are typically made after the RMP is adopted, but in some cases they are identified during the RMP process and incorporated into the alternatives, especially when the plan covers a relatively compact geographic area such as a National Monument. For example, decisions about designating specific vehicle routes, which are implementation-level decisions, are part of the alternatives presented in this document.

Not all issues can be resolved in the general language of an RMP, instead requiring that more detailed implementation plans and NEPA analysis be developed to determine exactly how to reach desired conditions or to achieve a desired result. Prior to being initiated, all implementation actions will be subject to the appropriate level of NEPA review. Through this process, the Bureau of Land Management (BLM) will ensure the project is consistent with the Monument Proclamation and the management goals and objectives for the CPNM in this RMP. In this chapter, all of the proposed plan's goals, objectives, and management actions are given an alphanumeric identifier, such as "Goal BIO-1" to identify a specific goal under the Biological Resources program, "Objective VRM-2" identifying a specific objective under the Visual Resources Management program, or "Action CUL-1" identifying a specific management action under the Cultural Resources Program. These designations will assist BLM in referring to specific goals, objectives, and management actions during the plan's implementation. In addition, each identifier is followed by either a "(P)" or an "(I)", indicating whether the item is a plan-level or implementation-level item. Note that only plan level decisions can be protested to the BLM director. Implementation decisions are subject to appeal to the Interior Board of Land Appeals. If an implementation-level decision has an asterisk (I*), it has not been analyzed at a level that would allow for direct implementation from the plan and additional environmental analysis would be completed prior to "on-the-ground" implementation. The proposed plan alternative also identifies support actions (S). These are actions that are included in the plan to provide context for plan decisions, but are not subject to NEPA analysis (for example, monitoring or inspection frequencies). Further information characterizing support actions is provided in the introduction to Chapter 4.

Each of the plan, implementation, and support decisions are characterized in the plan as goals, objectives, management actions, and allowable uses. These are defined as follows:

Goals describe broad direction and desired conditions for each resource or resource use. The goals stay the same for all alternatives. Goals are derived from the Monument Proclamation, BLM policy guidance, and public scoping input.

Objectives describe more detailed outcomes or "desired future conditions" for different components of the resource or resource use that meet the overall goals. Some objectives are common to all alternatives while others vary by alternative.

Management Actions describe efforts that CPNM managers anticipate taking to achieve the objectives (for example, prescribed burning, road decommissioning, monitoring), based on the best available information and technology at the time of plan development. As new information, technology, or practices become available or established, certain management actions may be added, modified, or discontinued to incorporate the best available science using an adaptive management approach. Any modified or new actions would be consistent with the plan objectives. Also, if new information shows that an action conflicts with an objective, than that action would be discontinued. In other words, the objectives take precedence over the actions in this adaptive approach. The adaptive management process is discussed in more detail in Section 2.3.

Allowable Uses: For the use-oriented programs (grazing, recreation, travel management) the RMP also identifies allowable public uses and limitations on these uses.

Special Designations: RMPs also address special designations such as areas of critical environmental concern (ACECs) (administratively designated through RMP), and wild and scenic river suitability (analyzed in the RMP but requires Congressional action for formal designation).

The alternatives represent a reasonable range of approaches to managing land and uses consistent with law, regulation, and policy. They also provide a framework to evaluate the potential impacts to the planning area that could occur as a result of implementing various management scenarios. Development of the alternatives was guided by NEPA, the *Federal Land Policy and Management Act* (FLPMA), the National Monument Proclamation (Appendix A), BLM RMP regulations, and input from public and agency scoping. A final RMP and Record of Decision (ROD) will be developed subsequent to this PRMP/FEIS. The Final RMP/ROD will contain the final decisions that will guide future management of the CPNM.

BLM has the discretion to select an alternative in its entirety or to combine elements of the various alternatives presented in this proposed plan to develop the Final RMP.

2.2 Alternative Development

Alternatives must

- Meet the project purpose and need for the plan (see Chapter 1).
- Be viable and reasonable.
- Be responsive to issues identified in scoping.
- Meet the established planning criteria (see Chapter 1), federal laws and regulations, and BLM planning policy.

The alternatives identify different strategies for implementing the direction of the Monument Proclamation/protecting objects of the Proclamation and meeting a variety of public needs. The range of alternatives was developed based on this input and in consultation with the public and the Monument Advisory Committee.

2.2.1 Alternative Themes (for the Action Alternatives)

Alternative 1 represents a more “hands off” approach to resource management, and provides for more limited public uses of the Monument. For example, natural processes would be allowed to take their course with minimal interventions to stabilize fluctuations of wildlife and vegetation, or to restore degraded habitat, except in instances where the populations are in jeopardy. No livestock grazing would be authorized. The largest acreage would be allocated to the “primitive” recreation zone and managed for wilderness character. A smaller road network would be open for public vehicle use. Access to rock art sites would not be permitted, and minimal interventions would be taken to stabilize or restore historic and prehistoric sites from natural decay. A summary of Alternative 1 is provided at the end of this chapter in the Alternatives Summary Table.

Alternative 2 (Preferred Alternative in Draft RMP/EIS, Proposed Plan Alternative in this document) represents an approach that incorporates elements of the other alternatives as well as some unique elements to provide for protection of the Monument’s objects and other resources while allowing for

compatible public uses. For example, this alternative identifies moderate acreage for wilderness character management and a mix of active biological restoration and hands-off approaches in different areas of the Monument. Recreation use and rustic improvements would be focused along the Soda Lake Road corridor, with the remainder of the area providing for dispersed opportunities. This alternative provides for a transition to livestock grazing for vegetation management only. Access to Painted Rock would be allowed by permit and guided tour, and priority historic sites would be restored and stabilized.

Alternative 3 represents the most active approach to management and provides for a broader array and higher levels of public use and access while still retaining the overall rustic, undeveloped character of the Monument. For example, the managers would implement more intensive resource management and restoration actions for lands that have been impacted by past use. Only the existing Caliente Mountain Wilderness Study Area (WSA) would be managed for wilderness characteristics. Cultural sites would be stabilized, and a higher emphasis would be placed on environmental education programs and facilities linked to significant cultural and natural resources at indoor and field locations. Livestock grazing would continue to be managed for both vegetation management and forage production while meeting the Monument's biological and cultural resource objectives. A summary of Alternative 3 is provided at the end of this chapter in the Alternatives Summary Table.

2.2.2 The Preferred Alternative and Proposed Plan Alternative

BLM planning policy requires that a preferred alternative be identified in the RMP. For the CPNM Draft RMP/EIS, Alternative 2 represented the preferred alternative. The preferred alternative has been modified based on public input during review of the Draft RMP/EIS so that it now represents the proposed plan alternative. The proposed plan alternative represents an effort to identify an optimum course of action for area management to protect and restore the objects of the Proclamation while allowing for compatible public uses as described in the Proclamation. It was selected from the range of reasonable alternatives and also incorporates several aspects of Alternative 1 from the Draft RMP/EIS (for travel management and wilderness characteristics). Issues considered in selecting the proposed plan alternative include the direction of the Monument Proclamation; environmental impacts of the alternatives; issues raised throughout the planning process; specific environmental values, resources, and resource uses; conflict resolution; public input; and laws, regulations, and the planning criteria. In summary, this alternative is intended to represent the course of action that best implements the direction contained in the Proclamation.

2.2.3 Alternatives Considered but Dismissed

The following alternatives were considered based on public scoping or other input into the planning process. However, these management approaches were not analyzed in the RMP for the reasons described below.

2.2.3.1 Fire Management

The suggestion was to expand wildland fire use to parts of the CPNM outside of the Caliente Mountain WSA. The *Wildland Fire Use Implementation Procedures Reference Guide* (USDI and USDA 2005) was reviewed to determine some of the important decision elements that determine an area's suitability for wildland fire use. The two most pertinent decision elements that affect the CPNM's suitability for wildland fire use include proximity to private property and the potential effects on cultural and natural resources. In 1994, BLM personnel developed a fire pre-attack map that outlined sensitive areas susceptible to fire or fire suppression actions. Sensitive biological resources, many made up of sensitive saltbush areas, are scattered throughout the CPNM. When these areas that are sensitive to fire are combined with areas of private property inholdings, other agency infrastructure (structures and recreation

developments), and other improvements such as power lines and oil/gas infrastructure, there are virtually no areas of significant size remaining where it would be practical to practice wildland fire use outside of the Caliente Mountain WSA. Application of a confine strategy is more practical in these smaller areas that are often bisected by roads or other control features. Therefore, consideration of wildland fire use outside of the Caliente Mountain WSA was eliminated from detailed study.

2.2.3.2 Livestock Grazing

One suggestion was to remove livestock grazing as an allowable use of livestock forage within the Monument and only use grazing as a vegetation management tool – or in other words, to “convert Section 15 grazing leases into free use grazing permits.” This alternative was dismissed because it would conflict with BLM policy, federal regulations, and the Monument Proclamation, which states that BLM will follow laws, regulations, and policies in regard to administering grazing authorizations. The existing Section 15 leases authorize grazing use to the extent that available forage for livestock occurs on the allotments under lease. Thus, to implement this alternative, BLM would first need to cancel the Section 15 lease to make forage available, which then potentially could be authorized for use through another mechanism, such as a free use permit or a nonrenewable permit. BLM may cancel a grazing lease as a response to a lessee’s failure to comply with grazing regulations (43 CFR 4170.1-1(a)), may initiate cancellation when needed because the land is passing from BLM administration (43 CFR 4110.4-2(a)), or may cancel a grazing lease as needed to avoid authorizing conflicting land use activities that are incapable of being simultaneously accommodated or carried out while achieving land use plan objectives (43 CFR 4110.4-2(b)).

Issuing a different type of grazing authorization on the same area where BLM had just canceled a grazing lease for any of the above reasons would directly contradict or conflict with the purpose of the first cancellation. To address this issue, Alternative 2 in this PRMP/FEIS includes a process that provides for potentially phasing out Section 15 grazing leases, which could result in forage for livestock being made available for grazing use authorizations that carry no priority for renewal or to forage becoming unavailable for any grazing authorization. This process is predicated upon a lessee’s voluntary relinquishment of their preference for the use authorized by their Section 15 grazing lease and the authorized officer’s re-allocation of the forage made available by that relinquishment. A determination, if any, that lands are unavailable for any grazing authorization would occur if the authorized officer determines that no grazing authorization would be capable of being simultaneously accommodated while achieving the land use plan objectives.

Another suggestion was to authorize all livestock grazing in the Monument under Section 15 leases. Issuing Section 15 grazing leases on lands for which BLM currently authorizes free grazing use would require that BLM make the lands available for lease and accept applications for such leases. The successful applicants would need to identify base property and otherwise meet regulatory requirements that are pre-requisite to obtaining grazing privileges on public lands. Concurrently with the award of the leases, BLM would attach preference for their renewal to the applicant’s base property. Following this attachment, the lessee or their successors in interest in the base property would henceforth receive priority standing above other applicants for renewal of the lease. Further, the preference holder could request that BLM transfer this preference to other property that meets the requirements of base property and, if the transfer request was approved by BLM, the new preference holder then would receive priority for receipt and renewal of the lease. Further still, to change the terms and conditions of the lease – for example, to adapt to changed circumstances – BLM would be required to issue a formal decision subject to protest and appeal. This suggested action would then conflict with a prior authorized officer’s grazing decision (September 26, 1996). This decision provided for the acceptance of the relinquishment of the federal grazing preference for use of these specific allotments and made them available for livestock grazing only if the purpose of the grazing is to manage vegetation to meet resource objectives other than the production

of livestock forage. For this reason, the alternative was considered but dismissed from further analysis in this plan. To address a portion of the issue in this suggestion, Alternative 3 includes improving opportunities for livestock grazing in existing Section 15 lease areas. Although not expected to increase the amount of grazing use, this alternative would provide increased opportunities to improve the grazing use or efficiency of the existing allotments through the application of increased flexibility in grazing seasons, limited resource constraints, or improvement of livestock distribution or annual forage reliability through development of infrastructure such as water developments or drift fences.

Another suggestion was to authorize nonrenewable grazing use under applicable provisions of the grazing regulations. A nonrenewable permit may be issued by BLM to authorize a qualified applicant to use forage for livestock that is temporarily available, and grazing fees are charged for this use. BLM may issue a nonrenewable permit for a term not to exceed one year, and the permit does not have priority for renewal and cannot be transferred or reassigned. To receive a nonrenewable permit following a determination by BLM that forage for livestock was temporarily available, an applicant would need to support their application by identifying the base property that they own or control and that otherwise meets the requirements of the grazing regulations. As with free use, an applicant cannot establish preference for nonrenewable use and thus no preference attachment to base property would occur. In other words, should BLM determine in the future that forage for livestock is again temporarily available on the same pasture or allotment, the applicant would not receive a base property priority against other applicants for its use.

Ultimately, the question of the *type* of authorization to be used to authorize grazing on lands deemed available for grazing use, but only for purposes of vegetation management, is not a land use plan level decision, but an implementation decision that will be addressed on a case-by-case basis. BLM may determine that, in some circumstances, authorizing use in these areas by authorizing free grazing use is appropriate, while in others, authorization by issuing a nonrenewable permit that incurs grazing fees would be appropriate. Both options would remain available under either Alternative 2 or 3 or the no action alternative.

2.2.3.3 Wilderness Study Areas

BLM received recommendations through the scoping process that the RMP establish new WSAs within the CPNM. Consistent with BLM policy, the Secretary of the Interior's letter to Senator Robert Bennett (dated April 11, 2003), and the settlement in the case of *Utah v. Norton* (dated April 14, 2003), BLM has the authority under FLPMA Section 201 to inventory public land resources and other values, including characteristics associated with the concept of wilderness identified as naturalness, solitude, and primitive, unconfined recreation. Wilderness characteristics may be considered in land use planning when BLM determines that those characteristics are reasonably present, of sufficient value (condition, uniqueness, relevance, importance) and need (trend, risk), and are practical to manage (BLM 2003). However, BLM has no authority to establish new WSAs or to report such areas to Congress. BLM can, however, protect areas in their natural state using a wide range of designations or specific RMP objectives. Therefore, in response to this scoping input, and to protect important values present in the CPNM, BLM has considered management prescriptions in specific areas to protect wilderness characteristics, but has not included the establishment of new WSAs as part of any alternative. BLM has agency protective management measures for areas outside of the original Caliente WSA, since there are actions that BLM doesn't have authority to restrict except in the WSAs. For any areas identified for management to maintain wilderness characteristics, BLM would not apply the "non-impairment" standard (Section 603 of FLPMA) or the *Interim Management Policy for Lands under Wilderness Review* (BLM 1995). However, specific management objectives and actions to protect wilderness character are contained in Section 2.13 of this chapter.

2.3 Use of Adaptive Management Process

Secretary of the Interior Order Number 3270 calls for BLM and other Department of the Interior agencies to incorporate adaptive management principles into management plans and programs. The Secretarial Order also directs that *Adaptive Management: The U. S. Department of the Interior Technical Guide* (USDI 2007) be used as the technical basis for implementing adaptive management programs.

Adaptive management recognizes that ecosystems are very complex and understanding of their processes and responses to management actions is limited. Thus, the greatest hurdle to overcome in implementing effective restoration and other management actions is uncertainty regarding their effectiveness. Adaptive management acknowledges that there are incomplete data when dealing with natural resources, and that through continued research and monitoring of management practices, new information will be collected. This new information is evaluated, and a determination is made whether to adjust the strategy accordingly to improve success in meeting plan objectives.

As the *Technical Guide* points out, adaptive management is only warranted when all of the following criteria can be met:

- There is a need to take action in the face of uncertainty.
- There is an opportunity to apply learning.
- The objectives of management are clear.
- The value of reducing uncertainty is high.
- Uncertainty can be expressed in a set of competing testable models.
- A monitoring program design can be put in place with a reasonable expectation of reducing uncertainty.

The CPNM meets all of these parameters, and an adaptive approach to managing the area is already being implemented by the managing partners. The area is a complex and highly variable ecosystem with natural conditions that have been altered by past land uses. Although considerable research and monitoring has been implemented in the area, there is still a relatively high level of uncertainty about the effects of various management treatments for values such as restoring endangered species habitat or increasing native plant cover. This RMP contains clear objectives for management outcomes or “desired future conditions” of the various resources in the Monument. The RMP also lists a suite of initial actions that will be taken in an effort to restore and manage ecosystems to meet the RMP objectives. Some of these actions are listed within Chapter 2, while others are contained in the Conservation Target Table (Appendix C). The predicted outcomes of implementing plan actions and the uncertainty/assumptions associated with their implementation are discussed in Chapter 4 of this RMP (Environmental Consequences). Monitoring is an important component of RMP implementation and will be used to gauge the effectiveness of actions at achieving objectives. BLM recognizes the need to develop and implement a monitoring plan as soon as possible. The Bureau will work with the managing partners, stakeholders, and the scientific review committee to adopt an initial monitoring and adaptive management plan within three years. While the first priority will be to develop monitoring objectives, field protocols, and evaluation methods for the endangered species core areas, the managing partners will subsequently develop monitoring strategies for the wide variety of conservation targets in the Monument. Also, the RMP calls for continued support of scientific studies and outside review of resource management programs. These two types of actions will serve as a feedback loop so that managers can evaluate the effectiveness of actions in achieving plan objectives and learn/adjust as needed.

In summary, this RMP is structured so that the managing partners can continue to apply adaptive management principles within the framework of the *Technical Guide*. Adaptive management applications are used most extensively in the Biology program. However, other programs such as Recreation and Cultural Resources Management will make use of adaptive management principles as described in those respective sections. Note that adaptive management does not give managers an open book to implement any action deemed necessary to meet plan objectives. If a proposed approach is outside of the scope of the alternatives evaluated in this RMP, additional environmental documentation, including a possible RMP amendment, would be required.

2.3.1 Use of CPNM Conservation Target Table for Adaptive Management (Appendix C)

Several resource management programs (Biology, Livestock Grazing, and Fire) refer to a Conservation Target Table (Appendix C) to describe specific aspects of management program implementation. This table has been developed as an integral part of an adaptive management approach to guide implementation of objectives in this RMP for the protection and benefit of the natural communities and featured species (listed species, large native ungulates, and plant or animal species receiving management emphasis). The objectives listed in the table are derived from and fully support the objectives described in this RMP. The objectives in the table are linked to RMP objectives by showing the associated RMP number(s). The table identifies important ecological factors that influence the health, abundance, and distributions of the natural communities and featured species. This is accomplished by identifying: (1) the important habitat or population parameters that influence the target communities or species, (2) the specific habitat or population indicators or variables to be monitored, (3) the measurable attributes for these variables, (4) the values of these variables that will trigger management actions, and (5) the recommended management actions or prescriptions that may influence habitat suitability or population demographics needed to maintain the target's health, abundance, and distribution goals.

The elements in the table are developed using the best available information obtained from published literature, unpublished reports, monitoring data from within the Monument and other similar habitats, other locations with the range of the featured species, and professional experience/opinion among staff with direct experience in the Monument.

2.3.2 Use of the Conservation Target Table in Implementing RMP Objectives

The Conservation Target Table will provide detailed implementation-level direction for adaptive management in the Monument. The monitoring of the management actions and their effects to the conservation targets will occur in the following manner:

- The conservation targets (vegetation communities, plant and animal featured species populations, demographics and distributions) will be monitored.
- The variables for the management objectives will be gauged in relation to the desired values of the variable. For example, a certain patch size would be the value for the variable of shrub cover.
- Recommended management prescriptions or actions and constraints to actions (ranging from the hands-off treatments to the applied treatments of prescribed fire, livestock grazing, mechanical or chemical control, and human activities), would be evaluated by monitoring the management objective variables in relation to the implementation of the prescription.
- Changes in the management variables among the actions or constraints would determine the management effects. For example, an increase in the number of tadpoles (variable) in known ponds would measure the effect of an action to protect spadefoot toads.

- As monitoring data are evaluated, the information will be used to determine the success of the management actions or constraints in meeting the specific conservation targets and the related RMP objectives.
- The evaluations and new knowledge about the conservation targets and the management effects would be used to inform future management actions and decisions so that they best meet the associated RMP objectives.

The Conservation Target Table will also be used to describe where or under what conditions in the Monument actions should be employed to best meet RMP management objectives. The basic unit for management is currently at the pasture level, the boundaries of which originated with historic ownership or usage. As needs for species are identified and management actions defined, pasture boundaries would be adjusted to reflect the ecological parameters of the species and enable the level of management needed. As a companion to the Conservation Target Table, a pasture management table or matrix will be developed to inform managers where the Conservation Targets are currently relevant based on presence or absence within a pasture. This pasture table or matrix will evolve with the changing pasture boundaries and the knowledge of the Conservation Targets over time and throughout the Monument.

2.3.3 Incorporating Changes into the Conservation Target Table

The Conservation Target Table and associated Pasture Management Table are considered to be works in progress and will be updated as needed using adaptive management principles outlined in *Adaptive Management: The U.S. Department of the Interior Technical Guide* (USDI 2007) and authorized under Secretarial Order 3270. The elements of the tables will be subject to ongoing review by the managing partners (BLM, TNC, and CDFG), the scientific community, species experts, the Monument Advisory Committee, the U.S. Fish and Wildlife Service (USFWS), and the public. Changes would be made to the management guidelines (actions or constraints) or the desired values for the indicator variables as new knowledge is gained about the natural communities, the species, the ecological relationships, and management effects. This knowledge would be applied to ongoing and future management actions, thus “adapting” the management of the Monument to best meet RMP objectives using the best available information about the natural communities, featured species, and objects to be protected in the Monument.

Information or events that may trigger a change includes new literature, study results, more complete information, monitoring results, new species, unanticipated impacts, newly discovered population or habitat locations, or input from species experts. BLM would review the Conservation Target Table annually to determine if changes are appropriate. Information or events may trigger more frequent reviews. In addition to the managing partners, BLM may solicit input from species or topic experts. Through consensus, BLM in cooperation with the managing partners may change the Conservation Target Table based on the review. The modified Conservation Target Table will be submitted to the BLM authorized officer for approval. The change would be implemented as soon as any required intermediate steps have been completed, such as NEPA analysis, publication of Federal Register notices, or consultation with the State Historic Preservation Officer (SHPO) or USFWS. The Conservation Target Table in its most current form would be available to the public.

Changes in the management guidelines (actions or constraints) or the desired values for the indicator variables in the Conservation Target Table would normally not require an amendment to this plan, as they would only involve changing the way to reach the same RMP level decisions (objectives and actions). Changes to the conservation target management objectives would likely require a plan amendment as they would require updating the associated RMP-level objectives and land use allocations. Any changes would undergo appropriate technical review, and further NEPA analysis would be required if they are outside

the scope of analysis of this EIS. The Conservation Target Table is a work in progress and the ability of certain actions or suites of actions to meet plan objectives is uncertain for many resources. For this reason, plan objectives will always take precedence over Conservation Target Table objectives, thresholds, and other targets; that is, if an action in the Conservation Target Table is found to conflict with a plan objective, the Conservation Target Table would be modified accordingly.

2.4 Biological Resources

2.4.1 Introduction

This section highlights management of biological resources including wildlife and associated habitat and vegetation. The Carrizo Plain National Monument Proclamation recognized the intrinsic values of the biological resources of the Monument area as objects to be protected under the designation. Specifically, the Monument Proclamation provides protection for the CPNM as the largest undeveloped remnant of the San Joaquin Valley ecosystem, providing crucial habitat for the long-term conservation of the many endemic plant and animal species that still inhabit the area. The Monument offers a refuge for endangered, threatened, and rare animal species such as San Joaquin kit fox, California condor, blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, longhorn fairy shrimp, and Kern primrose sphinx moth. Important populations of pronghorn antelope and tule elk have been reintroduced to the Monument. Rare and sensitive plant species, including California jewelflower, Hoover's woolly-star, San Joaquin woolly-threads, pale-yellow layia, forked fiddleneck, Carrizo peppergrass, Lost Hills crownscale, Temblor buckwheat, recurved larkspur, and Munz's tidy tips occur on the Monument. The Monument was noted as providing crucial habitat for the long-term conservation of the dwindling flora and fauna characteristics of the San Joaquin Valley. BLM is directed, pursuant to applicable legal authorities, to implement the protection of the objects identified above.

FLPMA and BLM policy direct the agency to manage habitat with an emphasis on ecosystems to ensure self-sustaining populations and natural abundance and diversity of wildlife, fish, and plant resources on public lands (BLM Manual Section 6500: Wildlife Management). BLM is further directed to maintain an inventory of wildlife, plant communities, threatened, endangered, and candidate species; support and carry out research necessary for proper and efficient management of wildlife and special status species; and monitor ongoing management actions and determine if habitat management objectives are being met.

The federal *Endangered Species Act* requires BLM to use its authorities to further the purposes of the Act by carrying out conservation programs for listed species and the ecosystems on which they depend. BLM must ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any listed species. It is BLM policy that actions authorized by BLM shall further the conservation of federally listed and other special status species and shall not contribute to the need to list any special status species under provisions of the *Endangered Species Act*. In addition, it is BLM policy that the agency shall carry out management for the conservation of state-listed plants and animals. BLM will conserve state-listed plants and animals and use its authorities to further the purposes of the State of California rare and endangered species laws and apply such laws to BLM programs and actions to the extent that they are consistent with FLPMA and other federal laws.

The USFWS has developed the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). This plan identified the CPNM (previously known as Carrizo Plain Natural Area) as being one of several "Core Area of Natural Lands" targeted for protection. The Monument is listed as important for the conservation and recovery of California jewelflower, Hoover's woolly-star, Jared's peppergrass, Temblor buckwheat, San Joaquin woolly-threads, blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin kit fox, short-nosed kangaroo rat, Tulare grasshopper mouse, San Joaquin Le Conte's thrasher, Lost Hills crownscale, and Munz's tidy-tips. The San Joaquin

Valley Recovery Plan also includes actions to maintain habitat linkages between the CPNM, western Kern County, and the Salinas Valley. The Monument is also important habitat for federally listed Kern primrose sphinx moth, longhorn fairy shrimp, and California condor.

Other federal laws that direct wildlife, plant, and habitat management on BLM lands in the Monument include the *Bald Eagle Protection Act* of 1940, the *Fish and Wildlife Improvement Act* of 1978, the *Migratory Bird Treaty Act* of 1918, and the *Tule Elk Preservation Act* of 1976 (Public Law 94-389).

The State of California, through the California Fish and Game Commission and the California Department of Fish and Game (CDFG), is responsible for managing wildlife populations and establishing hunting seasons and regulations.

2.4.1.1 Use of Ecological Subregions

Section 3.2.1 of Chapter 3 (Affected Environment) describes nine ecological subregions that were identified by the planning team based on similar geography and general ecological characteristics. These subregions provide a context for certain management prescriptions in the alternatives for managing biological resources. Please refer to Section 3.2.1 and Map 3-1 (Carrizo Plain Subregions) for locations of and descriptive information on the subregions listed below:

- | | |
|------------------------------|-------------------------|
| Caliente Foothills South | Caliente Mountain North |
| Caliente Foothills North | Caliente Mountain South |
| Carrizo Plain North | Soda Lake |
| Carrizo Plain Central | Temblor Range |
| Panorama Hills/Elkhorn Plain | |

2.4.1.2 Use of Vegetation Management Toolbox

To achieve a desired resource objective, it may be necessary to modify vegetation abundance, distribution, composition, and/or structure. Proposed examples include creating low structure in core areas, promoting forbs in pronghorn forage areas, pretreatment for restoration projects, elimination of thatch to promote wildflower displays, restoration of oak habitat, and weed treatments. The choice of whether to apply a vegetation management tool, or which tool to use, is based on existing conditions, the physical and biological processes at the site, the species targeted, the desired outcome, the type and influence of impacts, and the funding available. Following adaptive management practices such as these, efforts will be made so that the tool employed achieves the desired objective, with a minimum of negative impacts to other resources. Table 2.4-1 lists the vegetation management tools allowed under each alternative, and Table 2.4-1 describes the Vegetation Management Toolbox.

Table 2.4-1. Vegetation Management Tools Allowed Under Each Alternative

No Action Alternative	Alternative 1	Alternative 2	Alternative 3
Hand removal	Hand removal	Hand removal	Hand removal
Mechanical	Mechanical	Mechanical	Mechanical
Burning		Burning	Burning
Grazing		Grazing	Grazing
Herbicides		Herbicides	Herbicides
Seeding		Seeding	Seeding
Watering		Watering	Watering
Biological control		Biological control	Biological control

Table 2.4-2. Vegetation Management Toolbox

Tool	Methodology / Rationale	Possible Uses
Hand removal	Hand pulling, hoeing, and digging out targeted individuals or groups of plants. Good for small and specific targets, problematic for large-scale targets, and not effective against certain weed species (such as many perennial herbs).	Hand treatment to eliminate small weed populations, to control specific weed species, and to promote rare plants or restoration plantings by reducing competition from introduced plants.
Mechanical	Mowing, weed-whipping, cutting (chainsaw), brush removal, tarping. Good for small to medium-scale targets, possible negative impacts to habitat by equipment (such as soil compaction, creation of disturbed soils, burrow collapse). Tarping good for small populations, but takes time to produce results.	Treatment of fuels for fire control. Removal of thatch build-up to achieve low-structure habitat in core areas and as pretreatment before restoration seeding. Cutting to remove exotic tree species and pruning shrubs and trees in campgrounds or around Monument facilities. Mowing to create temporary trails in grassland habitat and as maintenance around signs and other Monument infrastructure.
Burning	Flaming, controlled burns. Good for small to large-scale targets, creates a mosaic of treatments across a landscape. Possible negative impacts to animals and fire-sensitive plants or if fire escapes project boundaries. Not effective against certain weeds.	Flaming specific weed targets and as a general weed treatment immediately before restoration seeding. Burning to remove thatch build-up to promote wildflower displays and forb production for pronghorn, to achieve low-structure habitat in core areas, and as a pretreatment for restoration seeding. Burning to remove excess tumbleweeds.
Grazing	Variables include type of livestock, timing and duration of treatment, stocking rates, and frequency. Good for medium to large-scale targets, creates a mosaic of treatments across a landscape, is relatively cost-effective, and has a wide range of treatment variables. Potential negative impacts include damage to native plants, the introduction and spread of weeds, competition with native herbivores, damage to biological soil crusts, soil erosion, and damage to habitat (from soil compaction, creation of disturbed soils, burrow collapse, and others). It can be difficult to target use to achieve the desired effects. In some areas, trained goats have been used to remove biomass in large weed infestations.	Remove biomass and thatch build-up to achieve low-structure habitat in threatened and endangered animal core areas.
Herbicides	Spraying individual plants or populations, sometimes in conjunction with stump-cutting. Spraying specific project areas. Good for small to medium projects, cost-effective weed control, essential for eradication of some problematical species. Negative impacts related to potential human and ecological exposures to chemicals.	Target spraying to eradicate or control exotic weeds. Area spraying to eliminate annual exotics immediately before restoration seeding or as a means to promote native species.
Seeding	Hand-seeding, seeding by equipment, planting plugs or individual plants, inoculation with cryptogamic crust species or mycorrhizae. Good for small to large-scale projects.	Hand-seeding and planting small restoration projects or to introduce seed source islands within partially restored native habitat. Seeding with a range drill or other agricultural machinery for large-scale restoration of native species. Inoculation to restore cryptogamic crusts or help plant establishment.
Watering	Supplemental water, drip irrigation	Supply water to increase success of restoration efforts, to enhance seed production, and for ornamental or historical plantings.
Biological control	Release of specific organisms on target populations. Good for large-scale targets. Possible impacts if organism shifts to new host.	Release of biological control organisms to control widespread and relatively common nonnative species.

In summary, the term “vegetation management” as used in the RMP denotes any manipulation of vegetation to meet a specific plan objective for either wildlife or botanical resource management. In many cases, tradeoffs would be involved and a specific tool that benefits one resource would negatively impact another. Most commonly, treatments targeted towards for wildlife habitat restoration would negatively impact native vegetation within the treatment area. The RMP acknowledges these undesirable consequences/tradeoffs and includes protective and mitigating measures to maximize the beneficial effects to Monument resources while minimizing the negative impacts (for example, identification of threatened and endangered animal core areas for treatments, fencing, and monitoring). However, this would not completely eliminate negative impacts. The impacts of proposed actions are discussed in detail in Chapter 4. As stated above, the RMP would be implemented using an adaptive management approach to further refine use of management tools to increase beneficial results while minimizing undesired effects.

2.4.2 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.4.2.1 Goals

- *Goal BIO-1(P)*: Manage the landscape to enhance the CPNM as a significant unique and undeveloped portion of the once vast San Joaquin Valley ecosystem (which is of crucial importance and provides the context for management).
- *Goal BIO-2(P)*: Restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem, including ecological processes that sustain them. Manage resources to emphasize an increase of native and indigenous species.
- *Goal BIO-3(P)*: Manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery of rare natural communities, and conservation of the regional landscape.
- *Goal BIO-4(P)*: Identify core geographic areas for endangered animal species population management and recovery. Within these core areas, endangered species habitat will be a primary management priority relative to other resources and uses. Tools to manage core areas will be chosen to achieve target endangered species objectives, while minimizing any negative impacts to other native organisms or important ecological processes.

2.4.2.2 Objectives and Management Actions

All Wildlife and Vegetation Resources

Objective BIO-1(P): Design all projects to minimize adverse impacts to wildlife and vegetation.

Management Action:

- *Action BIO-1(P)*: Implement the standard operating procedures (SOPs) contained in Appendix O (Biological Standard Operating Procedures) and Appendix P (Standard Operating Procedures for Oil and Gas) for all project work on the Monument.
- *Action BIO-2(S)*: When necessary, oil and gas related actions will require individual Section 7 consultations. Programmatic consultation will not be used for oil and gas related actions.

Rare Plants

Objective BIO-2(P): Maintain and enhance viable populations of threatened and endangered and other rare plants on the Monument (see Table 3.2-3). Allow populations to naturally fluctuate (population size and distribution), due to natural influences, but minimize impacts from human activities and prevent

populations from falling below critical levels. Protect rare plant populations and rare plant habitat from impacts due to actions associated with allowable uses authorized under the RMP.

Management Actions

- *Action BIO-3(S)*: Map populations of threatened and endangered and other rare plants on the Monument. Map potential rare plant habitat.
- *Action BIO-4(S)*: Monitor to confirm continued presence of rare plant populations and status of pollinator communities. Identify rare plant habitat parameters, pollinators, and pollinator habitat (nesting sites, additional foraging areas, and others). Identify impacts to rare plant populations and associated pollinator communities.
- *Action BIO-5(S)*: Support research that identifies and defines factors that influence population trends of target species. Support research on the biology/ecology of target species.
- *Action BIO-6(I*)*: Protect rare plants and associated pollinator habitat. Manage rare plant populations and rare plant habitat as identified in the Conservation Target Table and using tools as outlined in the Vegetation Management Toolbox. Protect vulnerable habitat by changing management prescriptions or management actions, such as removing weeds from rare plant habitat, relocating potentially damaging activities, restricting or eliminating grazing, and realigning or closing roads.
- *Action BIO-7(I)*: Design other management actions to avoid direct impacts. If a threat is observed, take action to protect the species or habitat. Reduce competition from weedy species. Modify, restrict, or prohibit livestock grazing to protect rare plant habitat. If necessary, fence known sites and adjacent suitable habitat to preclude damage (such as from illegal off-road vehicle activity).
- *Action BIO-8(I*)*: Promote seed bank recharge. Restore or establish populations in suitable habitats, including new population sites and in previously cultivated or degraded areas. Store germplasm with the Center for Plant Conservation national collection of endangered plants.

Core Area Threatened and Endangered Animals

Objective BIO-3(P): Maintain and enhance viable populations within core areas of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Within the core areas, allow the populations of these target species to naturally fluctuate up and down in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values) (see Appendix C, Conservation Target Table).

Management Actions

- *Action BIO-9(I)*: Identify and map core areas for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (core area species). Preliminary core areas are shown on Map 3-2, Special Status Animals. Focus habitat management for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, San Joaquin antelope squirrel, and mountain plover on these core areas. Manage core areas so they provide a “safety net” to maintain viable populations in all years (within management capability) and to prevent core area species from disappearing from the Monument. Core areas are determined by having persistent populations of the core area species, having suitable habitat in most years, being of a size that can be effectively treated with vegetation / habitat management prescriptions when required, and being of a size that has a high likelihood of maintaining a viable population of the core area species when vegetation management is applied.
- *Action BIO-10(I)*: Monitor populations to determine trends and further define minimum population threshold values to identify when to take management actions. If populations approach target

minimums, initiate management actions depending on species' characteristics and specific factors influencing population trends as identified in the Conservation Target Table.

- *Action BIO-11(S)*: Support research that identifies and defines factors that influence population trends of target species. Support research on the biology/ecology of target species.
- *Action BIO-12(I)*: Manage core area habitat to promote the more open, desert-like structure favored by the core area species. In those years when core area species populations are low and vegetation structure is above optimum, as identified in the Conservation Target Table (Appendix C), use the vegetation management tools included in the Vegetation Management Toolbox.
- *Action BIO-13(I*)*: Take measures to reduce mortality of target species, such as reducing vehicle strikes on roads within core areas, removing problem raptor perches, and maintaining escape cover.
- *Action BIO-14(I*)*: Reestablish populations in core areas, if necessary, through translocation.

Viable Populations of Animals

Objective BIO-4(P): Maintain or increase viable populations of special status, declining, or unique species within the Monument. Maintain viable populations for species such as bats (in the Caliente Foothills North, Carrizo Plain Central, Caliente Mountain South, and Caliente Mountain North subregions), burrowing owls, fairy shrimp (in the Caliente Foothills South, Carrizo Plain Central, and Soda Lake subregions), spadefoot toads (in the Caliente Foothills South, Carrizo Plain Central, and Soda Lake subregions), sphinx moths (in the Caliente Foothills South and Carrizo Plain Central subregions) and Le Conte's thrasher (in the Carrizo Plain Central and Panorama Hills/Elkhorn Plain subregions). For giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel, see the alternative-specific non-core area threatened and endangered animals objectives and management actions.

Management Actions

- *Action BIO-15(S)*: Monitor populations and assess habitat quality and potential or actual threats. Examples: Periodically monitor known bat roosts to determine continued use. Periodically survey for burrowing owls. Check certain known locations for spadefoot toad reproduction and fairy shrimp presence when appropriate conditions exist. Collect information on water quality, shrimp and toad demographics, and other parameters. Survey for sphinx moth adults, larvae, and host plants when appropriate conditions exist.
- *Action BIO-16(S)*: Support research and education on special status, declining, or unique species. Focus efforts on topics useful in formulating management actions and to promote conservation.
- *Action BIO-17(I*)*: Manage habitat (vegetation and features) to provide suitable areas for essential activities such as roosting, nesting, aestivation, and reproduction of target species. Examples: Protect natural bat roosts, prolong the usefulness of important human-made roosts, and construct additional roosts. Protect important bat roosts by grates or other means to limit human disturbance. Ensure accessible water is available near known and suspected bat roosts. Ensure adequate burrows are available for burrowing owls and take measures to protect against vehicle strikes. Protect vernal pools and sag ponds that provide fairy shrimp and spadefoot toad habitat. Maintain current conditions while improving knowledge base and modify management to reflect new information. Design vernal pool monitoring to detect negative changes (such as reduced fairy shrimp or spadefoot toad numbers, altered hydrology, or detrimental nonnative species) early and take action to remedy negative changes. Protect sphinx moth habitat from surface impacts (such as livestock grazing, horses, walking) during critical stages of reproduction and development. Maintain known saltbush stands used for nesting and roosting by Le Conte's thrasher.

Avian Species

Objective BIO-5(P) – Mountain Plover Objective: Provide suitable habitat for wintering mountain plover in Panorama Hills/Elkhorn Plain, Carrizo Plain Central, and Soda Lake subregions.

Mountain Plover Management Actions

- *Action BIO-18(S):* Conduct annual surveys for mountain plovers
- *Action BIO-19(I):* Identify and map core areas for mountain plover based on historical use patterns. Preliminary core areas are shown on Map 3-2, Special Status Animals. Focus habitat management for mountain plover to core areas. Manage core areas so that a minimum of one area of suitable habitat is provided within the Monument boundary.
- *Action BIO-20(I*):* Apply fall vegetation management when necessary using a variety of tools as described in Table 2.4-2, Vegetation Management Toolbox. When possible, overlap mountain plover treatment areas with blunt-nosed leopard lizard treatment areas to provide low structure for both species.

Objective BIO-6(P) – California Condor Objective: Maintain unobstructed condor habitat in the Caliente Mountain North, Caliente Mountain South, and Temblor Range subregions. Maintain suitable foraging habitat for condors in the Panorama Hills/Elkhorn Plain, Carrizo Plain Central, and Caliente Foothills South subregions.

California Condor Management Actions

- *Action BIO-21(P):* Restrict or prohibit the placement of new transmission lines, towers, or other potentially disruptive constructs in condor habitat.
- *Action BIO-22(S):* Work with existing right-of-way holders to make existing structures condor safe.
- *Action BIO-23(S):* Support USFWS in implementing recovery actions, such as establishing supplemental feeding stations or condor monitoring.

Objective BIO-7(P) – Roosting Shorebirds, Cranes, Curlews, and Waterfowl Objective: Maintain roosting habitat for shorebirds, cranes, long-billed curlews, and waterfowl in the Soda Lake subregion.

Roosting Shorebirds, Cranes, Curlews, and Waterfowl Management Actions

- *Action BIO-24(S):* Conduct annual surveys for long-billed curlews or other species.
- *Action BIO-25(I*):* Support research to determine factors affecting roosting and foraging habitat quality and take appropriate management actions if habitat deteriorates.
- *Action BIO-26(I*):* Protect roosting habitat at Soda Lake from human disturbance. Design facilities and manage public access to minimize detrimental interaction between roosting birds and the public.

Habitat Structure Diversity

Objective BIO-8(P): Maintain or increase the diversity of habitat in terms of structure, composition, and patchiness.

Chapter 2: ALTERNATIVES

Management Actions

- *Action BIO-27(S)*: Across the Monument, monitor the distribution, amount, and structure of shrub, woodland, and crust communities; the structure (height and density) of the herbaceous understory; and the general species composition of the plant communities. Develop spatial data (maps) to evaluate the distribution and extent of these characteristics in meeting management objectives.
- *Action BIO-28(I*)*: Manage lands to provide a variety and mosaic of vegetative assemblages, successional stages, habitats, and structure for the purposes of increasing plant and animal species diversity. For active management, use vegetation management tools as described in Table 2.4-2, Vegetation Management Toolbox. Initial focus would be on lands previously degraded by dryland farming or grazing.

Linkage

Objective BIO-9(P): Maintain the linkage of natural lands in the CPNM to the San Joaquin Valley by preserving the intact nature of the Temblor Range to maintain genetic and population linkages for San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, and other species.

Management Actions

- *Action BIO-29(I)*: Maintain suitable habitat in the Temblor Range subregion. Manage public use to prevent habitat degradation and fragmentation.
- *Action BIO-30(I*)*: Identify and protect important linking habitat through acquisition or other methods.

Riparian Areas

Objective BIO-10(P): Restore all riparian areas, seeps, and springs to proper functioning condition or better (Caliente Mountain South/North, Temblor Range, Caliente Foothills South/North subregions).

Management Actions

- *Action BIO-31(I*)*: Restore degraded riparian areas using a variety of methods. Examples: fence to exclude livestock, remove alterations/redesign developed springs, seed or plant with appropriate native species to stabilize channels.
- *Action BIO-32(I*)*: Take measures to limit the deleterious actions of wild pigs, such as monitoring, fencing, and hunting.
- *Action BIO-33(I*)*: Identify and protect riparian areas that may appear only in very wet years. Examples: fence areas to prevent degradation and realign roads to avoid sites.

Soda Lake

Objective BIO-11(P): Maintain the ecological processes and hydrologic vitality (quality, quantity, and flow patterns) of Soda Lake, its playas, and associated swale system.

Management Actions

- *Action BIO-34(I*)*: Monitor water flow patterns, potential threats to water quality, and general ecosystem health of the Soda Lake system. Respond to threats by management actions tailored to the

specific problem (for example, use fencing to discourage dump sites and off-road activity, keep livestock out of rare plant habitat, such as that of *Delphinium recurvatum*).

- *Action BIO-35(S)*: Identify adjacent lands important in maintaining water quality for the Soda Lake system. Coordinate with adjacent landowners to eliminate or minimize contamination (for example, clean up recent dumps, pursue conservation easements or land acquisition).
- *Action BIO-36(I*)*: Eliminate salt cedar and all other problematic nonnative species from the Soda Lake system.
- *Action BIO-37(S)*: Design any new trails, pull-outs, parking areas, and other facilities to minimize disruption of ecological processes and hydrologic vitality.

Vernal Pools and Sag Ponds

Objective BIO-12(P): Maintain the ecological processes and hydrologic vitality of the Monument's vernal pools and sag ponds (primarily Caliente Foothills South and Soda Lake subregions).

Management Actions

- *Action BIO-38(S)*: Monitor water chemistry, species composition, and other important ecological factors. Identify and map vernal pool sites, including those that appear only in years of excessive precipitation (for example, El Niño years). Work to understand hydrological parameters important in maintaining pool ecosystems. Better define habitat characteristics for pools and determine if they have the potential to form in areas that have previously been cultivated.
- *Action BIO-39(S)*: Determine the role of livestock grazing in maintaining characteristics necessary for the health and viability of fairy shrimp populations.
- *Action BIO-40(I*)*: Take measures to eliminate nonnative species (such as pepperweed, Russian knapweed and bullfrogs) from vernal pools and surrounding areas.
- *Action BIO-41(I)*: Ensure that BLM actions and authorizations are designed to avoid impacts to vernal pools. Manage vernal pools that provide longhorn fairy shrimp, vernal pool fairy shrimp, and spadefoot toad habitat within the North Carrizo and South Carrizo Vernal Pool Core Areas consistent with the Vernal Pool Recovery Plan.

Research and Inventory

Objective BIO-13(P): Improve knowledge of the species present on the Monument and understanding of the natural and ecological processes that influence local ecosystems.

Management Actions

- *Action BIO-42(S)*: Inventory taxa that are not well studied or understood, such as insects, other invertebrates, fungi, lichens, and bryophytes. Continue updating existing inventories (plants, mammals, birds, and other species).
- *Action BIO-43(S)*: Support inventories, monitoring, and research that identifies and defines factors that influence species population trends, especially listed and special status species. Support other research within the Monument on the biology of CPNM species.
- *Action BIO-44(I)*: Establish and maintain non-managed areas to compare the effects of purely natural processes with those influenced by agency management actions. Investigate the potential of setting

aside “hands-off” areas where little to no management actions would occur. One management exception may be for the treatment of noxious or problematic weedy species.

2.4.3 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.4.3.1 Native Plants

Objective BIO-14(P): Maintain, increase, and restore ecologically important plant communities and populations. Examples include native perennial grasslands, alkali sink, saltbrush scrub, upper Sonoran sub-shrub scrub, vernal pools, bulb plants, native grasses, annual and perennial herbs, wildflowers, biological crusts, Alvord and blue oaks, yuccas, saltbush, ephedra, and manzanita.

Management Actions

- *Action BIO-45(S)*: Map ecologically important plant communities and populations. For communities, follow nomenclature system developed by Sawyer and Keeler-Wolf (1995).
- *Action BIO-46(I*)*: Monitor target plants and communities to determine status and trends. Identify potential and current threats. Initiate management actions to abate threats, increase populations of target species, and benefit native plant communities. Protect from negative impacts from livestock grazing. Control nonnative species. Manage select native plant resources and habitat as identified in the Conservation Target Table.
- *Action BIO-47(S)*: Support research related to the management of CPNM plant communities and individual plant species. Initiate studies to define important community parameters and design threshold values for management actions. Support research on the biology/ecology of target species.
- *Action BIO-48(I*)*: Maintain and restore plant populations and communities, especially in areas of degraded habitat (for example, previously cultivated fields). Supplement natural processes with an active restoration program. Include mycorrhizae and biological soil crust organisms in restoration actions. Use vegetation management tools as described in Table 2.4-2, Vegetation Management Toolbox. Choose the tool that achieves the desired objective, with a minimum of negative impacts to other botanical resources (grazing would not be used as a tool for botanical resource restoration).
- *Action BIO-49(I*)*: Restore native herblands and grasslands by seeding with site-appropriate native species, including seeds or propagules of bulbs and other perennial herbs in the restoration of previously cultivated or degraded fields. Increase seed and other material for restoration by cultivating target species off-site under agricultural conditions. Work to limit wild pig and domestic sheep (trespass) damage to bulbs and herbaceous perennial plants.
- *Action BIO-50(I*)*: Increase saltbush and other shrub communities by management and active restoration. Protect saltbush and other vulnerable shrub communities from fire. Restrict livestock grazing in saltbush and other shrub communities, unless evidence shows that management objectives cannot be met in a less-impacting manner. Monitor to demonstrate that target biological objectives are accomplished and monitor to document impacts to shrub communities. Restrict livestock grazing in saltbush recruitment years. Work to minimize foraging of livestock on saltbush and other native shrubs. Establish new saltbush and shrub populations in appropriate sites. Seek to reestablish landscape water flow patterns (for example, alluvial fans disrupted by roads) to promote shrub recruitment.
- *Action BIO-51(I*)*: Restore blue and Alvord oak habitat and facilitate recruitment of new trees. Protect oak trees from detrimental impacts associated with livestock grazing or eliminate livestock grazing from oak habitat. Restore leaf litter mulch and soil functions beneath tree canopies and inoculate with mulch/soil organisms from healthy oaks. Establish new oak trees in areas previously

shown to have trees and in other appropriate sites. Provide supplemental water if necessary to ensure recruitment success. Protect oaks from devastating fires.

- *Action BIO-52(I*)*: Protect and restore vernal pool vegetation and crust communities in ecologically appropriate sites. Minimize negative impacts by livestock, horse, or human travel. Initiate studies to determine effects of livestock grazing on vernal pool vegetation and Carrizo crust communities and the feasibility of establishing/reestablishing vernal pools and crust communities in previously cultivated, grazed, or otherwise impacted areas. Work to restore crust communities.
- *Action BIO-53(I*)*: Protect crust communities and other vulnerable moss and lichen populations. Monitor non-vascular plants to determine impacts of management actions. To protect sensitive sites, take actions such as redesigning project footprints, or restricting access and grazing. Protect rock outcrops that receive regular visitation. Take actions, such as education and signing, to prevent new trails that damage moss or lichen communities.

2.4.3.2 Non-Core Area Threatened and Endangered Animals

Objective BIO-15(P): Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) within the Monument, with emphasis on the subregions listed in Table 2.4-3.

Table 2.4-3. Target Species and Their Ecological Subregions

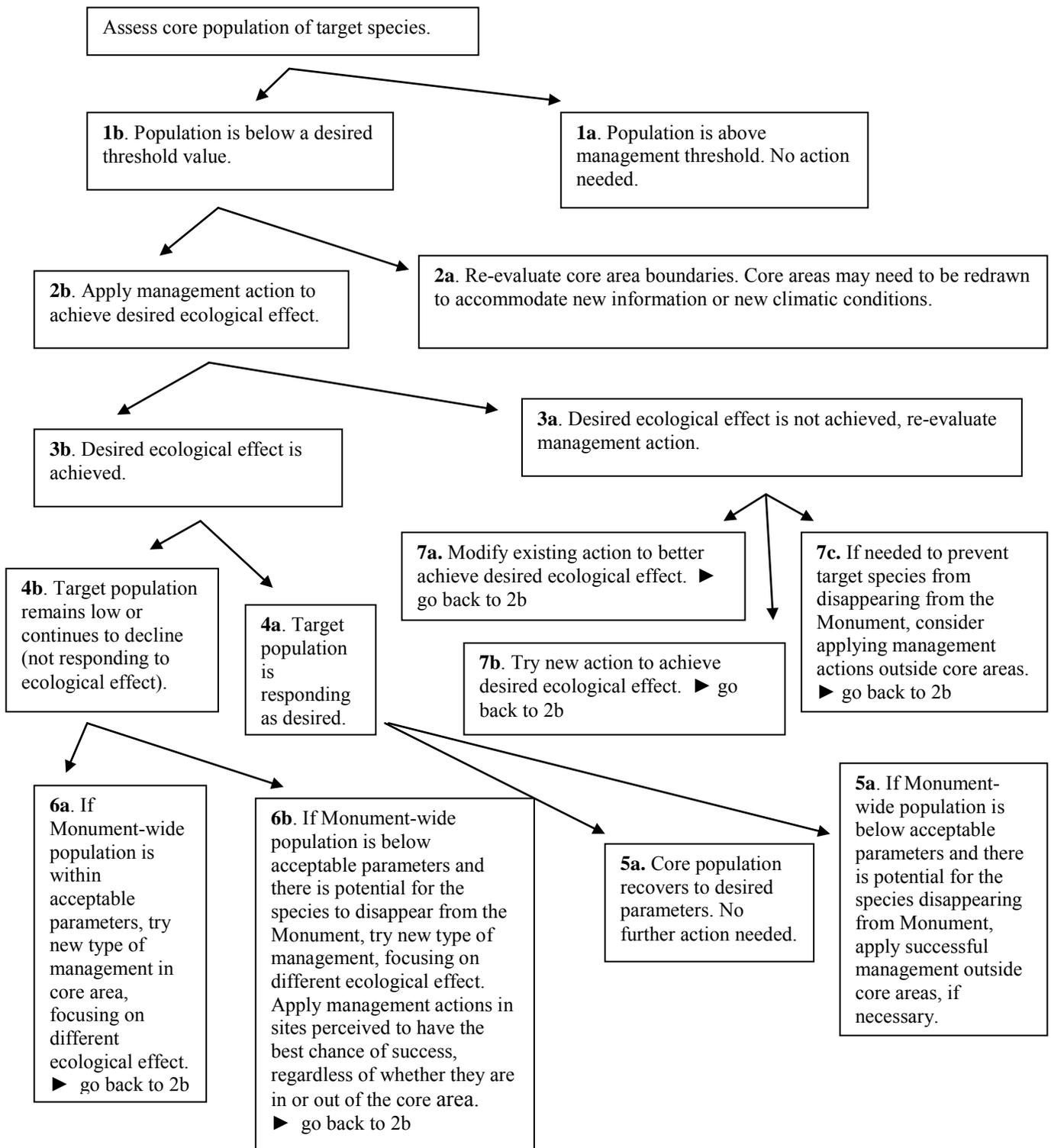
	Caliente Mountain South	Temblor Range	Panorama Hills / Elkhorn Plain	Carrizo Plain Central	Carrizo Plain North	Soda Lake	Caliente Foothills South
Giant kangaroo rat	X	X	X	X	X		
Blunt-nosed leopard lizard	X		X	X			X
San Joaquin kit fox	X		X	X	X	X	
San Joaquin antelope squirrel	X	X	X	X	X	X	

Allow the populations of these target species to naturally fluctuate, in number and distribution, but take action to prevent populations from disappearing from the Monument.

Management Actions

- *Action BIO-54(S)*: Monitor populations to determine trends and further define minimum population threshold values.
- *Action BIO-55(I)*: If necessary to prevent target species populations from disappearing from the Monument, take action in non-core habitat as well as in core habitat as identified in Appendix C, Conservation Target Table. The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in Figure 2.3-1. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.
- *Action BIO-56(S)*: Encourage partnerships with private landowners within habitat areas to manage target populations and habitat in concert with BLM goals.

Figure 2.3-1. Decision Tree for Management of San Joaquin Valley Target Species in Non-Core Areas



2.4.3.3 Native Ungulates

Pronghorn

Objective BIO-16(P): Develop and maintain a CPNM herd of 250 pronghorn. Implement management actions to improve the quality of fawning and foraging habitat.

Management Actions

- *Action BIO-57(S):* Support CDFG in efforts to monitor CPNM pronghorn populations via continuing aerial reconnaissance and habitat studies. Support CDFG in initiating new studies to determine pronghorn diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, GPS collars, and other monitoring equipment.
- *Action BIO-58(I):* Maintain and improve areas of pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions adequate to support 250 pronghorn. Allow livestock grazing in key pronghorn habitat only as identified in the Appendix C Conservation Target Table.
- *Action BIO-59(I*):* Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide mosaic of forage resources, habitat structure, and adequate fawning cover (Carrizo Plain North). Promote forb production through vegetation treatments (for example, prescribed fire to remove accumulated dead annual grasses). Maintain critical natural and man-made water sources year-round. Provide supplemental feed only if necessary to maintain a viable population.
- *Action BIO-60(I*):* Promote herd travel across the landscape by modifying all fences to allow animal passage underneath. Realign or remove fencing as identified in the Conservation Target Table.
- *Action BIO-61(I*):* Protect herd by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- *Action BIO-62(P):* Allow the introduction of pronghorn from other areas if necessary to achieve herd objectives, as long as CPNM habitat is adequate to support target population.

Tule Elk

Objective BIO-17(P): Provide and improve calving and foraging habitat in the Monument adequate to support a CPNM-based herd of 500 tule elk.

Management Actions

- *Action BIO-63(S):* Support CDFG in their efforts to monitor CPNM elk populations via continuing aerial reconnaissance and habitat studies. Support CDFG in their continuation of studies to determine elk diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, GPS collars, and other monitoring equipment.
- *Action BIO-64(I*):* Focus initial actions to maintain and improve areas of elk habitat in the Caliente Foothills North and Carrizo Plain North subregions. Allow livestock grazing in pastures identified as key calving and foraging habitat only as identified in the Conservation Target Table. Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide a mosaic of forage resources, habitat structure, and adequate calving cover. Maintain adequate acreage of tall grassland habitat within the Carrizo Plain North subregion and restore native bunchgrass communities in previously cultivated areas. Manage habitat to promote native forage species. Maintain critical natural and man-made water sources year round.

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- *Action BIO-65(I*)*: Protect herd by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- *Action BIO-66(P)*: Introduce tule elk from other areas if needed to achieve herd objectives as long as CPNM habitat is adequate to support target population.

2.4.3.4 Avian Species

Nesting Sites and Habitat

Objective BIO-18(P): (Same as Alternative 3) Maintain or improve nesting, roosting, and foraging habitat for raptors (Caliente Mountain South, Caliente Mountain North subregions) and ground-nesting birds such as grasshopper sparrow and short-eared owl (Caliente Foothills North, Carrizo Plain North, Soda Lake subregions), and migratory birds (Caliente Foothills South, Caliente Foothills North, Carrizo Plain North, Soda Lake subregions). Maintain or improve wintering habitat for raptors.

Management Actions

- *Action BIO-67(S)*: Conduct annual surveys for wintering raptors. Occasionally survey for additional species (such as tricolored blackbirds).
- *Action BIO-68(S)*: Conduct inventories to determine raptor nesting sites
- *Action BIO-69(I*)*: Protect nesting raptors from human disturbance at Selby Rocks, Painted Rock, and other nesting locations, but allow actions to protect rock art from bird excrement. Examples: limit public access to sensitive sites during nesting season, post signs and restrict climbing on rocks during nesting season.
- *Action BIO-70(I*)*: Allow certain nonnative trees and human structures to remain in place as habitat for birds. Construct new structures or plant additional trees in appropriate locations such as established major campgrounds and Monument buildings. Select species that are native to the area or are non-invasive and historically appropriate (such as black walnut).
- *Action BIO-71(S)*: Support research to understand regional importance as a nesting and wintering site for raptors and ground-nesting birds.
- *Action BIO-72(I*)*: Apply a variety of treatments (mowing, livestock grazing, burning, native planting and others as described under Table 2.4-2, Vegetation Management Toolbox) to create a mosaic of habitat types and structures to provide for a variety of species as necessary or as warranted.
- *Action BIO-73(I)*: Livestock grazing within the Carrizo Plain North subregion will be done in a manner that minimizes impacts to shrubs, tall forbs, and perennial native grasses as identified in the Conservation Target Table.
- *Action BIO-74(I)*: Discourage use of polypropylene twine at gates and other facilities in the Monument to prevent its use as a nesting material and potential entanglement of birds. Remove and replace existing polypropylene twine at gates and facilities.
- *Action BIO-75(S)*: Take measures – such as those described in *Suggested Practices for Avian Protection On Power Lines, The State of the Art in 2006* (Avian Power Line Interaction Committee 2006) – to minimize bird mortalities caused by electrocution along power lines within the Monument (Caliente Mountain North/South, Temblor Range).

Upland Game Birds

Objective BIO-19(P): Maintain suitable habitat for upland game birds and allow for continuation of existing artificial water sources.

Management Action

- *Action BIO-76(I*):* Allow maintenance, replacement, and removal of existing artificial water developments, such as guzzlers. New water developments may be allowed if proposed by CDFG and compatible with biological, cultural, and wilderness objectives.

2.4.3.5 Nonnative Animals and Captive-Held Native Animals

Objective BIO-20(P): Control the spread of nonnative animals. Minimize disease transmission, harassment, and competition from nonnative animals and from native animals that have been held in captivity.

Management Actions

- *Action BIO-77(I):* Control and eliminate, when possible, nonnative animals such as wild pigs and honeybees that may have negative impacts on habitat or other species. Potential methods to control pigs include hunting, fencing, and trapping. Potential methods to control honeybees include physical removal of hives, entombment, traps, insecticides, and poison bait stations.
- *Action BIO-78(P):* Prohibit the release of nonnative animals except for the use of approved biocontrol agents or the authorized use of livestock.
- *Action BIO-79(P):* Prohibit the release of native animals that have been held in captivity unless the release is required to meet Monument objectives, such as augmentation or reestablishment of an endangered or threatened species like the Kern primrose sphinx moth; reestablishment of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, or San Joaquin antelope squirrel in core areas; or the release of pronghorn or elk if necessary to meet herd objectives.
- *Action BIO-80(I):* Take protective measures if pets from visitors or private lands are causing wildlife depredation or other ecological damage. Examples: Require pets to be leashed or controlled at all times, require pet owners to remove fecal material, and contact owners if free-roaming pets from private lands are causing impacts. Pets shall remain leashed at all developed sites including visitor centers, interpretive overlooks, and camping areas.

2.4.3.6 Nonnative Plants

Objective BIO-21(P): Control the spread of nonnative weedy species (CDFA 2007, CDFG 2008, Cal-IPC 2008) and other nonnative plants.

Management Actions

- *Action BIO-81(I):* Follow integrated pest management (IPM) principles (BLM 1992). Each infestation will be evaluated as to the best control methods. Criteria include growth characteristics, seed production and dispersal, life history stage, size of infestation, difficulty of control, and previous control methods. Treatment will use the appropriate method(s), as identified in Table 2.4-2, Management Toolbox. Monitor to determine effectiveness of control measures.

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- *Action BIO-82(I)*: Monitor to detect new nonnative populations and aggressively work to eliminate founder populations before they can spread.
- *Action BIO-83(I)*: Work to eradicate target weed species such as yellow star thistle, bull thistle, tamarisk, hoary cress, and Russian knapweed (Table 3.2-4). Control and eradicate tree-of-heaven and, for plantings that have cultural or biological importance, replace with native or historically acceptable non-invasive species. Work on landscape-wide methods for controlling widespread species such as Russian thistle and horehound.
- *Action BIO-84(I)*: On a landscape level, design and implement measures to suppress nonnative annual grasses and herbs. Seed with native species, as applicable.
- *Action BIO-85(I)*: Implement measures to minimize the spread of weeds by livestock and equestrian activities (for example, encourage weed-free husbandry, prohibit cleaning of horse trailers on the Monument, encourage the use of weed-free hay, and monitor corrals and holding pens).
- *Action BIO-86(I)*: Remove nonnative weeds and restore native vegetation to disturbed areas that were created by past grazing activities. These include areas around troughs, corrals, and other locations where intense livestock presence resulted in a replacement of native vegetation with nonnative species such as wild barley, bromes, mustards, cheeseweed, and horehound.

2.4.3.7 Fire

Objective BIO-22(P): Maintain the natural role of fire in the landscape where feasible.

Management Actions

- *Action BIO-87(I)*: Manage fire (prescribed and wildfire) in the Caliente Mountains North subregion to mimic natural return interval.
- *Action BIO-88(I)*: Use fire as a habitat management tool to promote native species.
- *Action BIO-89(I)*: Take measures to increase our understanding of native people's historic use of fire and historic fire return intervals to aid in current management applications.

2.4.3.8 Protected Land

Objective BIO-23(P): Direct acquisition efforts to acquire lands with important biological resources, especially those that are poorly represented in public ownership.

Management Actions

- *Action BIO-90(I)*: Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, and management needs.
- *Action BIO-91(I)*: Identify target inholdings. Encourage sale or transference of target properties through a variety of methods/incentives.
 - Primary focus would be to acquire property that supports habitat and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.
 - Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and playa system) that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope

squirrel), or that support other important CPNM species (spadefoot toads, fairy shrimp, mountain plover, and rare plants).

- *Action BIO-92(I)*: Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- *Action BIO-93(I)*: Target other inholdings that may have management needs or risk of development or occupancy.
- *Action BIO-94(I)*: Develop and maintain a geographic information system (GIS) database showing the location of target resources to facilitate acquisition efforts

2.4.4 Alternative 1 Objectives and Management Actions

2.4.4.1 Native Plants

Objective: Rely only on natural process to maintain ecologically important plant communities and populations. Examples include native perennial grasslands, alkali sink, saltbush scrub, upper Sonoran sub-shrub scrub, vernal pools, bulb plants, native grasses, annual and perennial herbs, wildflowers, biological crusts, Alvord and blue oaks, yuccas, saltbush, ephedra, and manzanita.

Management Actions

- Map ecologically important plant communities and populations. For communities, follow nomenclature system developed by Sawyer and Keeler-Wolf (1995).
- Monitor target plant communities and populations to determine status and trends. Identify potential and current threats.
- Support research related to the management of CPNM plant communities and populations.
- Prohibit livestock grazing in areas of target plant resources. Do not mow, burn, nor reseed to improve native plant habitat.
- Allow plant resources to respond to fire with minimal intervention when other Monument objectives are not threatened.
- Control or eradicate noxious weeds (CDFA 2007, CDFA 2008) using only hand or mechanical methods (Table 2.4-2). Allow populations of other nonnative plants to respond to natural processes.

2.4.4.2 Non-Core Area Threatened and Endangered Animals

Objective: Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) within the Monument. Allow these species' populations in non-core areas to naturally fluctuate, in terms of number and distribution. Allow target populations to disappear and reappear in non-core portions of the Monument, but take action to prevent a target species from completely disappearing from the Monument.

Management Actions

- Monitor populations directly or use surrogate values to estimate target population trends and abundance. Do not use domestic livestock in habitat areas. If Monument-wide disappearance threshold is approached, initiate management actions depending on species' characteristics and specific factors influencing population trends.

- Do not apply livestock grazing or fire to manage non-core areas.

2.4.4.3 Native Ungulates

Pronghorn

Objective: Allow natural conditions to determine the quality of pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions and, by extension, pronghorn numbers and distribution on the Monument. Allow population to disappear if dictated by natural conditions.

Management Actions

- Support CDFG in monitoring CPNM pronghorn populations via continuing aerial reconnaissance and habitat studies. Support CDFG in initiating new studies on pronghorn diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, Global Positioning System (GPS) collars, and other monitoring equipment.
- Maintain areas of pronghorn habitat solely by natural means. Eliminate livestock grazing from pastures identified as key pronghorn habitat. Do not engage in active restoration. Do not mow, burn, or reseed to improve pronghorn habitat. Allow natural water systems to vary with the climate. Do not provide artificial water or supplemental feed.
- Promote herd travel across the landscape by removing all livestock fences not required to protect sensitive resources such as cultural sites.
- Protect herd by measures to reduce vehicle collisions (for example, through speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- Do not augment existing pronghorn population.

Tule Elk

Objective: Allow natural conditions to determine the quality of elk calving and foraging habitat on the Monument and, by extension, elk numbers and distribution. Allow population to disappear if dictated by natural conditions.

Management Actions

- Support CDFG in efforts to monitor CPNM elk populations via continuing aerial reconnaissance and habitat studies. Support CDFG in continuing studies to determine elk diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, GPS collars, and other monitoring equipment.
- Maintain areas of elk habitat solely by natural means. Do not engage in active restoration. Do not mow, burn, or reseed to improve elk habitat. Eliminate livestock grazing from pastures identified as key elk habitat. Allow natural water systems to vary with the climate. Do not provide artificial water or supplemental feed.
- Protect herd by measures to reduce vehicle collisions (for example, through speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- Do not introduce additional tule elk.

2.4.4.4 Avian Species

Nesting Sites and Habitat

Objective: Allow natural conditions to determine availability of suitable nesting, roosting, and foraging habitat for raptors (Caliente Mountain South, Caliente Mountain North subregions), ground-nesting birds, such as grasshopper sparrow and short-eared owl (Caliente Foothills North, Carrizo Plain North, Soda Lake subregions), and migratory birds (Caliente Foothills South, Caliente Foothills North, Carrizo Plain North, Soda Lake subregions).

Management Actions

- Conduct annual surveys for wintering raptors. Survey for additional species (such as tricolored blackbirds) when possible.
- Protect nesting raptors at Selby Rocks and Painted Rock from human disturbance.
- Allow nonnative trees and human structures used by birds to be removed.
- Allow vegetation to respond only to natural forces with no vegetation management (Carrizo Plain North, Panorama Hills/Elkhorn Plain, Carrizo Plain Central).
- Do not apply livestock grazing and fire to manage bird habitats.

Upland Game Birds

Objective: Allow natural conditions to determine availability of suitable habitat for upland game birds, with an emphasis on natural water sources (Caliente Mountain North, Caliente Mountain South, Temblor Range).

Management Action

- Remove artificial water developments (such as guzzlers) as they become non-functional.

2.4.4.5 Nonnative Animals and Captive-Held Native Animals

Objective: Control the spread of nonnative animals. Minimize disease transmission, harassment, and competition from nonnative animals and native animals that have been held in captivity.

Management Actions

- Control and eliminate, when possible, nonnative animals such as wild pigs and honey bees that may have negative impacts on habitat or other species.
- Prohibit the release of nonnative animals.
- Prohibit the release of native animals that have been held in captivity unless the release is required to meet the Monument's objectives, such as augmentation or reestablishment of an endangered or threatened species like the Kern primrose sphinx moth; or reestablishment of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, or San Joaquin antelope squirrel in core areas.
- Take protective measures if pets from visitors or private lands are causing wildlife depredation or other ecological damage. Examples: Require pets to be leashed or controlled at all times, require pet owners to remove fecal material, and contact owners if free-roaming pets from private lands are causing impacts.

2.4.4.6 Nonnative Plants

Objective: Control the spread of noxious weeds (CDFA 2007, CDFA 2008) but allow the distribution and population size of other introduced species to be dictated by natural processes.

Management Actions

- Monitor to detect new populations of noxious weeds. Aggressively work to eliminate founder populations using only hand or mechanical methods (Table 2.4-2).
- Work to eradicate established populations of target weed species such as yellow star thistle, saltcedar, hoary cress, and Russian knapweed, using only hand or mechanical methods (Table 2.4-2).
- Implement measures to minimize the spread of weeds by livestock and equestrian activities (for example, encourage weed-free husbandry, prohibit cleaning of horse trailers on the Monument, encourage the use of weed-free hay, monitor corrals and holding pens, and other measures).

2.4.4.7 Fire

Objective: Maintain the natural role of fire in the landscape where feasible.

Management Actions

- Manage fire (prescribed and wildfire) in the Caliente Mountain North subregion to mimic the natural return interval.
- Take measures to increase our understanding of native people's use of fire to aid in current management applications.

2.4.4.8 Protected Land

Objective: Increase the amount of protected land for rare species and important ecological habitats.

Management Action

- Acquire lands or interest as parcels become available (willing seller contacts BLM, county tax parcel becomes available, conservation organization such as Packard Foundation contacts BLM, or similar situations).

2.4.5 Alternative 3 Objectives and Management Actions

2.4.5.1 Native Plants

Objective: Maintain, increase, and restore ecologically important plant communities and populations. Examples include native perennial grasslands, alkali sink, saltbrush scrub, upper Sonoran sub-shrub scrub, vernal pools, bulb plants, native grasses, annual and perennial herbs, wildflowers, biological crusts, Alvord and blue oaks, yuccas, saltbush, ephedra, and manzanita.

Management Actions

- Map ecologically important plant communities and populations. For communities, follow nomenclature system developed by Sawyer and Keeler-Wolf (1995).

- Monitor target plants and communities to determine status and trends. Identify potential and current threats. Initiate management actions to abate threats, to increase populations of target species, and to benefit native plant communities. Protect from livestock grazing, if necessary. Control nonnative species. Manage select native plant resources and habitat as identified in the Conservation Target Table.
- Support research related to the management of CPNM plant communities and individual plant species. Initiate studies to define important community parameters and design threshold values for management actions. Support research on the biology/ecology of target species.
- Maintain and restore plant populations and communities, especially in areas of degraded habitat (for example, previously cultivated fields). Supplement natural processes with an active restoration program. Use vegetation management tools as described in Table 2.4-2, Vegetation Management Toolbox. Choose the tool that achieves the desired objective, with a minimum of negative impacts to other botanical resources. Because green season grazing by cattle has been shown to have a number of undesirable effects on native vegetation and habitat, its use as a tool to promote botanical resources would have limited application. Grazing may still be a useful tool under other prescriptions.
- Restore native grasslands by including seeds or propagules of bulbs and other perennial herbs in the restoration of previously cultivated or degraded fields. Increase seed and other material for restoration by cultivating target species offsite under agricultural conditions. Work to limit wild pig damage to bulbs and herbaceous perennial plants.
- Increase saltbush and other shrub communities by management and active restoration. Protect saltbush and other vulnerable shrub communities from fire. Restrict livestock grazing in saltbush and other shrub communities, unless necessary to meet important biological objectives. Restrict livestock grazing in saltbush recruitment years. Establish new saltbush and shrub populations in appropriate sites. Seek to reestablish landscape water flow patterns (for example, restore alluvial fans disrupted by roads) to promote shrub recruitment.
- Restore blue and Alvord oak habitat and facilitate recruitment of new trees. Protect oak trees impacted by livestock grazing or eliminate livestock grazing from these areas. Restore leaf litter mulch and soil functions beneath tree canopies and inoculate with mulch/soil organisms from healthy oaks. Establish new oak trees in areas previously shown to have trees, and in other appropriate sites. Provide supplemental water if necessary to ensure recruitment success. Protect oaks from devastating fires.
- Protect and restore vernal pool vegetation and crust communities in ecologically appropriate sites. Minimize negative impacts by livestock, horse, or human travel. Initiate studies to determine effects of livestock grazing on vernal pool vegetation and Carrizo crust communities and the feasibility of establishing/reestablishing vernal pools and crust communities in previously cultivated, overgrazed, or otherwise impacted areas. Undertake crust restoration, if practicable.
- Protect mosses and lichens at rock outcrops that receive regular visitation, such as Saucito Rocks. Take actions, such as education and signing, to prevent new trails that damage moss or lichen communities.

2.4.5.2 Non-Core Area Threatened and Endangered Animals

Objective: Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) in areas of suitable habitat with an emphasis on the following subregions:

Table 2.3-4. Target Species and Their Ecological Subregions, Alternative 3

	Caliente Mountain South	Temblor Range	Panorama Hills / Elkhorn Plain	Carrizo Plain Central	Carrizo Plain North	Soda Lake	Caliente Foothills South
giant kangaroo rat	X	X	X	X	X		
blunt-nosed leopard lizard	X		X	X			X
San Joaquin kit fox	X		X	X	X	X	
San Joaquin antelope squirrel	X	X	X	X	X	X	

Allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions to prevent populations from disappearing from areas of suitable habitat.

Management Actions

- Identify and map areas of suitable habitat for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Preliminary areas of suitable habitat are shown on Map 3-2, Special Status Animals. Manage areas of suitable habitat the same as core areas to prevent target species from disappearing from areas of suitable habitat.
- Monitor populations to determine trends and further define minimum population threshold values. If populations approach target minimums, initiate management actions, including those identified in Appendix C, Conservation Target Table, depending on species’ characteristics and specific factors influencing population trends.
- In those years when target species populations are low and vegetation structure is above optimum, as identified in the Appendix C, Conservation Target Table, use vegetation management tools as described in Table 2.4-2, Vegetation Management Toolbox.
- Encourage partnerships with private landowners within habitat areas to manage target populations and habitat in concert with BLM goals.

2.4.5.3 Native Ungulates

Pronghorn

Objective: Provide and improve pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions so that a CPNM-based herd of 250 pronghorn can be achieved within 10 years.

Management Actions

- Support CDFG in efforts to monitor CPNM pronghorn populations via continuing aerial reconnaissance and habitat studies. Support CDFG in initiation of new studies to determine pronghorn diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, GPS collars, and other monitoring equipment.
- Maintain and improve areas of pronghorn habitat. Allow livestock grazing in key pronghorn habitat (see Map 3-3, Pronghorn and Elk Habitat) only as identified in the Conservation Target Table.

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Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide mosaic of forage resources, habitat structure, and adequate fawning cover (Carrizo Plain North). Promote forb production by vegetation treatments (for example, prescribed fire, removal of accumulated dead annual grasses). Maintain critical natural and man-made water sources year round. Establish water sources within two miles of key forage and fawning areas in the Caliente Foothills North and Carrizo Plain North subregions (see Map 3-1, Carrizo Plain Subregions). Provide supplemental feed if necessary.

- Promote herd travel across the landscape by modifying all fences to allow animal passage underneath, such as realigning, reducing, or removing unnecessary fencing, or reducing the number of pastures to reduce the number of fences.
- Protect herd by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- Introduce pronghorn from other areas if necessary to achieve the 250-animal goal within 10 years.

Tule Elk

Objective: Provide and improve calving and foraging habitat in the Monument adequate to support a CPNM-based herd of 500 tule elk can be achieved within 10 years.

Management Actions

- Support CDFG in their efforts to monitor CPNM elk populations via continuing aerial reconnaissance and habitat studies. Support CDFG in their continuation of studies to determine elk diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, GPS collars, and other monitoring equipment.
- Focus initial actions to maintain and improve areas of elk habitat in the Caliente Foothills North and Carrizo Plain North subregions. Allow livestock grazing in pastures identified as key calving and foraging habitat only as identified in the Conservation Target Table. Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide mosaic of forage resources, habitat structure, and adequate fawning cover. Maintain adequate acreage of tall grassland habitat within the Carrizo Plain North subregion. If necessary to meet herd objectives and compatible with other resource objectives, restore native grassland in other subregions. Maintain critical natural and man-made water sources year round. Provide at least one water source per square mile and construct water sources large enough to support 250 elk, at a maximum of 5 miles apart, within important elk habitat in the Caliente Foothills North and Caliente Mountain South subregions (see Map 3-3, Pronghorn and Elk Habitat).
- Protect herd by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- Introduce tule elk from other areas, if needed to achieve herd objectives within ten years.

2.4.5.4 Avian Species

Nesting Sites and Habitat

Objective: (Same as Alternative 2) Maintain or improve nesting, roosting, and foraging habitat for raptors (Caliente Mountain South, Caliente Mountain North subregions) and ground-nesting birds such as grasshopper sparrow and short-eared owls (Caliente Foothills North, Carrizo Plain North, Soda Lake

subregions), and migratory birds (Caliente Foothills South, Caliente Foothills North, Carrizo Plain North, Soda Lake subregions). Maintain or improve wintering habitat for raptors.

Management Actions

- Conduct annual surveys for wintering raptors. Occasionally survey for additional species (such as tricolored blackbirds).
- Conduct inventories to determine raptor nesting sites
- Protect nesting raptors from human disturbance at Selby Rocks, Painted Rock, and other nesting locations, but allow actions to protect rock art from bird excrement. Examples: limit public access to sensitive sites during nesting season, post signs, restrict climbing of rocks during nesting season.
- Allow certain nonnative trees and human structures to remain in place as habitat for birds. Construct new structures or plant additional trees.
- Support research to understand regional importance as a nesting and wintering site for raptors and ground-nesting birds.
- Apply variety of treatments (mowing, livestock grazing, burning, native planting, others as described in Table 2.4-2, Vegetation Management to create a mosaic of habitat types and structures to provide for a variety of species as necessary or as warranted.
- Livestock grazing within the Carrizo Plain North subregion will be done in a manner that promotes shrubs, tall forbs, and perennial native grasses as identified in the Conservation Target Table.
- Support the planting of food crops for sandhill cranes on adjacent lands on previously cultivated areas near Soda Lake, only if compatible with other biological and cultural objectives.
- Discourage use of polypropylene twine at gates and other facilities in the Monument to prevent its use as a nesting material and potential entanglement of birds. Remove and replace existing polypropylene twine at gates and facilities.
- Take measures to minimize bird mortalities caused by electrocution along power lines within the Monument (Caliente Mountain North, Caliente Mountain South, Temblor Range).

Upland Game Birds

Objective: (Same as Alternative 2) Maintain suitable habitat for upland game birds and allow for continuation of existing artificial water sources.

Management Action

- Allow maintenance and replacement of existing artificial water developments, such as guzzlers. New water developments may be allowed if proposed by CDFG and compatible with biological, cultural, and wilderness objectives.

2.4.5.5 Nonnative Animals and Captive-Held Native Animals

Objective: Control the spread of nonnative animals. Minimize disease transmission, harassment, and competition from nonnative animals and native animals that have been held in captivity.

Management Actions

- Control and eliminate, when possible, nonnative animals such as wild pigs and honeybees that may have negative impacts on habitat or other species.
- Prohibit the release of nonnative animals except for the use of approved biocontrol agents, the authorized use of livestock, or in accordance with a CDFG-approved permit(s).
- Prohibit the release of native animals that have been held in captivity unless the release is required to meet Monument objectives, such as augmentation or reestablishment of an endangered or threatened species like the Kern primrose sphinx moth; reestablishment of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, or San Joaquin antelope squirrel in core areas; or the release of pronghorn or elk if necessary to meet herd objectives.
- Take protective measures if pets from visitors or private lands are causing wildlife depredation or other ecological damage. Examples: Require pets to be leashed or controlled at all times, require pet owners to remove fecal material, contact owners if free-roaming pets from private lands are causing impacts.

2.4.5.6 Nonnative Plants

Objective: Control the spread of noxious weeds and other nonnative plants.

Management Actions

- Follow IPM principles. Each infestation will be evaluated as to the best control methods. Criteria include growth characteristics, weediness, life history stage, size of infestation, difficulty of control, and previous control methods. Depending on these characteristics, any of the methods included in Table 2.4-2, Vegetation Management Toolbox, may be employed. Monitor to determine effectiveness of control measures
- Monitor to detect new nonnative populations and aggressively work to eliminate founder populations before they can spread.
- Work to eradicate target weed species such as yellow star thistle, bull thistle, saltcedar, hoary cress, and Russian knapweed. Control and eradicate tree-of-heaven, and for plantings that have cultural or biological importance, replace with historically acceptable, but less invasive species such as black walnut. Work on landscape-wide methods for controlling widespread species such as Russian thistle and horehound.
- On a landscape level, design and implement measures to suppress nonnative annual grasses and herbs. Seed with native species, as applicable.
- Implement measures to minimize the spread of weeds by livestock and equestrian activities (for example, encourage weed-free husbandry, prohibit cleaning of horse trailers on the Monument, encourage the use of weed-free hay, monitor corrals and holding pens).

2.4.5.7 Fire

Objective: (Same as Alternative 2) Maintain the natural role of fire in the landscape where feasible.

Management Actions

- Manage fire (prescribed and wildfire) in the Caliente Mountain North subregion to mimic the natural return interval.
- Use fire as a habitat management tool to promote native species.
- Take measures to increase our understanding of native people’s historic use of fire and historic fire return intervals to aid in current management applications.

2.4.5.8 Protected Land

Objective: (Same as Alternative 2) Direct acquisition efforts to acquire lands with important biological resources, especially those that are poorly represented in public ownership.

Management Actions

- Identify target inholdings. Encourage sale or transference of target properties through a variety of methods/incentives.
 - Primary focus would be to acquire property that supports habitat for and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.
 - Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and playa system), that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toads, fairy shrimp, Le Conte’s thrasher, mountain plover, rare plants).
- Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.

2.4.6 No Action Alternative

2.4.6.1 Rare Plants, Plant Communities, Viable Populations of Plants and Animals, Native Perennial Grasses and Wildflowers, Habitat Structure Diversity, Avian Species, and Soda Lake

Goal: Increase the importance of native species in CPNM communities and provide for all transitional states of native communities through the natural range of disturbances (fire, livestock grazing, climatic events).

Objectives

- Mimic the range of natural processes and disturbances.
- Maintain representative shrub-scrub communities across the landscape to assure their continued existence.
- Sustain the integrity of natural vernal pool communities.
- Manage grasslands to increase the importance of native plants and promote full representation of native species.

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- Develop an understanding of the effects of livestock grazing on current biotic communities and plant and animal species.

Management Actions

- Identify shrub-scrub stands to be maintained or enhanced.
- Manage (or exclude) livestock grazing to maintain high-priority shrub-scrub stands and enhance all other stands as appropriate.
- Avoid disturbance of natural vernal pools and the localized watershed required for their maintenance.
- Implement livestock grazing management (or exclusion) that will sustain vernal pool communities.
- Develop protocols to monitor vernal pools.
- Establish monitoring sites on grazed areas and adjacent ungrazed areas.
- Pursue stable funding source to address questions regarding the effectiveness of livestock grazing in meeting goals.
- Design studies to assess the effects of the proposed livestock grazing program on plants and animals.
- Identify replicate pastures to be grazed annually to the 500-pounds-per-acre mulch level prescription to evaluate the response of native and nonnative plant species to a consistent livestock grazing treatment.

Goal: Increase the importance of native species within existing nonnative communities as appropriate for current climatic conditions.

Objectives

- Reintroduce native plants and animals when appropriate.
- Restore and maintain natural communities.
- Maintain riparian zones in proper functioning condition to allow for the maintenance and development of natural riparian plant communities and basic riparian ecological functions.
- Determine location and extent of populations of exotic species and implement a prioritized control strategy.

Management Actions

- Develop a list of regionally and locally extirpated species and determine priorities for reintroduction. Assess habitat quality and environmental conditions to determine the probability of a successful reintroduction. Reintroduction benefits will be weighed against risks to other species and communities.
- Develop a reintroduction strategy cooperatively with the CDFG, BLM, the Nature Conservancy (TNC), and other experts, including USFWS, as appropriate. Strategies should be designed to detail population objectives being sought, minimize the possible changes in genetic composition of species inhabiting the CPNM, address contingencies should a population start to impact another species or plant community in adverse and unpredicted ways, and outline monitoring strategies necessary to evaluate success of the reintroduction.
- Explore options for increasing herd size and distribution of native ungulates.
- Collect and use materials for plant propagation from within the same hydrographic region, the Carrizo Plain, or the Cuyama Valley. Greenhouses or small nursery plots may be developed to accelerate the

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production of propagation materials. Five acres of seed plots and propagation facilities would be developed.

- Initiate studies to further our understanding of soil-vegetation relationships and historical distributions of plant communities to help plan restoration efforts.
- Establish additional test restoration plots throughout the CPNM to determine the most promising techniques for reintroducing native grass species, the factors (such as soil types) that influence community composition, and the affects of restoration efforts on native and core species. It is estimated that 30 acres of surface disturbance will result from seedling planting and 1,000 acres of disturbance will result from broadcast seeding.
- Identify opportunities for restoration by mapping roads and fuel breaks to be abandoned, previously cultivated fields, overgrazed areas, and other areas where the vegetation community has been degraded or destroyed. Evaluate springs and intermittent stream riparian zones to determine state (proper functioning, at risk, or nonfunctioning) using guidelines as described in BLM Technical Reference 1737-9, *Riparian Area Management: Process for Assessing Proper Functioning Condition* (BLM 1998).
- Develop strategy to improve at-risk and nonfunctioning riparian zones to proper function.
- Accelerate riparian zone restoration by planting, where appropriate, local stock of cottonwood and willow trees. Natural re-establishment has occurred without human assistance in several drainages indicating that riparian zones may have extended beyond the foothills of the Caliente Range in the past. Around springs, planting trees may result in diminished standing water critical for wildlife. Planting around springs should be done only after evaluating the drinking water needs of resident wildlife. Riparian restoration will disturb an estimated 10 acres of land.
- Fence water sources, wetlands, and riparian areas affected by livestock and wild pigs. Water diversions will divert the minimum amount necessary to maintain livestock or surface water for wildlife. Float valves or other devices will be installed to control diversion amounts. Water for livestock use will be piped as far from the riparian area as practical. If possible, livestock water sources will be maintained year-round for use by wildlife.
- Conduct inventories of exotic species to assist in setting control priorities. Determine the most efficient way to control exotic species.
- Aggressively control invasive exotic plants such as tamarisk and yellow starthistle, as well as other exotic species considered a threat to biotic communities. Estimated disturbances for the life of the plan are 500 acres for mowing, 5,000 acres for burning (25 acres of fire line), 200 acres for chemical application, and 25 acres for hand removal. Some of these efforts may require re-treatment of the same physical area.
- Evaluate the need to control exotic animal species such as red fox and wild pig.
- Evaluate the threats and value of nonnative tree species and eradicate when necessary. Generally, nonnative tree species are considered undesirable because of possible competitive exclusion of native species.

Goal: Achieve and maintain sustainable populations of all extant, non-listed native species.

Objectives

- Reduce impacts to non-listed native species through implementation of management and research actions
- Provide for the natural expansion and fluctuations of populations of non-listed native species.

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Management Actions

- Implement the scoping process described in Section III.a (of the CPNA Plan), which details a strategy for determining when impacts will be considered significant.
- Monitor changes in abundance and distribution patterns at known locations of non-listed native species. This level of monitoring is intended to provide an early warning to possible detrimental effects to species in relation to management and to provide guidance in setting up more rigorous monitoring or research.
- Design potentially disturbing activities to allow continued expansion of non-listed native species into new areas or their return to historically occupied areas. These management activities should not block the movement of individuals or propagules or significantly reduce the probability of successful expansion.

Goal: Develop an understanding of the naturally occurring ecological processes affecting plant and animal communities.

Objectives

- Develop and update a map of known vegetative community boundaries at the 1:24,000 scale, correlated to soil type.
- Develop an understanding of the factors affecting the sustainability of the CPNM natural communities.
- Develop an understanding of the role of extraordinary events as an ecological process. Such events include fire, catastrophic runoff, wind and dust storms, prolonged drought, and disease epidemics. The nature of these events precludes detailed advanced planning. Studies will need to be designed rapidly in order to take full advantage of research opportunities.

Management Actions

- Adopt a standard vegetation classification scheme. Take aerial photographs every five years unless extraordinary events occur, necessitating more frequent aerial photos. Ground-truth the plant community maps developed from interpreting aerial photographs. Make the third-order soil survey available at the Painted Rock Ranch as well as the Bakersfield District Office and correlate to vegetative communities.
- Develop and maintain an inventory of all species inhabiting the CPNM.
- Initiate and commit to long-term studies of the factors influencing community composition, structure, and function. Priority should be given to well-represented habitats that are inadequately studied by core species research. Because resources are limited, study areas should be relatively small and scattered geographically to assure representation of the habitat in question.
- Map all major perturbations (fire, floods, and disease episodes) of vegetative communities. This allows for the development of a complete history of disturbance events necessary to describe the importance of these events to plant and animal communities.
- Determine the function of extraordinary events in plant and animal community dynamics. Each event will be evaluated to determine the potential for research and how the research would fit into high-priority items. Determine the research needs using the managing partners and invited experts. When possible, standard monitoring methods will be used.

Goal: Monitor and evaluate the effectiveness of management in meeting biotic community goals.

Objectives

- Determine if management activities cause large population fluctuations or seriously impair community function. This level of monitoring is intended to show large-scale impacts to species and their communities in a timely manner. Smaller-scale impacts usually require more detailed study to determine effects.
- Assess the effectiveness of management in achieving stated project goals. This level of monitoring will generally take more detailed study than that described in other objectives.

Management Actions

- Conduct field observations at least seasonally of each biotic community to assess resource conditions and management effect.
- Employ recommendations based on monitoring results to help correct the causes leading to impacts.
- Develop and maintain a list of monitoring needs in order of priority. Priority should be based on the extent and intensity of anticipated impacts and the level of risk ascribed to a species or community.
- Conduct monitoring for high-priority issues. The results of these studies will be used to evaluate current and future management actions.

2.4.6.2 Threatened and Endangered Animals

Goal: Contribute to the recovery of listed species by achieving long-term, viable populations of all extant listed species within the CPNM, outside of captivity.

Objectives

- Manage extant locations and habitat features of listed species to allow for their continued existence and maintenance of viability. The continued functioning of the plant community is critical for these listed species.
- Provide for the natural expansion and fluctuations of populations of listed species consistent with species recovery.
- Reduce human-caused hazards to listed species.

Allowable Uses

Minimize adverse impacts to listed species and their habitats to the greatest extent feasible. A scoping process is described in Section III.a of the CPNA Plan that details a strategy for determining when impacts will be considered significant.

Management Actions

- Monitor changes in abundance and distribution of listed species at known locations. This level of monitoring is intended to warn of possible detrimental effects of management activities and to provide guidance in setting up more rigorous monitoring or research.
- Design potentially disturbing activities to allow continued expansion of listed species into new areas or their return to historically occupied areas.
- Identify, prioritize, and reduce or alleviate human-caused hazards to listed species.

Goal: Develop an understanding of the distribution and abundance of listed species and the mechanisms influencing changes in either parameter.

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Objectives

- Determine historic and current distribution and abundance of listed species and monitor changes in both parameters relative to soils, plant associations, past and present land uses, and climatic vagaries.
- Develop an understanding of the demographics and habitat requirements of the listed species.

Management Actions

- Compile and centralize all known data on historic distribution and abundance. Encourage further investigation into past vegetative community species composition.
- Encourage further pollen analysis to determine this technique's efficacy in describing current vegetative community species composition.
- Inventory current distribution and abundance of core species relative to soils, plant associations, and past and present land uses.
- Establish a procedure to monitor changes in distribution and abundance at appropriate time intervals and relative to climatic vagaries and extraordinary events.
- Develop field observation forms for use by all cooperators.
- Develop and maintain a database on distribution and abundance and make the information available to cooperators and interested individuals
- Determine estimates of and variances in demographic parameters for each species.
- Determine habitat requirements for the listed species.

2.4.6.3 Native Ungulates

Goal: Increase the importance of native species within existing nonnative communities as appropriate for current climatic conditions.

Objective: Reintroduce native plants and animals when appropriate.

Management Action: Explore options for increasing herd size and distribution of native ungulates (pronghorn and elk).

2.4.6.4 Riparian Nonnative Species

Goal: Increase the importance of native species within existing nonnative communities as appropriate for current climatic conditions.

Objectives

- Reintroduce native plants and animals when appropriate.
- Restore and maintain natural communities.
- Maintain riparian zones in proper functioning condition to allow for the maintenance and development of natural riparian plant communities and basic riparian ecological functions.
- Determine location and extent of populations of exotic species and implement a prioritized control strategy.

Management Actions

- Identify opportunities for restoration by mapping roads and fuel breaks to be abandoned, previously cultivated fields, overgrazed areas, and other areas where the vegetation community has been degraded or destroyed. Evaluate springs and intermittent stream riparian zones to determine functional status (proper functioning, at-risk, or nonfunctioning), using guidelines as described in BLM Technical Reference 1737-9, *Riparian Area Management: Process for Assessing Proper Functioning Condition* (BLM 1998).
- Develop strategy to improve at risk and nonfunctioning riparian zones to proper function.
- Accelerate riparian zone restoration by planting, where appropriate, local stock of cottonwood and willow trees. Natural re-establishment has occurred without human assistance in several drainages indicating that riparian zones may have extended beyond the foothills of the Caliente Range in the past. Around springs, planting trees may result in diminished standing water critical for wildlife. Planting around springs should be done only after evaluating the drinking water needs of resident wildlife. Riparian restoration will disturb an estimated 10 acres of land.
- Fence water sources, wetlands, and riparian areas affected by livestock and wild pigs. Water diversions will divert the minimum amount necessary to maintain livestock or surface water for wildlife. Float valves or other devices will be installed to control diversion amounts. Water for livestock use will be piped as far from the riparian area as practical. If possible, livestock water sources will be maintained year-round for use by wildlife.
- Conduct inventories of exotic species to assist in setting control priorities. Determine the most efficient way to control exotic species.
- Aggressively control invasive exotic plants such as tamarisk and yellow starthistle, as well as other exotic species considered a threat to biotic communities. Estimated disturbances for the life of the plan are 500 acres for mowing, 5,000 acres for burning (25 acres of fire line), 200 acres for chemical application, and 25 acres for hand removal. Some of these efforts may require re-treatment of the same physical area.
- Evaluate the need to control exotic animal species such as red fox, wild pig, and cowbirds.
- Evaluate the threats and value of nonnative tree species and eradicate when necessary. Generally, nonnative tree species are considered undesirable because of possible competitive exclusion of native species.

Goal: Maintain and enhance hydrologic processes.

Objective: Protect or enhance habitat condition, water quality, plant community composition, and wildlife use for all springs, water sources, and drainages.

Management Actions

- Complete spring and water source inventory by year three of plan implementation.
- Initiate monitoring studies of springs and seeps to determine trends of plant community composition, water flows, and water quality to evaluate management effectiveness.
- Evaluate water source inventory and monitoring information to determine needs for habitat protection or habitat improvement. Protect sensitive areas through fencing, water distribution to adjacent uplands, and seeding or transplants.
- Design spring improvements to maintain or improve wetland conditions.
- File for appropriate water rights where applicable.

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- Design and maintain roads and facilities to allow sheet and channel runoff.
- Protect active washes and alluvial fans from channelization.

2.4.6.5 Fire

Goal: Develop an understanding of the role of fire in the CPNM.

Objectives

- Develop a fire history for the CPNM.
- Develop an understanding of the effects of fire and suppression on current biotic communities and species of plants and animals.

Management Actions

- Determine the extent of fire use by Native Americans.
- Determine the historical extent, intensity, interval season, and duration of fires.
- Establish post-fire monitoring sites on areas burned by wildfires and adjacent unburned areas. It is estimated that 50,000 acres will burn as a result of wildfire resulting in fire line construction on 25 acres during the life of this plan.
- Conduct prescribed burns to answer specific questions regarding fire's effects on plant and animal communities. These studies should include unburned controls as well as data collected both before and after the prescribed burn. It is estimated that 30,000 acres of prescribed fire will be conducted resulting in fire line construction on 10 acres during the life of this plan.
- Design studies to assess the effects of various suppression and prescribed burn pretreatment methods (fire line construction) on plants and animals.

Goal: Manage fire to derive maximum biological benefit while minimizing impacts on resources.

Objectives

- Coordinate wildfire suppression and prescribed burning activities.
- Pre-suppression and suppression activities will be implemented to reduce the adverse impacts of fire management.

Management Actions

- Develop a comprehensive fire-management plan encompassing fire safety, sensitive resources (biological and cultural), and agency coordination.
- Pre-suppression activities will be carried out in a manner based on research results that will minimize negative impacts on resources.
- Allow wildfires to burn in designated areas to allow re-establishment of natural fire intervals and to minimize negative impacts on resources during fire suppression activities.

Goal: Increase the importance of native species in CPNM communities and provide for all transitional states of native communities through the natural range of disturbances (fire, livestock grazing, climatic events).

Objective: Mimic the range of natural processes and disturbances.

Management Action: Implement the livestock grazing, fire management, and research actions described in the Habitat Management section of the CPNA plan.

2.4.6.6 Vernal Pools and Sag Ponds

Goal: Increase the importance of native species in CPNM communities and provide for all transitional states of native communities through the natural range of disturbances (fire, livestock grazing, climatic events).

Objectives

- Sustain the integrity of natural vernal pool communities.
- Develop an understanding of the effects of livestock grazing on current biotic communities and plant and animal species.

Management Actions

- Avoid disturbance of natural vernal pools and the localized watershed required for their maintenance.
- Implement livestock grazing management (or exclusion) that will sustain vernal pool communities.
- Develop protocols to monitor vernal pools.
- Implement restoration activities as described in Subsection (a) of the CPNA Plan.
- Establish monitoring sites on grazed areas and adjacent ungrazed areas.
- Pursue stable funding source to address questions regarding the effectiveness of livestock grazing in meeting goals.
- Design studies to assess the effects of the proposed livestock grazing program on plants and animals.

2.4.6.7 Protected Land

Goal: Acquire remaining private lands to protect and enhance natural and cultural values.

Objective: Acquire, from willing sellers, all remaining private lands within the boundaries of the CPNM.

Management Actions

- Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, and management needs.
- Establish agreements or acquire easements to protect resources with owners of parcels that cannot be acquired in fee.
- Cooperate with San Luis Obispo County to address private land development issues within the CPNM.
- Retain all acquired lands and original public land within the CPNM, but allow exchange of parcels between BLM, TNC, and CDFG if mutually beneficial for management purposes. Retain all original mineral rights on split estate lands.

2.5 Fire and Fuels Management

Management of fire and fuels involves achieving a balance between fire suppression activities to protect life, property, and resources, and the use of fire and other mechanical tools to regulate fuels and maintain healthy ecosystems. A consistent set of fire management policies for all federal lands was first outlined in 1995 with the *Federal Wildland Fire Management Policy and Program Review* (USDI and USDA 1995). Several guiding principles were recognized in this policy regarding the natural role of fire as a change agent, the need to fully integrate wildland fire management into land management planning, and recognition of the importance of local interagency coordination and cooperation, which are facilitated by standardization of policies and procedures among federal agencies. Further refinements of the national policy have occurred since 1995, including the *Review and Update of the 1995 Federal Wildland Fire Management Policy* (USDI et al. 2001), the *Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy* (USDI and USDA 2003), and the *Guidance for Implementation of Federal Wildland Fire Management Policy* (USDI and USDA 2009).

The Federal Wildland Fire Policy put in place a three-tier planning system for fire management:

- Land use planning, such as this RMP, to outline overall land use goals, objectives, and actions;
- Fire management plan, which serves as the functional activity-level plan for the fire management program; and
- Implementation plans, which are site-specific direction, such as prescribed fire plans, modified suppression plans and other decision support documents to determine the response to specific wildland fire incidents.

The Bakersfield Field Office completed a fire management plan in September 2004. In this plan, the CPNM was addressed as a separate fire management unit. Following completion of this RMP, the fire management plan will be reviewed and made consistent with any new decisions in this land use plan.

To facilitate understanding of the alternatives for fire and fuels, the following section briefly defines some of the terms used:

Response to Wildland Fire: The response to a wildland fire based on an evaluation of risks to firefighter and public safety; the circumstances under which the fire occurs, including weather and fuel conditions; and natural and cultural resource management objectives, protection priorities, and values to be protected. The response to wildland fire ranges across a spectrum of tactical options from monitoring the fire to intensive suppression actions.

Wildfire: An unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human-caused fires) and escaped prescribed fires.

Prescribed Fire: A wildland fire originating from a planned ignition to meet specific objectives identified in a written, approved, prescribed fire plan.

Use of Wildland Fire: Management of either wildfire or prescribed fire to meet resource objectives specified in Resource Management Plans.

2.5.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.5.1.1 Goals

- *Goal FIRE-1(P)*: Ensure that protection of human life is the single, overriding priority in all fire management activities.
- *Goal FIRE-2(P)*: Manage fuels and wildfire suppression actions to avoid resource damage from catastrophic fire.
- *Goal FIRE-3(P)*: Restore natural role of fire in the ecosystem.

2.5.1.2 Objectives and Management Actions

Objective FIRE-1(P): Determine the response to fire based on the likely consequences to firefighter and public safety and welfare, natural and cultural resources, and values to be protected.

Management Actions

- *Action FIRE-1(P)*: Use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.
- *Action FIRE-2(P)*: Fight fire safely by following procedures in the *Interagency Standards for Fire and Fire Aviation Operations* (USDI and USDA 2008).
- *Action FIRE-3(P)*: Coordinate closely with interagency fire suppression partners to ensure that resource protection strategies are understood and implemented. Continue to include a modified suppression plan in the Central Coast Operating Plan to outline fire suppression guidelines to fire suppression partners.
- *Action FIRE-4(P)*: Utilize existing natural and human-made barriers (such as roads, trails) where feasible during wildland fire suppression.
- *Action FIRE-5(P)*: Utilize minimum impact suppression tactics (MIST) in the Caliente Mountain WSA. Also utilize MIST within the remainder of the primitive recreation management zones, to the extent possible, considering other values at risk to be protected.
- *Action FIRE-6(P)*: Avoid the use of fire retardant drops on rock outcrops to prevent damage to sensitive resources, such as rock art, vernal pools, and raptor nesting sites.
- *Action FIRE-7(P)*: Avoid aerial or ground application of fire chemicals within 300 feet of waterways in accordance with the *Interagency Standards for Fire and Fire Aviation Operations* (USDI and USDA 2008).
- *Action FIRE-8(P)*: Minimize the loss of fire-intolerant saltbush vegetation.
- *Action FIRE-9(P)*: Request a resource advisor familiar with area management objectives and sensitive resource values for all fires burning within the CPNM. Ensure BLM fire suppression personnel are also aware of special resource concerns in CPNM.
- *Action FIRE-10(P)*: Park vehicles and set up suppression support facilities in areas that have already been impacted (such as administrative sites) or locate outside the CPNM.
- *Action FIRE-11(P)*: Take measures to increase our understanding of native people's historic use of fire and historic fire return intervals to aid in current management applications.

Objective FIRE-2(P): Determine post-fire effects of all wildland fires and determine needed actions.

Management Actions

- *Action FIRE-12(P):* Assess all wildland fires for emergency stabilization and rehabilitation needs.
- *Action FIRE-13(P):* Where emergency stabilization and rehabilitation needs are identified, complete necessary work in a timely and cost-efficient manner.

2.5.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.5.2.1 Objective

Objective FIRE-3(I):

Follow current wildland fire objectives in the fire management plan:

- Target wildfire acres burned per decade: approximately 10,000 acres.
- Target individual wildland fire size: 100 acres or less 80 percent of the time.
- Fires on the valley floor burning in grassland areas away from sensitive cultural sites and fire-intolerant shrub areas may be managed using a confine strategy, burning to the nearest roads. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres.

2.5.2.2 Allowable Uses

Allowable Use FIRE-1(P): No areas identified for managing fire (use of wildland fire) to meet resource objectives within the CPNM.

2.5.2.3 Management Actions

- *Action FIRE-14(I):* Apply the response to wildland fire using the following assumptions:
 - Actively suppress fires that threaten life, facilities, or private property.
 - Actively suppress fires that threaten fire sensitive natural or cultural resources, such as saltbush or other vulnerable shrub communities, Alvord and blue oak stands, and National Register properties. Active suppression could include aerial attack, mobile attack, handline construction, or dozerline construction (outside of sensitive cultural site areas). Utilize mobile attack in preference to more disturbing methods such as dozerline construction.
 - In other areas, apply a confine strategy, where fires are suppressed when they reach the nearest existing control feature, such as a road.
 - Utilize MIST for fires burning within the Caliente Mountain WSA (17,984 acres). Use MIST to the extent possible, considering other values at risk to be protected, in the remaining primitive recreation management zones, which include an additional 44,471 acres.
 - While considering the above assumptions, the incident commander retains the authority during initial attack to undertake whatever actions are deemed appropriate based on current and anticipated conditions and resource availability (while considering restrictions to protect sensitive natural and cultural resources). For example, a confine strategy may not be appropriate in times of extremely hot and dry conditions or when multiple incidents in a geographic area have depleted available suppression resources.

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- *Action FIRE-15(I)*: Coordinate with biological specialists to utilize prescribed fire to contribute to native species restoration goals and noxious weed control. Prescribed fire would also be used to return fire to its place in the ecosystem, as well as to meet fuel reduction needs. Treat up to 10,000 acres with prescribed fire each decade.
- *Action FIRE-16(I)*: Reduce fuels adjacent to structures and other improvements, as well as along major travel corridors to reduce the number of human-caused ignitions in the CPNM. Treat up to 4,000 acres per decade with non-fire fuels treatment. Treatments could include activities such as mowing along roads and providing vegetation clearance around structures.

2.5.3 Alternative 1

2.5.3.1 Objectives

- Utilize a hands-off / natural processes approach to fire management in the CPNM.
- Manage naturally occurring fires for resource benefit, where appropriate.
- Fire control objectives:
 - Target wildfire acres burned per decade: 15,000 acres.
 - Target individual wildland fire size: 1,000 acres or less 90 percent of the time.

2.5.3.2 Allowable Use

Allow for the option of wildland fire use within the Caliente Mountain WSA.

2.5.3.3 Management Actions

- Apply the AMR to wildland fire using the following assumptions:
 - Actively suppress fires that threaten life or private property.
 - Consider managing natural ignitions within the Caliente Mountain WSA as wildland fire use fires. Manage fires for resource benefit.
 - In other areas, apply a confine strategy, where fires are suppressed when they reach the nearest existing control feature, such as a road.
 - Utilize MIST for fires burning within the Caliente Mountain WSA (17,984 acres). Use MIST to the extent possible in the remaining primitive recreation management zones, which include an additional 65,607 acres under this alternative.
 - While considering the above assumptions, the incident commander retains the authority during initial attack to undertake whatever actions are deemed appropriate based on current and anticipated conditions (while considering restrictions to protect sensitive natural and cultural resources). For example, a confine strategy may not be appropriate in times of extremely hot and dry conditions or when multiple incidents in a geographic area have depleted available suppression resources.
- Utilize mechanical equipment, such as dozers, only when necessary to protect human life or property.
- Limit mechanical fuel reduction activities to immediately adjacent to structures or other physical improvements, to meet state requirements for vegetation clearance (currently 30 feet of cleared fuel directly adjacent to structure and reduced fuel within 100 feet).

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- Do not conduct any prescribed burning in the CPNM, relying instead on natural ignitions to restore fire to the landscape.

2.5.4 Alternative 3

2.5.4.1 Objectives

Actively suppress wildfires and rely on prescribed fire to return fire to the ecosystem.

- Target wildfire acres burned per decade: 5,000 acres.
- Target individual wildland fire size: 100 acres 90 percent of the time.

2.5.4.2 Allowable Use

No areas identified for wildland fire use within the CPNM.

2.5.4.3 Management Actions

- Apply the AMR to wildland fire using the following assumptions:
 - Actively suppress all fires within the CPNM to minimize acres burned under wildland fire situations. Utilize aerial attack, mobile attack, handline construction, or dozerline construction.
 - Utilize MIST for fires burning within the Caliente Mountain WSA (17,984 acres).
- Coordinate with biological specialists to utilize prescribed fire to contribute to native species restoration goals and noxious weed control. Prescribed fire would also be used to return fire to its place in the ecosystem, as well as to meet fuel reduction needs. Treat up to 15,000 acres with prescribed fire per decade.
- Reduce fuels adjacent to structures and other improvements, as well as along major travel corridors to reduce the number of human-caused ignitions in the CPNM. Treat up to 4,000 acres per decade with non-fire fuels treatment.

2.5.5 No Action Alternative

Current direction for fire management is included in the CPNA Plan. Direction for fire and fuels management was included in the Biotic Communities section under Habitat Management, as well as the Emergency Services and Public Safety section.

2.5.5.1 Habitat Management

Goal: Develop an understanding of the role of fire in the CPNM.

Objective: Develop a fire history for the CPNM.

Management Actions

- Determine the extent of fire use by Native Americans.
- Determine the historical extent, intensity, interval season, and duration of fires.

Objective: Develop an understanding of the effects of fire and suppression on current biotic communities and species of plants and animals.

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Management Actions

- Establish post-fire monitoring sites on areas burned by wildfires and adjacent unburned areas. It is estimated that 50,000 acres will burn as a result of wildfire resulting in fire line construction of 25 acres during the life of this plan.
- Conduct prescribed burns to answer specific questions regarding fire's effects on plant and animal communities. These studies should include unburned controls as well as data collected both before and after the prescribed burn. It is estimated that 30,000 acres of prescribed fire will be conducted resulting in fire line construction of 10 acres during the life of this plan.
- Design studies to assess the effects of various suppression and prescribed burn pre-treatment methods (fire line construction) on plants and animals.

Goal: Manage fire to derive maximum biological benefit while minimizing impacts to resources.

Objective: Coordinate wildfire suppression and prescribed burning activities.

Management Action

- Develop a comprehensive fire management plan encompassing fire safety, sensitive resources (biotic and cultural), and agency coordination.

Objective: Pre-suppression and suppression activities will be implemented to reduce the adverse impacts of fire management.

Management Actions

- Pre-suppression activities will be based on research results that will minimize negative impacts to resources.
- Allow wildfires to burn in designated areas to allow re-establishment of natural fire intervals and to minimize negative impacts to resources during fire suppression activities, as described in the protection strategy map in the CPNA Plan's Technical Appendix.

2.5.5.2 Fire Safety

Goal: Protect people, facilities, and equipment from wildfires.

Objective: Increase the availability and dependability of water sources needed for wildfire suppression and prescribed burning.

Management Actions

- Select appropriate water holding tanks and fit valves with 2.5-inch National Standard adapters to be compatible with firefighting equipment.
- Prepare an activity fire plan for any procedure that could lead to fire ignition, such as metal cutting and welding, mowing, and scraping.

Objective: Prevent fires through increasing public awareness and education about fire hazards and fuel reduction.

Management Actions

- Post fire prevention signs that give a clear and concise fire prevention message.

- Prevent wildfires from spreading to or from structures by removing dry vegetation a distance of at least 30 feet.
- Reduce roadside fire hazards by mowing vegetation from the roadway and shoulders.

2.6 Air Quality

The *Clean Air Act* requires federal agencies to comply with federal, state, and local air pollution standards. The *Clean Air Act* also requires each state to develop an implementation plan ensuring that national ambient air quality standards are attained and maintained for criteria pollutants. National standards have been established for six pollutants described in the *Clean Air Act*. Of these six, only one – particulate matter – is substantially affected by natural resource management activities. Most particulate matter produced by wildland fire is less than 10 micrometers in diameter; this PM₁₀ is the size class of particular concern for human health. Land managers have little control over where, when, and how much smoke is produced during wildfires. However, with prescribed fire, smoke levels can be managed through coordination with regional air quality districts in determining acceptable burn periods.

2.6.1 Goal, Objectives, and Management Actions Common to All Action Alternatives

2.6.1.1 Goal

Goal AIR-1(P): Manage uses to maintain and improve air quality to meet federal and state ambient air quality standards.

2.6.1.2 Objective

Objective AIR-1(P): Maintain and/or improve air quality to meet all local, state, and federal air quality standards.

Objective AIR-2(P): Utilize the Monument adaptive management program to implement techniques, best management practices (BMPs), and SOPs to increase beneficial effects and minimize the contribution to global climate change.

2.6.1.3 Management Actions

- *Action AIR-1(S)*: Comply with all local, state, and federal air quality regulations when implementing projects.
- *Action AIR-2(I*)*: Consider impacts of climate change on Monument resources and evaluate the contribution of management actions and program activities on climate change.
- *Action AIR-3(I*)*: Use alternative energy sources where feasible on BLM projects and facilities (for example, solar and/or wind).
- *Action AIR-4(I*)*: Minimize dust emissions on roads and while implementing earth-disturbing activities.
- *Action AIR-5(S)*: Use accepted best management practices to minimize the exposure of employees, visitors, and area residents to the spores that may result in valley fever.

2.6.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.6.2.1 Objective

Objective AIR-3(P): Improve overall air quality by reducing fugitive dust and particulate matter emissions throughout the Monument.

2.6.2.2 Management Actions

- *Action AIR-6(I*):* Use an aggregate, gravel base, or chemical binder/dust suppressant to cover main BLM roads throughout the Monument, with primary focus on those accessing or passing high-use recreation sites, other areas with high public or resident exposure, and near rock art sites.
- *Action AIR-7(S):* Coordinate with the county to reduce dust emissions on county roads.
- *Action AIR-8(I*):* Close and reclaim roads determined redundant or unnecessary as identified in Section 2.18, Travel Management.
- *Action AIR-9(I*):* Install solar panels where feasible to replace generators, or use windmills at wells. Rehabilitate existing windmills.
- *Action AIR-10(S):* Implement best management practices to ensure that all BLM projects minimize air quality impacts and risks to human health and safety (such as the risk of contracting valley fever).
- *Action AIR-11(I*):* Avoid conducting prescribed fire when weather conditions are likely to result in smoke entering adjacent areas that exceed current air pollution standards (for example, the San Joaquin Valley Air Basin).
- *Action AIR-12(I):* Avoid burning during high-visitor-use periods to maintain visibility and protect human health and safety. (Examples of predictable high-use days include three-day weekends, holidays, peak flowering periods, and hunting season openings.)

2.6.3 Alternative 1

2.6.3.1 Objective

Improve overall air quality by reducing fugitive dust emissions on roads throughout the Monument.

2.6.3.2 Management Actions

- Use an aggregate, gravel base, or chemical binder/dust suppressant to cover main access roads throughout the Monument.
- Close and reclaim roads determined redundant or unnecessary as identified in Section 2.18, Travel Management.
- Implement seasonal closures to the public on roads without dust suppression additives.

2.6.4 Alternative 3

2.6.4.1 Objective

Improve overall air quality by reducing fugitive dust emission on roads throughout the Monument.

2.6.4.2 Management Actions

- Pave major travel routes into and out of the CPNM. (Work with the county to secure funding to implement this action on their administratively controlled roads.)
- Gravel key secondary routes and roads within the CPNM.
- Close/reclaim all unnecessary routes and roads that are not needed for administrative/public use(s).
- Install solar panels where feasible to replace generators, or use windmills at wells. Rehabilitate existing windmills.
- Avoid conducting prescribed fire when weather conditions are likely to result in smoke entering adjacent areas that exceed current air pollution standards (for example, the San Joaquin Valley Air Basin).
- Avoid burning during high-visitor-use periods to maintain visibility and protect human health and safety. Examples of predictable high-use days include three-day weekends, holidays, peak flowering periods, and hunting season openings.

2.6.5 No Action Alternative

2.6.5.1 Goal

Maintain or improve air quality.

2.6.5.2 Objectives

- Comply with local, state, and federal air quality and visibility requirements and encourage the reduction of emissions while conducting prescribed fires.
- Minimize dust generated from roads and other land management activities.

2.6.5.3 Management Actions

- Avoid conducting prescribed fire when weather conditions are likely to result in smoke entering adjacent areas that exceed current air pollution standards (for example, the San Joaquin Valley Air Basin).
- Avoid burning during high-visitor-use periods to maintain visibility and protect human health and safety. Examples of predictable high-use days include three-day weekends, holidays, peak flowering periods, and hunting season openings.
- Use the best available methods to reduce emissions and protect human health and safety. Consult with specialists and experts as appropriate.
- Use alternative energy when feasible and practice energy conservation to reduce pollutant generation.
- Comply with local, state, and federal PM₁₀ dust control rules.
- Use the best available methods to reduce dust from existing roads, construction sites, and land management practices. Consult with specialists and experts as appropriate.

2.7 Soils

Soil is essential for the growth of vegetation. Without an intact base of healthy productive soil, watershed management goals for vegetation and wildlife are not achievable. Chemical and biological processes that

form soil (for example, rock weathering, organic matter accumulation, plant material decomposition, and nutrient cycling) proceed slowly in the arid environment of the CPNM. Soil recovery processes are also slow. For these reasons, protection of soil ecology and productivity are especially important.

2.7.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.7.1.1 Goals

- *Goal SOIL-1(P)*: Achieve desired outcomes for soil resources, such as meeting or exceeding rangeland health standards for Central California (Appendix E).
- *Goal SOIL-2(P)*: Conserve sensitive soils such as the clay dunes and those supporting biological crusts.

2.7.1.2 Objectives

- *Objective SOIL-1(P)*: Maintain soil resources in proper functioning condition (including biological function).
- *Objective SOIL-2(P)*: Conserve and restore areas of biological soil crusts.
- *Objective SOIL-3(P)*: Manage land uses such that erosion and sedimentation rates are appropriate to natural processes, landscapes returning to natural processes, or landscapes under active restoration.

2.7.1.3 Management Actions

- *Action SOIL-1(I*)*: Identify and evaluate erosion problems and implement corrective actions as needed.
- *Action SOIL-2(I)*: Limit fugitive dust pollution by reducing disturbance to soils.
- *Action SOIL-3(S)*: Incorporate best management practices into project authorizations to minimize erosion/sedimentation and conserve biological soil crusts.
- *Action SOIL-4(S)*: Develop and implement best management practices to reduce the threat of exposure of area residents, visitors, and employees to valley fever.

2.7.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.7.2.1 Objective

Objective SOIL-4(P): Gain a better understanding of the processes that may be affecting Monument soils. Take an aggressive approach to help the soils achieve proper functioning condition and educate the users about soil resources and sensitivity.

2.7.2.2 Management Actions

- *Action SOIL-5(S)*: Assess/inventory soils within CPNM for proper functioning condition using criteria such as Rangeland Health Standards and Guidelines – Appendix E.
- *Action SOIL-6(I*)*: Identify and evaluate erosion problems and implement corrective actions as needed. Develop strategies to improve conditions on soils that are eroding. Priority will be given to human-caused problems that impact natural community processes or areas inhabited by sensitive species.

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- *Action SOIL-7(S)*: Conserve/minimize impacts to areas that contain biological soil crusts.
- *Action SOIL-8(I*)*: Consider seasonal closures to areas of sensitive soils.
- *Action SOIL-9(I*)*: Consider seasonal closures on roads where excessive ruts occur to prevent road proliferation and resulting soil impacts such as erosion.

2.7.3 Alternative 1

2.7.3.1 Objective

Gain a better understanding of the processes that may be affecting area soils to allow for improved management and conservation.

2.7.3.2 Management Action

Assess/inventory soils within CPNM for proper functioning condition using criteria such as Rangeland Health Standards and Guidelines in Appendix E.

2.7.4 Alternative 3

2.7.4.1 Objective

Gain a better understanding of the processes that may be affecting area soils and implement intensive management to manage/restore soils to perform at proper functioning condition.

2.7.4.2 Management Actions

- Assess/inventory soils within CPNM for proper functioning condition using criteria such as Rangeland Health Standards and Guidelines – Appendix E.
- Evaluate erosion problems and implement corrective actions as needed. Develop strategies to improve conditions on soils that are eroding. Priority will be given to human-caused problems that impact natural community processes or areas inhabited by sensitive species.
- Conserve/minimize impacts to areas that contain biological soil crusts.
- Implement seasonal closures to areas of sensitive soils.
- Implement seasonal closures on all roads when ruts are two inches or greater, or conditions otherwise will result in road damage or erosion/sedimentation issues.
- Remediate erosion problems through eliminating causes and complete restoration.
- Provide educational materials to the Goodwin Education Center and/or kiosks that focus on proper use etiquette for protection of soil resources.

2.7.5 No Action Alternative

2.7.5.1 Goal

Maintain or achieve upland soil resources in proper functioning condition to allow for maintenance or development of natural plant communities.

2.7.5.2 Objective

Evaluate erosion problems, identify corrective actions needed, and monitor soil resources throughout the CPNM.

2.7.5.3 Management Actions

- Develop strategies to improve conditions on soils that are eroding. Priority will be given to human-caused problems that impact natural community processes or areas inhabited by core species.
- Acquire a digitized version of the Carrizo Plain Soil Survey (USDA Soil Conservation Service) for use with GIS.
- Manage livestock grazing in a manner that does not create excessive water or wind erosion.

2.8 Water Resources

Water quality is typically defined and discussed with respect to recognized water quality indicators. A body of water is considered to be “impaired” under the *Clean Water Act* when it exceeds or fails to achieve the upper or lower limit for one or more of these indicators. The primary indicators of water quality are:

- water temperature
- nutrient levels
- coliform count (fecal bacteria)
- turbidity
- sediment load
- dissolved oxygen
- stream channel condition

The Monument Proclamation explicitly reserves a federal water right subject to valid existing rights:

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

The CPNM lacks perennial watersheds excepting small seeps and springs and a very short segment of the Cuyama River that touches the southern border. This lack of significant water sources has resulted in relatively limited monitoring of traditional water quality parameters. However, it also makes the available water even more critical to the wildlife and other Monument resources. No issues were identified to lead to development of alternatives for water quality management, so all goals, objectives, and management actions are common to all action alternatives.

2.8.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.8.1.1 Goals

- *Goal WTR-1(P)*: Maintain and enhance surface and groundwater quality throughout the Monument.
- *Goal WTR-2(P)*: Protect Soda Lake and other water resources (such as springs).

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- *Goal WTR-3(P)*: Maintain hydrologic processes and function of Soda Lake and other Monument watersheds.
- *Goal WTR-4(P)*: Protect a quantity of water sufficient to fulfill the purposes for which the Monument was established.
- *Goal WTR-5(P)*: Maintain groundwater quantity and quality throughout the portion of the Carrizo Plain Groundwater Basin located within the National Monument.

2.8.1.2 Objectives

- *Objective WTR-1(P)*: Maintain and enhance water quality: hydrologic processes, ecosystem, and plant and wildlife communities (see Biological Resources – Goals, Objectives, and Management Actions Common to All Action Alternatives, Section 2.4.2.2 Objective and Management Actions, Soda Lake).
- *Objective WTR-2(P)*: Coordinate with appropriate state and federal water quality agencies to ensure that the quality of water entering the Monument is not compromised.
- *Objective WTR-3(P)*: Ensure riparian zones, streams, and floodplains are in proper functioning condition.
- *Objective WTR-4(P)*: Coordinate with state and federal agencies to achieve compliance with the *Clean Water Act* or other applicable regulatory guidance.
- *Objective WTR-5(P)*: Manage upland areas to maintain or improve hydrologic function and minimize adverse downslope impacts.

2.8.1.3 Management Actions

- *Action WTR-1(S)*: Inventory/monitor wetland, riparian, and spring sites.
- *Action WTR-2(I*)*: Fence/protect wetland, riparian, and spring areas as necessary to meet or exceed proper functioning condition.
- *Action WTR-3(I*)*: Any spring improvements and/or new water developments will undergo evaluation and an approval process that would include an appropriate level of environmental analysis (NEPA) by BLM.
- *Action WTR-4(I*)*: Provide water for livestock, wildlife, and administrative use from wells rather than from natural springs and/or surface waters where it is determined that these uses are detrimental to the spring and/or surface waters.
- *Action WTR-5(S)*: Continue to monitor and remove tamarisk, bull thistle, and other noxious weeds from wetland areas.
- *Action WTR-6(S)*: Use native plants in wetland areas to restore degraded springs or streams.
- *Action WTR-7(S)*: Inventory, characterize, and map all existing water wells within the CPNM
- *Action WTR-8(S)*: Establish a baseline database of existing water wells, groundwater level trends, and groundwater quality for the Carrizo Plain Groundwater Basin within the National Monument.
- *Action WTR-9(I)*: Determine if any existing wells in the CPNM are suitable for water level and water quality monitoring.
- *Action WTR-10(I*)*: Drill groundwater monitoring wells at selected locations within the Carrizo Plain Groundwater Basin in the CPNM, focusing in areas that may be potentially impacted by proposed and future offsite land uses.

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- *Action WTR-11(S)*: Monitor the water levels and water quality in new monitoring wells and/or existing wells on a quarterly basis for first 2 years, and annually thereafter.
- *Action WTR-12(S)*: Coordinate with other public agencies such as the U.S. Geological Survey, California Department of Water Resources, and San Luis Obispo County on monitoring and research relative to groundwater in the CPNM.
- *Action WTR-13(S)*: Develop a hydrologic model of the CPNM groundwater system and interaction with surface waters, watershed, and Soda Lake.

2.8.2 No Action Alternative

2.8.2.1 Goal

Maintain and enhance hydrologic processes.

2.8.2.2 Objective

Protect or enhance habitat condition, water quality, plant community composition, and wildlife use for all springs, water sources, and drainages.

2.8.2.3 Management Actions

- Complete spring and water source inventory by year three of plan implementation.
- Initiate monitoring studies of springs and seeps to determine trends of plant community composition, water flows, and water quality to evaluate management effectiveness.
- Evaluate water source inventory and monitoring information to determine needs for habitat protection or habitat improvement. Protect sensitive areas by actions such as fencing, water distribution to adjacent uplands, and restoring native habitat.
- Design spring improvements to maintain or improve wetland conditions.
- File for appropriative water rights where applicable.
- Design and maintain roads and facilities to allow sheet and channel runoff.
- Protect active washes and alluvial fans from channelization.

2.9 Wild and Scenic Rivers

BLM is required to evaluate stream segments on public lands as potential additions to the National Wild and Scenic Rivers System during the RMP process under Section 5(d) of the *Wild and Scenic Rivers Act* of 1968 (Public Law 90-542).

The RMP team met in October, 2007, and identified/evaluated watersheds within the CPNM for eligibility under the *Wild and Scenic Rivers Act*.

2.9.1 Goal, Objective, and Management Actions Common to All Action Alternatives

Goal WSR-1(P): Meet the requirements of the Wild and Scenic Rivers Act to study stream segments for potential inclusion in the Wild and Scenic Rivers system.

Objective WSR-1(P): Evaluate and provide interim protection for all eligible and suitable wild and scenic river segments until Congress makes a final determination regarding their designation under the *Wild and Scenic Rivers Act*.

- *Action WSR-1(P):* BLM would carry forward the non-eligible recommendation for Soda Lake from the Caliente RMP (1996).
- *Action WSR-2(P):* Abbot Canyon, Wallace Creek, and the Cuyama River were found to be not eligible for designation under the *Wild and Scenic Rivers Act* (see Appendix F – Wild and Scenic River Eligibility Analysis).

Note: Soda Lake, Abbot Canyon, Wallace Creek, and the Cuyama River all have values that are explicitly protected as objects under the Monument Proclamation. Therefore, objectives and actions are included in other parts of this RMP to ensure that they are protected.

2.9.2 No Action Alternative

BLM would carry forward the non-eligible recommendation for Soda Lake from the Caliente RMP (1996), and would not include an analysis of the eligibility and suitability for other watersheds within the Monument.

2.10 Geology and Paleontology

The geological structure, formation processes, and the fossil assemblages in the Monument have long been recognized as important features needing protection by the public, government agencies, universities, and the scientific community. The following laws and policies provide direction for planning and managing the Monument's paleontological and geologic resources.

Pursuant to the Monument Proclamation, geological resources in the CPNM are recognized as “World famous geologic processes that formed the San Andreas as a preserved natural landscape..... Protect significant fossil assemblages of scientific interest.”

Procedural guidance, policy, management, and planning for paleontological resource management are provided in the *Paleontological Program Manual 8270 and Handbook H-8270-1*. To conduct paleontological research or mitigation for projects in the Monument, a permit is required through the BLM State Office and fieldwork authorizations would be issued from the Bakersfield Field Office.

43 Code of Federal Regulations (CFR) 8365 addresses the collection of invertebrate fossils and, by administrative extension, fossil plants.

43 CFR 8200 addresses procedures for the management of lands that have outstanding natural history values such as fossils that are of scientific interest.

18 United States Code Section 641 provides authority for addressing the unauthorized collection of fossils as a type of government property.

2.10.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.10.1.1 Goals

- *Goal GP-1(P)*: Identify, protect, and preserve paleontological values and unique geologic features and examples of geologic processes pursuant to the Monument Proclamation.
- *Goal GP-2(P)*: Enhance scientific, educational, and recreational opportunities pertinent to paleontological and geological resources.

2.10.1.2 Objectives and Management Actions

Objective GP-1(P): Protect and preserve significant vertebrate or invertebrate fossils.

Management Actions

- *Action GP-1(S)*: Implement paleontological inventory to identify sensitive zones and localities of vertebrate and invertebrate fossils in the Monument.
- *Action GP-2(S)*: Prioritize protection of sensitive paleontological and geological formations through law enforcement patrol.

Objective GP-2(P): Protect geological landforms such as the San Andreas Fault, Soda Lake, and the clay dunes at Soda Lake.

Management Action

- *Action GP-3(S)*: Identify baseline data and monitor sensitive areas to detect natural and human-caused disturbances such as erosion at Wallace Creek or unauthorized collection of fossils, and implement corrective action such as educational awareness and erosion control.

Objective GP-3(P): Encourage educational interpretation and research project opportunities with the scientific community and educational partnerships.

Management Actions

- *Action GP-4(S)*: Where resource integrity would not be compromised, interpret fossils, geological landforms, features, and formations as compatible with the associated recreation management zone.
- *Action GP-5(S)*: Encourage valid research and volunteer partnership opportunities associated with the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and other areas of geological interest in the Monument.

Objective GP-4(P): Establish baseline inventory of paleontological resources in the Monument.

Management Actions

- *Action GP-6(S)*: Encourage valid research and volunteer partnership opportunities to identify fossil localities, collect specimens, interpret finds, evaluate their significance, and preserve representative fossil formations and localities.
- *Action GP-7(S)*: Identify and compile existing geological and paleontological research maps and professional reports pertinent to the Monument. Maintain baseline data in hard copy and electronic (GIS) format.
- *Action GP-8(S)*: Create both detailed and planning overview geological maps of the Monument depicting Wallace Creek, Soda Lake, and other sites of geological and paleontological significance.

2.10.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.10.2.1 Public Education and Interpretation

Objective GP-5(I): Focus public education and interpretation of geological and paleontological resources at field locations.

Management Actions

- *Action GP-9(S):* Interpretative information pertinent to geologic and paleontological resources would be focused at existing and additional field locations in the Monument where compatible with specific recreation management zones and VRM class.
- *Action GP-10(S):* Continue existing guided public tours and self-guided geologic road tours and interpretive trail to San Andreas Fault/Wallace Creek and other points of geological interest in the Monument. Interpretive information would be provided at on-site locations, or adjacent to pedestrian trails and road locations.
- *Action GP-11(I*):* Assess the feasibility of expanding the Wallace Creek interpretive program by providing geological walk-through-time displays adjacent to the trail.
- *Action GP-12(S):* Maintain and enhance the Goodwin Education Center or some other public facility with displays pertinent to paleontological and geological formations. The center would continue to provide public displays and hands-on educational exhibits.

2.10.2.2 Paleontological Resource Scientific Research

Objective GP-6(P): Pursue field research of paleontological resources using a combination of hand tools and mechanized equipment that would balance protection of resources with collection of scientific information.

Management Actions

- *Action GP-13(I*):* Hand tools and mechanized equipment may be authorized for excavations where needed to assess and preserve significant fossils that may be lost to erosion or unauthorized collection. Exposed fossil formations or localities would be stabilized where feasible to deter further erosion or theft of specimens. Research methods would have to meet paleontological permit standards.
- *Action GP-13(I*):* Conduct field research in a fashion that would be compatible with the appropriate VRM class and not compromise the overall physical integrity of the fossil bed or locality.
- *Action GP-14(I*):* Recover fossils at risk of loss and place significant finds in a repository meeting federal standards (36 CFR 79). Selected specimens would be placed on exhibit in the Monument and other fossils may be used for public educational purposes such as hands-on interpretive uses.
- *Action GP-15(S):* Pursue field research of paleontological resources through cooperative agreements and contracts or permits to identify fossil formations and localities, and assess condition of paleontological resources threatened by soil erosion or human-caused disturbances.
- *Action GP-16(S):* Identify sensitive paleontological formations in the Monument and expand baseline inventory in GIS or hard copy format and maps.

2.10.2.3 San Andreas Fault/ Soda Lake/ Geological Formation Research

Objective GP-7(P): Pursue field research of significant geological resources using a combination of hand tools and mechanized equipment.

Management Actions

- *Action GP-17(S):* Consider more intensive research for the advancement of public education and scientific understanding of significant geological resources in the Monument. A reasonable amount of ground disturbance would be allowed that would not compromise the physical integrity of the formation and would be compatible with the appropriate VRM class.
- *Action GP-18(I*):* Continue formal field research pertinent to geological resources in areas of interest such as the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument.
- *Action GP-19(I*):* Allow research data collection methods such as surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies at the fault zone.
- *Action GP-20(S):* Document findings from geological research in a professional report and provide to BLM and its partners. Sensitive or unique geological information identified through research would be archived in GIS or hard copy format for reference.

2.10.3 Alternative 1

2.10.3.1 Public Education and Interpretation

Objective: Enhance indoor displays and minimize field visitation to geologic and fossil resource formations to ensure long-term preservation.

Management Actions

- Public visitation would be allowed but not encouraged at geological and fossil field locations other than those already identified (for example, Wallace Creek).
- There would be no additional on-site public interpretive displays. Sensitive location information on paleontological resources would be protected.
- Continue existing guided public tours and self-guided geologic road tour and interpretive trail to San Andres fault/Wallace Creek and other points of geological interest in the Monument. Interpretive information such as brochures would be available for guided and self-guided visitations.
- Enhance the Goodwin Education Center or some other public facility displays in the Monument to provide additional information about the fossil/geologic formations in the Monument.
- Continue to provide public displays about the paleontological and geological values in the Monument at the Goodwin Education Center, including hands-on educational exhibits for the public.
- Potentially develop the interpretation of geologic and paleontologic resources at other facilities and limited field locations, compatible with the objectives of the recreation management zone.
- Continue to provide interpretive information materials on site or adjacent to pedestrian trails and at roadside locations previously established, such as Wallace Creek and other geological points of interest.

2.10.3.2 Paleontological Resource Scientific Research

Objective: Pursue research of paleontological resources at field locations using minimal tools.

Management Actions

- Research would be encouraged for the benefit of public education and appreciation of paleontological resources using methods that meet BLM permit standards and allow only minimal tools to limit ground disturbance.
- Pursue field research of paleontological resources through cooperative agreements, contracts, or permits to identify fossil formations, sensitive localities, and condition assessment of paleontological resources in terms of impacts from soil erosion or human-caused disturbances.
- Identify sensitive paleontological zones in the Monument and expand baseline inventory in GIS files or hard copy format.

2.10.3.3 San Andreas Fault/Soda Lake/Geological Formation Research

Objective: Limit field research disturbance of significant geological resources by requiring use of minimal tools.

Management Actions

- Research would be encouraged for the benefit of public education and appreciation of significant geological resources in the Monument using professional methods and tools that result in limited ground disturbance.
- Formal field research pertinent to geological resources would continue in areas of interest such as the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument.
- Research data recovered such as surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies at the fault zone would be allowed using hand tools.
- Professional field research would be allowed in a manner that would not physically compromise resource integrity and visual resource management (VRM) class.
- Findings from geological research would be documented in a professional report and provided to BLM and its partners. Sensitive or unique geological information identified through research would be archived in GIS files or hard copy format for reference.

2.10.4 Alternative 3

2.10.4.1 Public Education and Interpretation (Same as Alternative 2)

Objective: Focus public education and interpretation of geological and paleontological resources at field locations.

Management Actions

- Focus interpretative information pertinent to geologic and paleontologic resources at existing and additional field locations in the Monument where compatible with specific recreation management zones and VRM class.

- Continue existing guided public tours and self-guided geologic road tours and interpretive trail to San Andres fault/Wallace Creek and other points of geological interest in the Monument. Interpretive information would be provided at on-site locations, or adjacent to pedestrian trails and roads.
- Assess the feasibility of expanding the Wallace Creek interpretive program by providing geological walk-through-time displays adjacent to the trail.
- Maintain and enhance the Goodwin Education Center or some other public facility with displays pertinent to paleontological and geological formations. The center would continue to provide public displays and hands-on educational exhibits.

2.10.4.2 Paleontological Resource Scientific Research (Same as Alternative 2)

Objective: Pursue field research of paleontological resources using a combination of hand tools and mechanized equipment that would balance protection of resources with obtaining of scientific information.

Management Actions

- Hand tools and mechanized equipment (which may lead to more ground disturbance) may be authorized for excavations where needed to assess and preserve significant fossils that may be lost to erosion or unauthorized collection. Exposed fossil formation or locality would be stabilized where feasible to deter further erosion or theft of specimens. Research methods would have to meet paleontological permit standards.
- Conduct field research in a fashion that would be compatible with the appropriate VRM class and not compromise the overall physical integrity of the fossil bed or locality.
- Recover fossils at risk of loss and place significant finds in a repository meeting federal standards (36 CFR 79). Selected specimens would be placed on exhibit in the Monument and other fossils may be used for public educational purposes such as hands-on interpretive uses.
- Pursue field research of paleontological resources through cooperative agreements and contracts or permits to identify fossil formations and localities, and assess condition of paleontological resources threatened by soil erosion or human-caused disturbances.
- Identify sensitive paleontological formations in the Monument and expand baseline inventory in GIS or hard copy format and maps.

2.10.4.3 San Andreas Fault/Soda Lake/Geological Formation Research (Same as Alternative 2)

Objective: Pursue field research of significant geological resources using a combination of hand tools and mechanized equipment.

Management Actions

- Consider more intensive research for the advancement of public education and scientific understanding of significant geological resources in the Monument. A reasonable amount of ground disturbance would be allowed that would not compromise the physical integrity of the formation and would be compatible with the appropriate VRM class.
- Continue formal field research pertinent to geological in areas of interest such as the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument.

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- Allow research data collection methods such as surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies at the fault zone.
- Document findings from geological research in a professional report and provide to BLM and its partners. Sensitive or unique geological information identified through research would be archived in GIS or hard copy format for reference.

2.10.5 No Action Alternative

2.10.5.1 Goal

Increase the understanding of the geology and paleontology of the CPNM.

2.10.5.2 Objective

Continue research into the geology and paleontology of the CPNM.

2.10.5.3 Management Actions

Public Education and Interpretation

- Maintain public education and interpretation at indoor facilities in the Monument at the Goodwin Education Center. The center would continue to provide public displays and hands-on educational exhibits. The exhibits and diorama provide educational information about the resources values in the Monument such as geologic, paleontologic, floral, faunal, and cultural resources.
- Display resource information via panels, kiosks, and brochures at on-site locations or adjacent to pedestrian trails and at roadside locations such as Wallace Creek, Painted Rock, and Traver, El Saucito, and Washburn ranches. Public brochures would be available for guided and self-guided geology road trips to San Andres fault/ Wallace Creek interpretive trail and other key points of seismic/geologic interest in the Monument.

Paleontological Resource Scientific Research

- Formal field research pertinent to paleontological resources would continue to be available under a paleontological resources use permit and contract or cooperative agreement, although no formal paleontological studies have been documented in the Monument.
- Limited field monitoring and patrol would continue at the current levels.
- Baseline maps depicting fossil formations in the Monument and adjacent studies would be compiled and retained in archival files.
- Field research would require authorization from BLM prior to implementing studies in the Monument.

San Andreas Fault/Soda Lake/Geological Formation Research

- Formal field research pertinent to geological resources would continue in areas such as the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument.
- Continue to evaluate research data recovered from surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies using mechanized equipment on the fault zone.

- Baseline data from research would be maintained by the researcher and may be available in web links or professional papers. Copies of proposals and research findings would be shared with the partners and incorporated into the BLM library.

2.11 Cultural Resources

A broad range of federal laws, regulations, and program manuals guide BLM in the management of cultural resources and consultation with the California SHPO, and with federal tribal governments and other Native Americans. The following list identifies some of the primary guidance for developing cultural resource planning decisions:

- Monument Proclamation, “Protect historic/prehistoric structures and objects....Proper care and management of the rich human history....world class rock painting....historic ranches.”
- The BLM Cultural Resources 8100 Manual series establishes BLM’s policy for managing cultural resources including identifying and evaluating cultural resources, tribal consultation, planning, protecting cultural resources, permitting, preserving collections, and interpreting cultural resources for the public.
- Cultural resources under BLM jurisdiction are subject to the provisions of Sections 106 and 110 of the *National Historic Preservation Act* (NHPA) of 1966 (as amended). Section 106 and 110 work is streamlined or modified for program efficiency through the National Programmatic Agreement among BLM, the Advisory Council of Historic Preservation, and the National Conference of State Historic Preservation Officers (March 1997). The National Programmatic Agreement is augmented by the State Protocol Agreement among the California State Director of BLM, the California SHPO, and the Nevada SHPO (October 2007).
- 36 CFR 800 provides implementing regulation guidance for Section 106 compliance. Part 800.16y defines what constitutes a federal undertaking and the criteria for assessing and addressing effects on a historic property.
- The 36 CFR 60 regulations provide compliance procedures and evaluation criteria for determining the eligibility of a cultural resource property for inclusion on the National Register of Historic Places (NRHP).
- The *Archaeological Resources Protection Act* (ARPA) of 1979 (as amended) establishes definitions, permit requirements, and criminal and civil penalties related to cultural sites. Sensitive cultural resource records, site location information, and traditional cultural properties and values would be held confidential from the public as deemed appropriate to protect historic properties under Section 9(a) of ARPA. The act is implemented by uniform regulations and departmental regulations found in 43 CFR 7.
- The *American Indian Religious Freedom Act* of 1978 provides federal policy to protect and preserve for the American Indian the inherent right of freedom to believe, express, and exercise their traditional religions, including but not limited to access to religious sites, use and possession of sacred objects, and freedom to worship through ceremonies and traditional rites.
- Executive Order 13007, *Indian Sacred Sites* (1996), directs federal agencies to manage federal lands in a manner that accommodates American Indian religious practitioners' access to and ceremonial use of Indian sacred sites, and avoids adversely affecting the physical integrity of sacred sites, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions.
- *Native American Graves Protection and Repatriation Act* of 1990 (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) establishes rights of Indian tribes and Native Hawaiian organizations to claim ownership of certain cultural items, including human remains, funerary objects, sacred objects, and

objects of cultural patrimony, held or controlled by Federal agencies and museums that receive Federal funds. It requires agencies and museums to identify holdings of such remains and objects and to work with appropriate Native Americans toward their repatriation. Permits for the excavation and/or removal of cultural items protected by the act require Native American consultation, as do discoveries of cultural items made during land use activities. The Secretary of the Interior's implementing regulations are at 43 CFR Part 10.

2.11.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.11.1.1 Goals

- *Goal CUL-1(P)*: Identify, protect, and preserve significant prehistoric and historic resources.
- *Goal CUL-2(P)*: Provide opportunities for Native American traditional cultural practice and access.
- *Goal CUL-3(P)*: Enhance opportunities for research, public education, and awareness of the fragile nature of heritage resources.

2.11.1.2 Objectives and Management Actions

Objective CUL-1(P): Protect and preserve significant cultural resources from natural and human-caused disturbances such as erosion and vandalism at archaeological sites.

Management Actions and Allowable Uses

- *Allowable Use CUL-1(P)*: Manage Painted Rock as a point of public interest to limit public use to a level that does not compromise its NRHP qualities or traditional use values.
- *Action CUL-1(I*)*: Repair, maintain, and realign the fences encircling the Rock Art Historic District in the vicinity of Painted Rock and Selby Rocks to enclose and protect all archaeological sites in this portion of the district from unauthorized off-highway vehicle (OHV) use and livestock grazing trespass. Remove fences that are in poor condition if they are no longer needed, subsequent to recordation and assessment pursuant to Section 106 of the NHPA. See Map 2-1, Painted Rock Exclusion Zone.
- *Allowable Use CUL-2(P)*: Photography for commercial purposes at CPNM rock art sites – prohibit still and video photography for commercial purposes of the pictograph images at Painted Rock and other rock art sites in the Monument. This limit on commercial photography is authorized under 43CFR 2920.
- *Allowable Use CUL-3(P)*: Research projects proposed by accredited scientific, academic, or research institutions or individuals involving the study and documentation of the pictographs and petroglyphs at Painted Rock and other rock art sites on the Monument employing photography will require a Cultural Resource Use Permit (pursuant to the *Archaeological Resources Protection Act* of 1979 and FLPMA) and an approved BLM Fieldwork Authorization.
- *Allowable Use CUL-4(P)*: All cultural resource field investigations conducted on the Monument will require appropriate permitting as referenced above.
- *Action CUL-2(S)*: Monitor, identify, and record cultural resource sites threatened by human activity and natural forces such as graffiti, illegal digging, artifact collection, inadvertent rock art disturbance by human contact, water and wind erosion, bird excretion and dust accumulation on rock art paintings, and weather effects on historic buildings and structures. Implement corrective actions such as law enforcement patrol, public education, and stabilization.

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- *Action CUL-3(I*)*: For rock art sites threatened by natural conditions and human-caused impacts, conduct assessment, conservation treatment, detailed documentation, or other preservation strategies, pursuant to federal regulations and BLM Cultural Manual 8120-8150.
- *Action CUL-4(I*)*: Assess impacts from livestock grazing to the Saucito Rocks, Sulphur Springs, and Abbott Canyon components of the Rock Art Historic District. If impacts are existing or could potentially occur, exclude livestock from all or parts of the pastures encircling the sites.
- *Action CUL-5(I*)*: Assess impacts from the administrative road accessing the Saucito Rocks, Sulphur Spring, and Abbott Canyon components of the Rock Art Historic District. Identify and assess impacts to any other NRHP properties located within or contiguous to existing public or administrative roads. Employ realignment, closure of road segments, road capping, or some other form of preservation.
- *Action CUL-6(S)*: To protect archaeological properties in the Rock Art Historic District from direct impacts from unauthorized OHV use or indirect effects from dust accumulating on rock art motifs, target law enforcement patrol to deter unauthorized OHV use and to enforce speed limit restrictions in the Monument. Signs prohibiting OHV use would be posted.
- *Action CUL-7(P)*: Any NRHP-eligible archaeological property at risk would be subject to emergency closure or access restrictions for site preservation, pursuant to federal regulations.
- *Action CUL-8(S)*: Revise or update sensitive cultural resource zones or fire maps as well as cultural baseline map.
- *Action CUL-9(P)*: NRHP-listed archaeological properties in the Rock Art Historic District and nominated eligible properties in the National Historic Landmark consist of 89 cultural properties allocated to the Conservation for Future Use category. Painted Rock is allocated to Traditional and Public Use categories. The historic Traver Ranch and KCL Ranch are allocated to the Public Use category. The historic El Saucito Ranch, Washburn Ranch, and Selby Cow Camp are allocated to the Public Use and Scientific Use categories. See Appendix G, Categories for Cultural Resource Use Allocations.
- *Action CUL-10(P)*: Evaluate sites for National Register eligibility and assign the appropriate management use category for sites in the Monument not previously designated above (that is, scientific, conservation, traditional, public, experimental, or discharged from management), pursuant to BLM 8110 Manual, SHPO State Protocol Agreement, and other pertinent regulations. Cultural resources could be allocated to one or more use categories. See Appendix G, Cultural Resource Use Allocations.
- *Action CUL-11(S)*: Develop and implement a cultural resource management plan for cultural resources on the CPNM. This plan will include specific strategies for survey, monitoring, rock art and prehistoric and historical archaeological site management. This plan will also include treatment plans for restoring or stabilizing NRHP-eligible and selected non-eligible historical sites such as ranch buildings, pursuant to BLM Manual 8100. This could also include the reconstruction of buildings or structures that are no longer extant. This portion of the plan shall also include identification of facilities that pose a hazard to the public and either raze facilities or secure them in a state of arrested decay. This cultural resource management plan will be completed in phases for each resource type.

Objective CUL-2(P): Maintain and enhance open dialogue with Native Americans to participate in planning and consultation processes.

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Management Action:

- *Action CUL-12(S):* Develop procedural agreement with the Native Americans addressing items such as consultation procedures, *Native American Graves Protection and Repatriation Act* issues, tribal government-to-government face-to-face meetings, monitoring, interpretive, and trust responsibilities.
- *Action CUL-13(S):* Continue to work with federal tribes, other Native Americans having ancestral ties to the Carrizo Plain, and the Native American Advisory Committee under the guidelines of the existing Carrizo Native American Advisory Committee Charter Agreement.

Objective CUL-3(P): Ensure opportunities for Native American traditional plant gathering, cultural activities, and ceremonial rites.

Management Actions

- *Action CUL-14(S):* Pursue development of a protocol agreement with the Native Americans to implement the statewide policy regarding traditional plant gathering and other traditional practices such as ceremonial rites and access.
- *Action CUL-15(S):* In implementing this agreement, consider opportunities to work with Native Americans to identify, protect, and implement active management efforts (such as prescribed burning) to improve vigor and distribution of native plants used in traditional practices such as basketweaving.
- *Action CUL-16(S):* As wildlife herds increase to sustainable levels, work with Native American groups and the California Department of Fish and Game in an effort to allow for the use of native animals pursuant to State Fish and Game Laws and Regulations.

Objective CUL-4(I): Provide for the removal of invasive nonnative plants while retaining the integrity of historic property landscapes.

Management Actions

- *Action CUL-17(I*):* Where invasive nonnative plants such as horehound are found at a specific prehistoric site such as Painted Rock, consider the eradication of the nonnative plant and replacement with a native plant to restore the site's natural setting, while stabilizing the ground surface and protecting any surface artifacts from potential looting, pursuant to federal regulations and Native American consultation.
- *Action CUL-18(I*):* Where invasive nonnative plants such as tree of heaven are found on a historic property, eradicate the plant and replace with an appropriate native plant that would typically be found in the Monument such as the cottonwood tree or replace with acceptable non-invasive nonnative plant to preserve the historic landscape, pursuant to cultural regulations.

Objective CUL-5(P): Encourage partnerships, research, interpretation, and educational opportunities with the public, scientific, and educational communities, Native Americans, conservation groups, and other interested parties.

Management Actions

- *Action CUL-19(S):* The El Saucito Ranch interpretive and educational trail program would continue with restricted access, allowing only pedestrian guided tours.

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- *Action CUL-20(S)*: Implement intensive and mixed sample inventory strategies to establish a predictive model revealing the low, moderate, or high probability zones for prehistoric and historic resources in the CPNM.
- *Action CUL-21(S)*: Compile and transcribe oral histories from willing ranchers, ethnic groups, Native Americans, and other parties having cultural ties to the CPNM.
- *Action CUL-22(S)*: Compile and archive for long-term preservation, historic documents and photographs associated with the CPNM for public education and interpretive uses pursuant to BLM Manual 8110 and 8170.
- *Action CUL-23(S)*: Pursue research questions pertinent to historic resources such as:
 - What economic and lifestyle strategies were employed by the inhabitants from the pioneer to the modern phases?
 - What important historic themes in the Monument help us better understand the history of the Carrizo Plain, such as dry-land farming, livestock operations, mining, transportation system, education, and social interaction; and how did this affect demographics and ethnic groups represented on the Plain?
 - How did agriculture in the Monument evolve, including dry-land farming and other farming practice such as Brumley’s fruit orchard and Edgar’s grape vineyard?
 - How did the introduction of mechanized farming and ranching machinery on the Carrizo Plain, circa 1912, affect the family economy and social interaction; large scale operations verses small family business; expansion of farmland; preferred market products and transportation; and abandonment of the family farm or ranch?
- *Action CUL-24(S)*: Pursue research questions pertinent to ethnographic and prehistoric resources such as:
 - What are the cultural affiliations and their demographics on the Carrizo Plain?
 - What adaptive strategies were employed by the indigenous people in their environment over time?
 - What effect did the Mission and Mexican influence have on the demographics of the native population on the Carrizo Plain?
 - What is a predictive model for the occurrence of archaeological site types and their distribution in the Monument? Were these sites occupied on a seasonal and/or long-term basis?
 - Was the Carrizo Plain a primary trade route to the Coast, Central Valley, and beyond, and what goods were exchanged?
 - Was the Pleistocene shoreline of Soda Lake occupied by the early cultures? If not, why?

Objective CUL-6(P): Place priority on acquisition of significant cultural resources in the Monument should non-federal land become available.

Management Actions

- *Action CUL-25(I*)*: Pursue acquisition or cooperative management partnership with the state property located atop Caliente Mountain Peak, including the Caliente Mountain World War II lookout tower for the primary purpose of preserving the wooden structure through stabilization or restoration.

- *Action CUL-26(I*)*: Pursue acquisition of NRHP-eligible cultural properties in the Monument on private land should the landowner be willing to transfer the parcel to federal ownership.

2.11.2 Additional Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.11.2.1 Painted Rock

Objective CUL-7(P): Protect Painted Rock while allowing guided groups and self-guided visitor access.

Management Actions and Allowable Uses

- *Allowable Use CUL-5(P)*: Painted Rock would be open to guided tours from March 1 through July 15 on a routine schedule with identified protective measures and conservation ethics while visiting the site.
- *Allowable Use CUL-6(P)*: A permit would be required for self-guided visitor access from July 16 to the end of February. Permits would include stipulations and conditions identifying protective measures and conservation ethics while visiting the site.
- *Action CUL-27(S)*: Monitor and conduct law enforcement patrol of self guided BLM issued permit program to ensure that visitors are complying with the stipulations/conditions that protect sensitive cultural resources. If monitoring and ranger patrol shows that the self guided permit program is not adequately protecting the resources, the program would be modified (for example, limit visitors or limit times or days of issuance) or discontinued. If the program were discontinued, access would be limited to guided groups only.
- *Action CUL-28(S)*: BLM, the CPNM Native American Advisory Committee, federal tribes, and other Native Americans with ancestral ties to the Carrizo Plain, in a collaborative effort, would develop permit administrative procedures, conditions, stipulations, and checks and balances to ensure permit compliance (for example, ranger patrol, electronic surveillance, monitoring, or other means). This would include any amendments to the permit or the permit process.
- *Allowable Use CUL-7(P)*: A Special Recreation Use Permit is required for groups of 20 or more individuals pursuant to 43 CFR 2930. Permits would include stipulations and conditions identifying protective measures and conservation ethics.
- *Allowable Use CUL-8(P)*: Develop a visitor allocation system to ensure that public visitation would not exceed 25 visitors (as a target) at a time in the rock alcove during guided group visitation or self-guided access.
- *Allowable Use CUL-9(P)*: The area would be closed from dusk to dawn year-round.
- *Allowable Use CUL-10(P)*: Coordinate with the Recreation program to establish a rule to prohibit campfires within the Painted Rock exclusion zone (see Map 2-1, Painted Rock Exclusion Zone) while still allowing for approved Native American ceremonial use of fire.
- *Allowable Use CUL-13(P)*: The Rock Art Historic District component from Painted Rock to Selby Rocks and the adjacent area would be closed to livestock grazing, horses, dogs, non-motorized bikes (excluding Painted Rock parking area), and cache-type activities, excluding the Selby Road and Caliente Mountain Road. The discharge of firearms would be prohibited for the entire exclusion area consisting of 1,204 acres. See Map 2-1, Painted Rock Exclusion Zone.
- *Allowable Use CUL-14(P)*: For preservation of Painted Rock, no climbing on the rock, no direct contact (touching) or defacement of rock art, and no collecting or displacing of artifacts, ecofacts, or features would be allowed without authorization from BLM. Cultural resource researchers could be excluded from some of these conditions if they secure a BLM cultural resource use permit and

fieldwork authorization or other form of approval such as a cooperative agreement. Access to and atop Painted Rock by other researchers such as wildlife biologists could be authorized on case-by-case basis for valid research proposals. Such authorization would require close coordination with the agency archaeologist and Native Americans. All other requirements listed in the preceding management action would be required.

- *Allowable Use CUL-15(P)*: The road to the parking area and archaeological site would be subject to temporary or emergency closure without prior public notice for reasons such as muddy road conditions, during sensitive periods of bird nesting, and to protect resources and cultural values.
- *Action CUL-29(I*)*: Fences around Painted Rock would be maintained and realigned to encompass the National Register District component between Painted Rock and Selby Cow Camp. Fences fallen into a state of poor repair would be removed if no longer needed, subsequent to recordation and assessment in compliance with Section 106 of the NHPA.
- *Action CUL-30(S)*: Prioritize patrol, monitoring, and surveillance actions for protection of Painted Rock.
- *Allowable Use CUL-16(P)*: Native Americans would be allowed access to the site for traditional uses pursuant to the *American Indian Religious Freedom Act* and Executive Order 13007, *Indian Sacred Sites*, and through advance coordination with BLM.

2.11.2.2 At-Risk Archaeological Resources

Objective CUL-8(P): Restrict access and protect sites that are at high risk from human-caused impacts.

Management Actions and Allowable Uses

- *Allowable Use CUL-17(P)*: The public would be required to secure a permit from BLM prior to self-guided pedestrian access to archaeological site C06-1 located on the pyramid-shaped basalt hill on KCL Ranch. Rationale: The geological basalt hill formation, a remnant of volcanic activity, has been of interest to geologists, educational groups, and other interested parties for years. The integrity of the cultural property on the hill is at risk as a result of human-caused disturbance, whether it be purposeful or inadvertent.
- *Action CUL-31(P)*: Inform the public of permit requirements to access site C06-1. Permits would include stipulations and conditions identifying protective measures and conservation ethics while visiting the site.
- *Allowable Use CUL-18(P)*: A Special Recreation Use Permit is required for groups of 20 or more individuals to access site C06-1 pursuant to 43 CFR 2930. Permits for visiting the site would include stipulations and conditions identifying protective measures and conservation ethics while visiting the site.
- *Allowable Use CUL-19(P)*: Native Americans with ancestral ties to the Carrizo Plain would be allowed pedestrian access pursuant to federal regulations.
- *Allowable Use CUL-20(P)*: All public lands within ¼ mile of Sulphur Spring would remain closed to public access (for protection of archaeological resources) per Federal Register 97:27615, dated October 16, 1997.
- *Action CUL-32(P)*: Prioritize patrol and monitoring of sites C06-1 and CA-SLO-100 for protection and compliance. Take corrective action such as fencing or closing site C06-1 to public access if site is threatened by impact.

2.11.2.3 Rock Art Protection

Objective CUL-9(P): Enhance conservation efforts for long-term preservation of rock art sites affected by natural agents and inadvertent human impacts to preserve cultural values and provide public enrichment for future generations.

Management Actions

- *Action CUL-33(S):* Develop a rock art preservation plan, as part of a cultural resource management plan, that would identify and assess the condition of rock art sites at risk of loss to natural agents and inadvertent human impacts. Implement appropriate protection, conservation, and treatment measures to preserve rock art being affected by natural deterioration such as wind and water erosion, rock exfoliation, dust accumulation, or bird excretions. Conservation of rock art would be subject to consultation with Native Americans having ancestral ties to the Carrizo Plain and the CPNM Native American Advisory Committee pursuant to federal regulations and the BLM/SHPO State Protocol Agreement.
- *Action CUL-34(I*):* Reduce the rate of natural and human impacts to rock art by implementing measures such as dust abatement on roads and trails; installation of physical barriers, boardwalks, and interpretive panels; or other preservation measures to manage public access to sites, such as maintaining a safe distance from rock art panels and motifs.
- *Action CUL-35(S):* Prioritize law enforcement patrol and monitoring of all site components and document in written and visual media for management purposes.
- *Action CUL-36(S):* Rock art condition assessments and cause of deterioration would be fully documented over time in written and visual media formats.
- *Action CUL-37(S):* Implement detailed site recordation of archaeological features and rock art elements to preserve site information prior to potential loss of site constituents should conservation measures be unsuccessful or not implemented.
- *Action CUL-38(S):* Provide interpretive and educational awareness to the public and Native Americans to preserve heritage resource values.

2.11.2.4 Public Education, Interpretation, and Archiving

Objective CUL-10(I): Focus cultural and natural history interpretive and education awareness information at on-site field locations or an appropriate viewing distance with less emphasis on multiple indoor public facilities.

Management Actions

- *Action CUL-39(P):* Location and means of public education and interpretation at field locations and at indoor facilities would be compatible with the specific recreation management zone and VRM class.
- *Action CUL-40(P):* Additional field locations of public interest would be selected for interpretive and educational uses pertinent to cultural and natural history values in the CPNM.
- *Action CUL-41(P):* Cultural resource and natural history information would continue to be displayed via informational and interpretive signs and brochures at on-site locations, roadsides, or pedestrian trails at areas such as Painted Rock, Wallace Creek, and El Saucito and Selby ranches.
- *Action CUL-42(P):* Public education and interpretative information about the cultural and natural history values in the Monument would be maintained and enhanced at the Goodwin Education Center or some other public facility that would provide displays and learning opportunities for the public.

- *Action CUL-43(S)*: As part of a comprehensive interpretive plan, analyze the feasibility of developing a new or expanded public interpretive and educational center in the Monument that would accommodate groups and researchers. Considerations would include expanding the floor space at the Goodwin Education Center, reconstruction of the 1890s barn at El Saucito Ranch, or construction at some other viable location in the Monument. Public use, scientific research, interpretive and educational programs, and archival storage needs would be considered in the analysis.

2.11.2.5 Ranching/Farming Machinery and Equipment

Objective CUL-11(P): Retain selected representative examples of historic machinery and equipment *in situ* in the Monument as part of the historic landscape.

Management Actions

- *Action CUL-44(I*)*: Selected historic machinery and equipment would remain in place in the field for public visitation and educational awareness of past land uses with less emphasis placed on relocating additional items to centralized locations such as the Traver Ranch and the Goodwin Education Center. Selection criteria for leaving objects *in situ* will be based upon the degree to which the object contributes to both the historical context of the setting, its interpretive value within that context, and issues of public safety.
- *Action CUL-45(I*)*: Provide educational information to the public about the historic machinery and equipment through field-specific interpretive signs, kiosks, or brochures as compatible with the recreation management zone objectives.
- *Action CUL-46(I*)*: Assess the condition and safety of leaving machinery and equipment scattered across the Monument. If items pose a safety hazard, such items would be slated for removal from the Monument. Removing or relocating items would be documented and assessed *in situ* prior to removal pursuant to compliance with Section 106 of the NHPA.

2.11.2.6 Historic Ranching and Farming Buildings and Structures

Objective CUL-12(I): Recognize the importance of preserving historic ranching and farming buildings and structures in the Monument.

Management Actions

- *Action CUL-47(I*)*: Place emphasis on the preservation of historic resources for public enrichment and only target removal for sites that pose a public safety hazard and are ineligible for the NRHP, pursuant to Section 106 and 110 of the NHPA (36 CFR 800) or the BLM/SHPO State Protocol Agreement.
- *Action CUL-48(I*)*: Restore, rehabilitate, and stabilize historic ranching and farming buildings and structures that are eligible for the NRHP. Reconstruction of structures may occur if these buildings are no longer extant but were once within the boundary of a Historic District. Pursuant to the State Protocol or 36CFR 68. Provide interpretive information about historic facilities to the public at selected NRHP sites.
- *Action CUL-49(I*)*: Historic buildings or structures ineligible for inclusion on the NRHP may be interpreted but would be razed or removed if compromised to the point that physical integrity no longer exists and the facility poses a safety hazard. Buildings such as the Traver Ranch may be saved from demolition and stabilized for its values associated with bird and bat habitat and dry-land farming interpretive uses.

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- *Action CUL-50(I*)*: Emphasize restoring, rehabilitating, stabilizing, or reconstructing sites such as El Saucito, Washburn, and Selby ranches. For public enrichment, provide educational information such as interpretive signs, kiosks, and brochures pertinent to these ranches and other selected facilities.

2.11.3 Alternative 1

2.11.3.1 Painted Rock

Objective: Enhance conservation efforts for long-term preservation.

Management Actions

- The Painted Rock site would be closed to public access. The site would remain open for administrative access for management purposes and to allow Native Americans access for traditional practice and rites pursuant to the *American Indian Religious Freedom Act* and Executive Order 13007, *Indian Sacred Sites*.
- The road to the Painted Rock parking area and trail to Painted Rock site would be subject to temporary or emergency closure to Native American access due to muddy road conditions and during sensitive periods of bird nesting.
- Closure would continue in the Painted Rock pasture to livestock grazing, horses, dogs, non-motorized bikes, cache-type activities, and discharge of firearms.
- Priority for site patrol, monitoring, and surveillance for protection of Painted Rock.
- Conduct archaeological condition assessment and conservation treatment as necessary to preserve rock art paintings and other components of Painted Rock, pursuant to Native American consultation and State Protocol Agreement with SHPO or Section 106 and 110 of the NHPA.

2.11.3.2 At-Risk Archaeological Resources

Objective: Enhance conservation efforts for long-term preservation.

Management Actions

- The archaeological site (C06-1) located on the pyramid-shaped basalt hill on KCL Ranch would be closed to public access. Native American pedestrian access would be allowed pursuant to federal regulations.
- Closure signs would be posted at key points to site C06-1 to deter access.
- Priority to patrol and monitor sites C06-1 and CA-SLO-100 to ensure protection and compliance. Take corrective action such as fencing site C06-1 to deter access if public continues to access site.
- Prehistoric rock art site (CA-SLO-100) located on the Washburn Ranch would remain closed to public access.

2.11.3.3 Rock Art Protection

Objective: Allow rock art to deteriorate as long as it is a natural process.

Management Actions

- Stabilize sites where feasible without treatment intervention to rock art elements.

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- No efforts would be made to intervene and reduce or eliminate the process of natural deterioration of rock art. Rock art panels and motifs would be allowed to be affected by the processes of natural deterioration such as wind and water erosion.
- Law enforcement patrol and monitoring of all components of the site would be documented in written and visual media as part of the formal record.
- Rock art condition assessment and cause of deterioration would be fully documented over time in written and visual media format.
- Implement detailed site recordation of archaeological features and rock art elements to preserve site information prior to potential loss of site constituents.
- Place emphasis on educational and preservation awareness, as well as the potential loss of heritage resources, with the public and Native Americans.

2.11.3.4 Public Education, Interpretation, and Archiving

Objective: Focus cultural and natural history interpretive and education awareness information at on-site field locations or at an appropriate viewing distance with less emphasis on multiple indoor public facilities.

Management Actions

- Location and means of public education and interpretation at field locations and at indoor facilities would be compatible with the specific recreation management zone and VRM class.
- Select additional field locations of public interest for interpretive and educational uses pertinent to cultural and natural history values in the CPNM.
- Continue to display cultural resource and natural history information via materials and interpretive signs at on-site locations, by roadsides, or near pedestrian trails at areas such as Painted Rock, Wallace Creek, and El Saucito and Selby ranches.
- Maintain and enhance public education and interpretative information about the Monument's cultural and natural history values at the Goodwin Education Center, or replace it by some other public facility that would provide displays and learning opportunities for children and adults.

2.11.3.5 Ranching/Farming Machinery and Equipment

Objective: Enhance the natural landscape by removing historic machinery and equipment scattered throughout the Monument.

Management Actions

- Place emphasis on the removal of historic machinery and equipment from the landscape. This action would be subsequent to recordation, evaluation, and compliance with Section 106 of the NHPA. Priority for removal would be placed on NRHP-ineligible sites, objects that are hazardous to public health and safety, and equipment that is located in the Primitive recreation management zone. Avoidance of adverse effects to eligible cultural properties would be the priority.
- Continue to relocate selected examples of machinery and equipment scattered in the Monument to centralized locations such as El Saucito and Traver ranches for educational and interpretative uses, as well as protection.

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- Limited selection of machinery and equipment would remain in place at ranch facilities and *in situ* field locations in the Monument.

2.11.3.6 Historic Ranching and Farming Buildings and Structures

Objective: Enhancement of the natural landscape by the removal of historic ranching and farming built facilities.

Management Actions

- Priority to restore the natural landscape by removing ranching and farming facilities that do not meet NRHP criteria (36 CFR 60.4). Facility removal would be subject to site recordation, assessment, and adequate mitigation for NRHP properties should such sites be targeted for removal.
- Target removal of buildings and structures in the Monument including sites within the Primitive recreation management zone that have lost their physical integrity, pose a public safety hazard, and are ineligible for the NRHP, pursuant to Sections 106 and 110 of the NHPA or the BLM/SHPO State Protocol Agreement.
- Preserve selected NRHP properties for public enrichment.
- BLM would stabilize, rehabilitate, restore, or reconstruct built facilities previously identified for preservation such as El Saucito, Washburn, and Selby ranches pursuant to Section 110 of the NHPA.
- Educational information such as interpretive signs, kiosks, and brochures would be available to the public at locations such as El Saucito and Selby ranches, or other selected facilities.

2.11.4 Alternative 3

2.11.4.1 Painted Rock

Objective: Protect Painted Rock while allowing guided group visitor access.

Management Actions

- Painted Rock would be open to guided tours only. Tours would be conducted on a routine schedule and increased above current levels to offset impacts of not allowing self-guided access.
- Painted Rock and Painted Rock Pasture would be closed to self-guided public access year-round (no permits available) and night access closure would be extended year-round from dusk to dawn.
- Public visitation not to exceed 25 visitors at a time (as a target) in the rock alcove via guided group access.
- Closure would continue in the Painted Rock Pasture to livestock grazing, horses, dogs, non-motorized bikes, cache-type activities, and the discharge of firearms.
- For preservation of Painted Rock, no climbing on the rock, no direct contact (touching) or defacement of rock art, and no collecting or displacing of artifacts, ecofacts, or features would be allowed. Cultural resource researchers could be excluded from some of these conditions if they secure a BLM cultural resource use permit and fieldwork authorization or other form of approval such as a cooperative agreement.
- Access to and atop Painted Rock by other researchers such as wildlife biologists could be authorized on a case-by-case basis for valid research proposals. Such authorization would require close

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coordination with the agency archaeologist and the Native Americans. All other requirements in the preceding management action would be required.

- The road to the parking area and Painted Rock would be subject to temporary or emergency closure without public notice for reasons such as muddy road conditions, during sensitive periods of bird nesting, and to protect resources and cultural values.
- Continue site patrol, monitoring, and surveillance actions for protection of Painted Rock.
- Painted Rock would remain open for Native Americans (with ancestral ties to the Carrizo Plain) to access the site for traditional uses pursuant to the *American Indian Religious Freedom Act* and Executive Order 13007, *Indian Sacred Sites*, and through advance coordination with BLM.

2.11.4.2 At-Risk Archaeological Resources

Same as Alternative 2. Refer to Section 2.11.2.2.

2.11.4.3 Rock Art Protection

Same as Alternative 2. Refer to Section 2.11.2.3.

2.11.4.4 Public Education, Interpretation, and Archiving

Objective: Focus cultural interpretative and educational opportunities at multiple indoor public facilities as well as at field locations.

Management Actions

- Locate public education and interpretation at indoor public facilities and field locations that are compatible with the specific recreation management zone and VRM class.
- As part of a comprehensive interpretive plan for the Monument, analyze the feasibility of developing a new or expanded public interpretive and educational center in the Monument that would accommodate group uses and researchers. Considerations would include the expanding the floor space at the Goodwin Education Center, or reconstruction of the 1890s barn at El Saucito Ranch, or construction at some other viable location in the Monument. Public use, scientific research, interpretive and educational programs, and archival storage needs would be considered in the analysis.
- Public education and interpretation would continue at the Goodwin Education Center by providing public exhibits and hands-on learning experiences for children and adults pertinent to cultural and natural history values.
- Cultural and natural history information signs and brochures would continue to be available at established on-site locations, by roadsides, or near pedestrian trails in areas such as Painted Rock, Wallace Creek, and El Saucito and Selby ranches. New information would be developed as part of a comprehensive interpretive plan.

2.11.4.5 Ranching/Farming Machinery and Equipment

Same as Alternative 2. Refer to Section 2.11.2.5.

2.11.4.6 Historic Ranching and Farming Buildings and Structures

Objective: Historic ranching and farming buildings and structures would be managed in a state of arrested decay (stabilized).

Management Actions

- NRHP properties would be stabilized for public enrichment. Other sites that pose a public safety hazard and are ineligible for the NRHP would be removed or razed, pursuant to Section 106 and 110 of the NHPA or the BLM/SHPO State Protocol Agreement.
- Historic ranching and farming facilities would be stabilized rather than restored, rehabilitated, or reconstructed. NRHP-eligible properties would have priority over ineligible buildings and structures.
- BLM would maintain and stabilize ranches such as El Saucito, Washburn, KCL, and Selby. Educational information such as interpretive signs, kiosks, and brochures about the history of these ranches and potentially other sites would be available to the public when compatible with the recreation management zone objectives.
- Historic buildings and structures not meeting NRHP criteria would be razed or removed if toppled or compromised to the point that physical integrity no longer exists and the facility is a safety hazard, pursuant to federal regulations or the BLM/SHPO State Protocol Agreement.

2.11.5 No Action Alternative

2.11.5.1 Cultural Resource Management Goals and Objectives

Goal: Protect cultural resources.

Objectives

- Monitor impacts to cultural resources and the effectiveness of protection strategies.
- Stabilize reconstruct maintain and protect significant cultural properties appropriate to conditions of the site.

Goal: Provide an opportunity for partnerships, research, interpretation, and education for the public and the scientific community.

Objective

- Solicit and encourage partnerships, research, interpretation, and educational efforts associated with cultural resources.

2.11.5.2 Native American Uses

Goal: Provide the opportunity for Native Americans to participate in planning and consultation processes by identifying their cultural, religious, and traditional values which could be affected by proposed management actions. Access to “traditional use areas” by Native Americans with cultural and traditional ties to this region is fully supported and encouraged by the managing partners.

Objectives:

- Identify and establish communication with Native American groups and individuals having traditional and cultural ties to the Carrizo.
- Preserve the opportunity for Native Americans to practice traditional beliefs within the Carrizo.

2.11.5.3 Painted Rock Management Actions

- Painted Rock cultural site access would continue to be open to guided tours only (no self-guided access) from March 1 through July 15 for the protection of cultural and wildlife resource values during the peak period of public tourism in the CPNM (on the average, 18 public tours would be provided annually). The site would be open to guided tours, not to exceed 25 visitors at a time in the rock alcove.
- Painted Rock would continue to be open to self-guided access from July 16 to the end of February. A Special Recreation Use Permit would be required for self-guided groups of 20 or more visitors.
- Closure would continue in the Painted Rock Pasture to livestock grazing, horses, dogs, non-motorized bikes, cache-type activities, and the discharge of firearms.
- For preservation of Painted Rock, no climbing on the rock, no direct contact (touching) or defacement of rock art, and no collecting or displacing of artifacts, ecofacts, and features would be allowed.
- The road to the parking area and the site would continue to be subject to temporary or emergency closure without public notice due to muddy road conditions, during sensitive periods of bird nesting, and to protect cultural and natural resource values.
- Night access closure is effective at Painted Rock from March 1 through July 15 (4.5 months per year).
- Painted Rock Pasture fence would be maintained and realigned to encompass the National Register District component between Painted Rock and Selby Cow Camp. Fences fallen into a state of poor repair would be removed if no longer needed, subsequent to recordation and assessment in compliance with Section 106 of the NHPA.
- Continue site patrol, monitoring, and surveillance actions for protection of Painted Rock.
- Painted Rock is open to administrative access for management purposes and to allow Native Americans access to the site for traditional uses pursuant to the *American Indian Religious Freedom Act* and Executive Order 13007, *Indian Sacred Sites*.

2.11.5.4 At-Risk Archaeological Resources Management Actions

- The vision quest/shrine archaeological site (C06-1) located on the pyramid-shaped basalt hill on KCL Ranch would remain open to public access.
- The prehistoric rock art site (CA-SLO-100) located in the Sulphur Spring pasture would remain closed to public access. This site was previously closed due to its extremely fragile condition and high potential for inadvertent impacts to the site associated with access.
- Any NRHP-eligible archaeological property at risk would be subject to emergency closure for site preservation pursuant to federal regulations.

2.11.5.5 Rock Art Protection Management Actions

- No conservation by intervention has been or likely would be implemented to reduce the rate of natural deterioration to rock art panels and individual motifs affected by natural processes such as wind and water erosion. Condition assessment of rock art would continue to be conducted and conservation methods identified and considered for application of treatment.
- Law enforcement patrol and monitoring of site conditions would continue to be documented in written and visual media as part of the formal record.

- Detailed site recordation of archaeological features and rock art would continue to be implemented as a means to preserve site information prior to potential loss of site constituents should conservation measures prove not to be successful or implemented.
- Interpretive and educational awareness to preserve heritage resources would be provided to the public.

2.11.5.6 Public Education, Interpretation, and Archiving Management Actions

- Public education and interpretation at indoor facilities in the Monument would be limited to the Goodwin Education Center. The center would continue to provide public exhibits, hands-on learning experiences for children and adults, and limited archival storage space. The exhibits and diorama would provide educational information about the resources values in the Monument such as cultural and natural history values.
- Cultural resource information displayed via signs, kiosks, and brochures would be available at on-site locations, by roadsides, or near pedestrian trails in areas such as Painted Rock, Wallace Creek, and El Saucito and Selby ranches.

2.11.5.7 Ranching/Farming/Mining Machinery and Equipment Management Actions

- Selected examples of machinery and equipment scattered in the Monument associated with historic ranching, farming, and mining activities would continue to be removed and relocated on a selected basis to centralized locations such as the Traver, El Saucito, and Washburn ranches and the Goodwin Education Center, for purposes of safe keeping and educational uses.
- Some farming and ranching machinery and equipment would continue to be removed from the Monument where these objects are a safety hazard or are in such poor condition that they have lost their physical integrity. Prior to removal or relocation, aforementioned items would be documented and assessed *in situ* pursuant to compliance with Section 106 of the NHPA.
- Some machinery and equipment, such as farming diskers and harvesters, would continue to remain in place at ranch facilities and *in situ* field locations scattered across the Monument.

2.11.5.8 Historic Ranching and Farming Buildings and Structures Management Actions

- BLM would continue to stabilize and rehabilitate buildings and structures at the El Saucito, Washburn, KCL, and Selby ranches.
- Buildings or structures would be razed or removed if toppled or compromised to the point that physical integrity no longer existed and the facility is a safety hazard.
- Educational information such as interpretive signs, kiosks, and brochures about these structures would be available to the public at the El Saucito, KCL, Washburn, and Selby ranches.

2.11.5.9 Education and Interpretive Center for Cultural and Natural Resources Management Actions

- The Goodwin Education Center would continue at the current level as the only public building that provides a point of contact in the Monument for visitors. The two-room facility would continue to provide limited space for archival storage, public exhibits, a gift shop, and information about the natural and cultural values in the Monument.

- The facility would be open only during the peak visitor season.
- Public tours and events in the Monument would continue to be scheduled through staff at the Center.

2.12 Visual Resources

The vast open vistas and stark landscapes of the CPNM are primary attributes that the public is concerned with protecting as reflected in the scoping comments. Public lands within the National Monument have been inventoried using BLM's VRM classification system. Through the RMP process, BLM assigns VRM management classes to all public lands in the planning area. Each class allows for landscape changes from management activities and use authorizations that contrast at different levels with the existing characteristic landscapes. In all situations, actions are taken to minimize visual contrasts through careful project design.

2.12.1 VRM Class Definitions

Class I: The objective of this class is to preserve the existing character of the landscape. This class allows for natural ecological changes and only very limited management activities and uses. Any contrasts with the natural landscape must be minimal and not attract attention. This class is typically limited to designated wilderness, wilderness study areas, or wild and scenic river segments with a "Wild" classification.

Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities and uses can be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture in the predominant natural features of the characteristic landscape.

Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape can be moderate. Management activities and uses may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements of the predominant natural features of the landscape.

Class IV: The objective of this class is to allow for management activities and uses requiring major modifications to the natural landscape. The level of change to the characteristic landscape can be high. Management activities and uses may dominate the view and be a major focus of viewer attention. However, every attempt should be made to mitigate the impacts of activities through careful location and repeating the visual elements of the landscape.

2.12.2 Goal, Objectives, and Management Actions Common to All Action Alternatives

2.12.2.1 Goal VRM-1(P)

Protect and restore the unique scenic quality of the CPNM landscape.

2.12.2.2 Objectives and Management Actions

Objective VRM-1(P): Conduct management activities and complete developments in a manner that is sensitive to the visual qualities of the area and conforms to VRM Class objectives.

Management Actions

- *Action VRM-1(I)*: Complete visual contrast ratings for all proposed surface or visually impacting projects to ensure they meet VRM class objectives.
- *Action VRM-2(I*)*: Complete visual contrast ratings for existing roads and facilities and identify opportunities to reduce existing visual impacts through modifications such as painting water tanks, or removing unneeded facilities.
- *Action VRM-3(I*)*: Complete an inventory of existing and potential key scenic vista points along roads and trail corridors and identify opportunities to develop and improve these locations as overlooks and interpretive sites.

Objective VRM-2(P): Minimize light pollution to retain the area's night sky qualities.

Management Actions

- *Action VRM-4(I)*: Limit exterior lighting of BLM administrative facilities to the minimum necessary for safety and security. Use lighting types and shields that minimize light pollution.
- *Action VRM-5(S)*: Work with adjoining communities (California Valley) to minimize light sources that impact the Monument.

2.12.3 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

Note: VRM zone boundaries correspond to recreation management zones. See Map 2-3, Recreation Management Zones and Route Designations, Alternative 2.

2.12.3.1 Primitive Zone

Objective VRM-3(P): Manage the 62,455-acre Primitive zone as VRM Class I to protect wilderness characteristics.

Management Action

- *Action VRM-5(I)*: Conduct visual contrast ratings and ensure that all projects meet VRM Class 1 requirements.

2.12.3.2 Backcountry Zone

Objective VRM-4(P): Manage the 165,180-acre Backcountry zone as VRM Class II.

Management Actions

- *Action VRM-6(I)*: Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class II objectives.
- *Action VRM-7(I*)*: Encourage retrofitting of existing facilities to comply with VRM Class II objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.

2.12.3.3 Frontcountry Zone

Objective VRM-5(P): Manage the 19,181-acre Frontcountry zone as VRM Class III.

Management Actions

- *Action VRM-8(I)*: Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class III objectives.
- *Action VRM-9(I*)*: Encourage retrofitting of existing facilities to comply with VRM Class III objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.

2.12.4 Alternative 1

Note: VRM zone boundaries correspond to recreation management zones. See Map 2-2, Recreation Management Zones and Route Designations, Alternative 1.

2.12.4.1 Primitive Zone

Objective: Manage the 80,591-acre Primitive zone as VRM Class I.

Management Action

- Conduct visual contrast ratings and ensure that all projects meet VRM Class 1 requirements.

2.12.4.2 Backcountry Zone

Objective: Manage the 150,844-acre Backcountry zone as VRM Class II.

Management Actions

- Conduct visual contrast ratings on all projects. Ensure that projects are implemented and any new facilities constructed to meet VRM Class II objectives.
- Encourage retrofitting of existing facilities to comply with VRM Class II objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.

2.12.4.3 Frontcountry Zone

Objective: Manage the 15,382-acre Frontcountry zone as VRM Class III.

Management Actions

- Conduct visual contrast ratings on all projects. Ensure that projects are implemented and any new facilities constructed to meet VRM Class III objectives.
- Encourage retrofitting of existing facilities to comply with VRM Class III objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.

2.12.5 Alternative 3

Note: VRM zone boundaries correspond to Recreation Management Zones. See Map 2-4, Recreation Management Zones and Route Designations, Alternative 3.

Objectives and Management Actions: Same as Alternative 2 with the following acreages:

- Primitive zone: (Class I): 17,984 acres.
- Backcountry zone (Class II): 200,091 acres.
- Frontcountry zone (Class III): 28,741 acres.

2.12.6 No Action Alternative

Most of the CPNM would be managed as VRM Class II except for a majority of the Temblor Mountain Range, which is classified as VRM Class III. Some areas along the border of the Monument area would be managed as VRM Class IV.

2.13 Wilderness Study Areas and Other Lands with Wilderness Characteristics

Management of lands with wilderness characteristics is part of BLM's multiple use mandate. Lands within the CPNM were inventoried in 2002 in accordance with BLM Handbook 6310-1 *Wilderness Inventory and Study Procedures*. Six distinct areas were inventoried for wilderness characteristics such as naturalness, opportunities for solitude, primitive and unconfined recreation, and other associated qualities. During the current planning effort, the 2002 inventory was reviewed and updated. In addition to these inventoried areas, the 17,984-acre Caliente Mountain WSA (CA-010-042) would not be affected by this RMP and would continue to be managed under BLM's *Interim Management Policy for Lands under Wilderness Review* (BLM 1995). Comments on the Draft RMP EIS indicated that the valley floor landscapes of the Carrizo were poorly represented in the wilderness system and should be considered for management for wilderness character. This prompted BLM to reconsider and further update the wilderness inventory for this plan. As a result of this reconsideration and an inventory update, an additional 13,319 acres would be managed for wilderness characteristics under the proposed plan alternative – 7,921 acres that were in the original inventory for the draft, and 5,398 acres to the west of Soda Lake Road that were added after the updated inventory for the proposed RMP.

2.13.1 Goal, Objectives, and Management Actions Common to All Action Alternatives

2.13.1.1 Goal

Goal WLD-1(P): Manage the Caliente Mountain WSA to preserve its wilderness qualities.

2.13.1.2 Objectives and Management Actions

Objective WLD-1(P): Manage the Caliente Mountain WSA so as not to impair the area's suitability for wilderness designation.

Management Actions:

- *Action WLD-1(P):* All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM's *Interim Management Policy for Lands under Wilderness Review* (BLM 1995).
- *Action WLD-2(P):* If released from further consideration by Congress for wilderness designation, the Caliente Mountain WSA would continue to be managed to protect wilderness character under the

guidance of this RMP (Appendix H, Management of Lands with Wilderness Character), unless the Congressional release language explicitly states otherwise.

2.13.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.13.2.1 Objective

Objective WLD-2(P): Manage the Caliente Mountain WSA (17,984 acres), Caliente Mountain adjoining lands (18,357 acres), the Temblor unit (12,795 acres), and Soda Lake units (13,319 acres) for wilderness characteristics (approximately 62,455 acres total) so as not to impair their natural character. (See Map 2-5, Lands Managed for Wilderness Characteristics.)

2.13.2.2 Management Actions

- *Action WLD-3(P):* All activities in areas managed for wilderness characteristics will follow the guidelines contained in Appendix H, Management of Lands with Wilderness Characteristics.
- *Action WLD-4(I*):* Conduct active restoration activities to remove unnatural features
- *Action WLD-5(I):* Routes located within areas to be managed for wilderness characteristics will be used for administrative purposes only when non-motorized access is not feasible for specific projects (such as repairs that require heavy tools and materials). A minimum requirements analysis will be used to determine if use of mechanized equipment is appropriate. Closed routes will be rehabilitated or converted into non-mechanized trails.

2.13.2.3 Allowable Uses

Allowable Use WLD-1(P): Appropriate public use would include non-mechanized activities such as hiking, equestrian use, hunting, and dispersed camping.

2.13.3 Alternative 1

2.13.3.1 Objective

Manage all lands inventoried and identified as having potential wilderness characteristics (80,591 acres) so as not to impair their natural character. (See Map 2-5, Lands Having Wilderness Characteristics.)

2.13.3.2 Management Actions

- All activities will follow the guidelines contained in Appendix H, Management of Lands with Wilderness Characteristics.
- Conduct active restoration activities to remove unnatural features
- Routes located within areas to be managed for wilderness characteristics will be used for administrative purposes only when non-motorized access is not feasible for specific projects (such as repairs that require heavy tools and materials). Closed routes will be rehabilitated or converted into non-mechanized trails.

2.13.3.3 Allowable Uses

Appropriate public use would include non-motorized and non-mechanized activities such as hiking, equestrian use, hunting, and dispersed camping.

2.13.4 Alternative 3

2.13.4.1 Objective

The 17,984-acre Caliente Mountain WSA would continue to be managed so as not to impair the area's suitability for preservation as wilderness. (See Map 2-5, Lands Having Wilderness Characteristics.)

2.13.4.2 Management Action

All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM's *Interim Management Policy for Lands under Wilderness Review* (BLM 1995).

2.13.5 No Action Alternative (Same as Alternative 3)

2.13.5.1 Objective

The 17,984-acre Caliente Mountain WSA would continue to be managed to so as not to impair the area's suitability for preservation as wilderness.

2.13.5.2 Management Action

All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM's *Interim Management Policy for Lands under Wilderness Review* (BLM 1995).

2.14 Areas of Critical Environmental Concern

FLPMA requires BLM to identify lands with significant and sensitive resource values for protective management as ACECs. Prior to designation as a National Monument, the Carrizo Plain was designated as an ACEC in the Caliente RMP (1996). The Presidential Proclamation identifies and requires protection of the same values that were identified under the ACEC designation. Therefore, the ACEC designation is now considered to be duplicative and no longer necessary for lands within the boundary of the CPNM. Lands outside the CPNM boundary are outside the scope of this plan and will be assessed in the Bakersfield RMP regarding continued management as an ACEC.

2.14.1 Management Action Common to All Action Alternatives

Action ACEC-1(P): The Carrizo ACEC designation would be dropped for all lands within the National Monument boundary.

2.14.2 No Action Alternative

Designation: The Carrizo Plain would continue to be designated as an ACEC under the Caliente RMP.

2.15 Livestock Grazing

This section describes where livestock grazing would be permitted within the Monument. In this document, livestock are defined as a species of domestic livestock including cattle, sheep, horses, burros, and goats.

BLM land use plans must identify which lands will be available or not available for livestock grazing (see the allowable uses for each grazing alternative). In this RMP, lands are further divided into two sub-

categories: those lands where livestock use is allowed to utilize available forage, and those lands where livestock are allowed only as a vegetation management tool to meet other land use plan objectives.

RMPs must also identify area-wide criteria or standards to achieve desired outcomes (see the goals and objectives common to all grazing alternatives, below). These standards were developed to ensure that management actions fulfill the purpose of the Proclamation. Changes to the land use allocation or the area-wide standards require amending the RMP.

This section of the plan also includes implementation-level actions that identify allotment-specific grazing management practices or livestock management guidelines, as well as constraints and needs related to other resources (see the actions for each grazing alternative, below). These livestock management guidelines have been developed to achieve the plan objectives and vary by alternative. Changes to these livestock management guidelines require documentation of NEPA compliance and the application of the administrative grazing decision process defined in the regulations.

In areas designated as “available for livestock grazing,” federal grazing regulations (43 CFR 4100) provide uniform guidance for administering grazing on the public lands administered by BLM. The authority for implementing these regulations is mainly from the *Taylor Grazing Act* of June 28, 1934 as amended (43 USC 315, 315a- through 315r and FLPMA as amended by the *Public Rangelands Improvement Act* of 1978 (43 USC 1901 et seq.). Additionally, the Monument Proclamation states that “Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.”

Livestock grazing within the Monument is currently managed under two separate types of authorizations utilizing different sub parts of the federal grazing regulations (43 CFR 4100). Approximately 55,900 acres are available under Section 15 livestock grazing leases (Section 15 of the *Taylor Grazing Act*), principally in the Temblor and Caliente Mountain Ranges, where livestock use is allowed to utilize available forage. For clarification in this document, these grazing leases may be referred to as “Section 15” grazing leases. Grazing primarily on the valley floor (approximately 114,200 acres), where livestock are allowed only as a vegetation management tool to meet objectives other than the production of livestock forage, is currently authorized under authorizations referred to as “free use” grazing permits (authorized in 43 CFR 4130.5(b)). Livestock grazing in this vegetation management area could also be authorized through other mechanisms such as stewardship contracts. Grazing permits or leases authorize grazing use on specific management units, which are referred to as grazing “allotments”. These allotments are depicted on Map 3.12, Grazing Allotments. See Section 3.14 Livestock Grazing in Chapter 3 for further discussion of grazing authorizations.

2.15.1 Goal, Objectives, and Management Actions Common to All Action Alternatives

2.15.1.1 Goal

- *Goal GRZ-1(P)*: Manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes livestock forage, or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation.

2.15.1.2 Objectives and Management Actions

Objective GRZ-1(P): Manage livestock grazing to meet or exceed the Secretary-approved Central California Standards for Rangeland Health as shown in Appendix E.

Management Actions

- *Action GRZ-1(S)*: Assess all grazing allotments to determine if they are meeting the Standards for Rangeland Health.
 - Adjust livestock grazing authorizations in response to assessment determinations if not meeting Standards for Rangeland Health and livestock are determined to be the cause.
- *Action GRZ-2(I)*: Apply the relevant Secretary-approved Central California Rangeland Health Guidelines for Grazing Management as implementation is described in the Record of Decision of 1999 (Appendix E) to grazing authorizations on all areas.

Objective GRZ-2(P): Manage livestock grazing to meet, and to not be in conflict with, the management objectives for all other resources and programs in the Monument.

Management Actions

- *Action GRZ-3(S)*: Determine resource impacts from livestock grazing (negative or positive) through monitoring and/or scientific study, including within Section 15 grazing allotments, to help inform future decisions on land use designations and to assess if livestock grazing is meeting other program objectives including those biological objectives identified in Appendix C (Conservation Target Table). Monitoring may be broad-scale or species-specific. Scientific studies will be developed with the managing partners and input from the scientific community and other technical experts on the design, implementation, data analysis, and summary of the results. In accordance with adaptive management principles and applicable regulations, the results would be used to take action (for example, continue, modify, or eliminate grazing authorizations in these areas).
 - Adjust livestock grazing authorizations as necessary in response to monitoring or scientific study determinations if they are conflicting with other resources or program objectives.
- *Action GRZ-4(S)*: Monitor compliance with relevant grazing management guidelines.
 - Adjust livestock grazing authorizations as necessary in response to compliance monitoring.
- *Action GRZ-5(I*)*: Move the boundary fence to the official Monument boundary when resource benefits outweigh resource damage associated with fence construction or removal.

2.15.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.15.2.1 Objective

Objective GRZ-3(P): Continue existing livestock authorizations as required by law, regulation and policy, but strive to utilize livestock grazing in the Monument only as a vegetation management tool, which meets objectives other than the production of livestock forage, as any voluntary relinquishments are offered.

2.15.2.2 Allowable Uses

- *Allowable Use GRZ-1(P)*: Allocate 55,900 acres as "available for livestock grazing" (see Map 2-7, Livestock Grazing Allocations) pending any future voluntary relinquishments as described below.
- *Allowable Use GRZ-2(P)*: Allocate 117,500 acres as "available for livestock grazing, but only for the purpose of vegetation management" (see Map 2-7).

- *Allowable Use GRZ-3(P)*: Allocate 33,100 acres as "unavailable for any livestock grazing" (see Map 2-7).
- *Allowable Use GRZ-4(P)*: Upon receiving any request for voluntary relinquishment of grazing permitted use from a Section 15 lease, the Authorized Officer will re-evaluate whether livestock grazing is in the best interest of achieving the land use plan goals. All or part of the relinquished permitted use will be re-allocated as "available for livestock grazing, but only for the purpose of vegetation management" and made available to qualified applicants. Should the Authorized Officer examine and document that continued livestock use of all or part of that forage allocation would not be compatible with achieving RMP management goals and objectives, that forage allocation will be re-allocated as "unavailable for any livestock grazing."
- *Allowable Use GRZ-5(P)*: Allocate any newly acquired lands as either "available for livestock grazing," "available for livestock grazing, but only for the purpose of vegetation management," or "unavailable for any livestock grazing" based on the purpose for which the lands were acquired, which allocation is in the best interest of achieving the land use plan goals, and considering the allocation of the existing lands within the surrounding livestock management unit. New or modified fencing may be employed to implement the new allocation if it is in conflict with the allocation for the rest of the pasture.

2.15.2.3 Management Actions

- *Action GRZ-6(I*)*: Authorize livestock grazing according to the regulations and grazing land use allocation, at levels up to those shown on the Grazing Implementation Table (Appendix R).
- *Action GRZ-7(I)*: Apply the relevant Grazing Management Guidelines for the Carrizo Plain National Monument (see the Conservation Target Table, Appendix C) to all grazing authorizations. (See the location of current pastures on Map 3-13.)
- *Action GRZ-8(I*)*: Create, modify, maintain, or remove livestock management facilities to support livestock grazing as a use or as a management tool, or to meet other resource objectives, such as the protection of NRHP properties, riparian areas, sensitive plant populations, visual resources, the ingress and egress of wildlife, noxious weeds control, and the resolution of Monument boundary issues.

2.15.3 Alternative 1

2.15.3.1 Objective

Remove all livestock grazing as both an allowable use that utilizes livestock forage, and also as a vegetation management tool that meets objectives other than the production of livestock forage.

2.15.3.2 Allowable Uses

- Allocate all lands (approximately 201,900 acres), except for those that fall between the existing fence line and the Monument boundary, as "unavailable for any livestock grazing" (see Map 2-6, Alternative 1: Livestock Grazing).
- Approximately 4,600 acres of grazing would occur where pasture/allotment boundary fences do not correlate with the Monument boundary. These lands would be allocated as "available for livestock grazing" (see Map 2-6, Alternative 1: Livestock Grazing).
- Allocate any newly acquired lands as either "available for livestock grazing" or "unavailable for any livestock grazing" based on the purpose for which the lands were acquired, which allocation is in the

best interest of achieving the land use plan goals, and considering the allocation of the existing lands within the surrounding livestock management unit. New or modified fencing may be employed to implement the new allocation if it is in conflict with the allocation for the rest of the pasture.

- Should the fences be re-aligned to match the Monument boundary in the future, re-designate the lands within the Monument as “unavailable for any livestock grazing”.

2.15.3.3 Management Actions

- Cancel any existing grazing authorizations on lands made “unavailable for any livestock grazing”.
- Authorize livestock grazing on the approximately 4,600 acres of lands remaining between the fences and the boundary and designated as "available for livestock grazing" at levels up to those shown on the Grazing Implementation Table (see Appendix Q, Grazing Implementation Table for Alternative 1).
- To the approximately 4,600 acres of lands remaining under a grazing authorization, apply the relevant Specific Livestock Management Guidelines in Appendix U. (Same as No Action.)
- Evaluate livestock management facilities for utility for other purposes and then remove those that were only used to support livestock grazing as a use or as a management tool.
- Maintain perimeter fences to exclude livestock use from outside the Monument.

2.15.4 Alternative 3

2.15.4.1 Objective

Improve opportunities for livestock grazing only in areas where it is an allowable use that utilizes livestock forage, and continue livestock grazing as a vegetation management tool that meets objectives other than the production of livestock forage.

2.15.4.2 Allowable Uses

- Allocate 55,900 acres as “available for livestock grazing” (see Map 2-7, Alternatives 2 and 3: Livestock Grazing).
- Allocate 117,500 acres as “available for livestock grazing, but only for the purpose of vegetation management” (see Map 2-7). (Same as Alternative 2.)
- Allocate 33,100 acres as “unavailable for any livestock grazing” (see Map 2-7). (Same as Alternative 2.)
- Allocate any newly acquired lands as either "available for livestock grazing," "available for livestock grazing, but only for the purpose of vegetation management," or "unavailable for any livestock grazing" based on the purpose for which the lands were acquired, which allocation is in the best interest of achieving the land use plan goals, and considering the allocation of the existing lands within the surrounding livestock management unit. New or modified fencing may be employed to implement the new allocation if it is in conflict with the allocation for the rest of the pasture.

2.15.4.3 Management Actions

- Authorize livestock grazing according to the land use designation and at levels up to those shown on the Grazing Implementation Table (Appendix S, Grazing Implementation Table for Alternative 3).

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- Apply the relevant Specific Livestock Management Guidelines in Appendix U to grazing authorizations on Section 15 allotments. (Same as No Action.)
- Apply the relevant Grazing Management Guidelines for Vegetation Management Areas within the CPNM (see the Conservation Target Table, Appendix C) to grazing authorizations on vegetation management areas. (See location of current pastures on Map 3-13.) (Same as Alternative 2.)
- Create, modify, maintain, or remove livestock management facilities to support increased livestock grazing as a use (that is, encourage actions such as the development of new water sources or modification of fences to improve livestock distribution, provide longer seasons, or improve annual forage reliability).

2.15.5 No Action

2.15.5.1 Objective

Continue the existing livestock grazing as both an allowable use that utilizes livestock forage, and also as a vegetation management tool that meets objectives other than the production of livestock forage.

2.15.5.2 Allowable Uses

- 170,100 acres would remain “available for livestock grazing” as provided in the Caliente RMP (see Map 2-8, No Action Alternative: Livestock Grazing).
- 36,400 acres would remain “unavailable for any livestock grazing” as provided in the Caliente RMP (see Map 2-8).
- Allocate any acquired lands as either “available for livestock grazing” or as “unavailable for any livestock grazing” based on the purpose for which the lands were acquired, and on the existing allocation of lands within the surrounding livestock management unit.

2.15.5.3 Management Actions

- Authorize livestock grazing according to the land use designation and at levels up to those shown on the Grazing Implementation Table (see Appendix T, Grazing Implementation Table for No Action).
- Apply the relevant Specific Livestock Management Guidelines in Appendix U to grazing authorizations on Section 15 allotments. (Same as Alternatives 1 and 3.)
- Apply the relevant Grazing Management Guidelines for the Carrizo Plain as detailed in the annually derived Pasture/Guideline Matrix (Appendix M) to grazing authorizations on vegetation management areas.
- Create, modify, maintain, or remove livestock management facilities to support livestock grazing as a use or as a management tool, or to meet other resource objectives, such as the protection of National Register properties, riparian areas, sensitive plant populations, control of noxious weeds, visual resources, the ingress and egress of wildlife, and the resolution of Monument boundary issues.

2.16 Recreation and Interpretation

The CPNM is a destination for a relatively small number of visitors annually, considering its proximity to southern and central California population centers. The majority of visitors come to directly experience the stark natural beauty and cultural significance unique to this landscape as opposed to the pursuit of leisure activities in a traditional vacation setting such as the mountains or the beach.

The Monument provides numerous opportunities and settings for the visitor to learn about and experience the area's unique natural features. Existing recreation facilities consist of mainly unpaved roads, a small visitor center, interpretive overlooks, and campgrounds with limited amenities. These support facilities are adequate for current use levels, and are in keeping with the management vision to keep the area rustic and natural. However, recreational and educational uses by special groups, academia, and the general public are expected to increase due to the rising awareness of the value of the Monument. Interpretive opportunities focus on the objects of the Monument Proclamation, which include world-class biological, cultural, and geologic resources. Protection and interpretation of these features would be a primary focus of future recreational development. In all alternatives, proposed improvements would retain a low level of development with "rustic" character. For the purposes of this section, "rustic" means small in scale, non-intrusive on the landscape, and providing primarily for visitor appreciation, safety, and protection of resources vs. comfort and convenience. The overall recreation management focus would be to provide settings and management that allows visitors to explore and experience the area on its own terms.

As part of the land use planning process, BLM lands having distinct primary recreation-tourism markets are identified. These areas are identified as special recreation management areas (SRMAs). Each SRMA has a distinct, primary recreation-tourism market as well as a corresponding and distinguishing recreation management strategy. The CPNM represents a distinct destination with a specific and singular management niche. Therefore, the entire area would be identified as one SRMA in this RMP.

2.16.1 Use of Recreation Management Zones

Discrete recreation management zone boundaries are defined through the RMP. Each zone has four defining characteristics:

- To serve a different recreation niche within the primary recreation market;
- To produce a different set of recreation opportunities and facilitates the attainment of different experience and benefit outcomes (to individuals, households and communities, economies, and the environment);
- To provide distinctive recreation settings; and
- To provide distinct management actions to meet the targeted primary recreation opportunities.

Under the RMP, management decisions are organized by recreation management zones. The zones describe the physical and social setting components the visitor will encounter when visiting these specific areas, as well as the level of management and improvements that will be provided. Each zone would highlight a different recreational experience. In each alternative, all lands within the CPNM are designated with a recreation management zone. The acreage and boundaries of these areas change by alternative. These zones are titled as the Primitive, Backcountry, and Frontcountry zones.

Note that recreation management zones also provide a framework for the Wilderness, Visual Resources, and Travel Management sections of this document, and are referenced in these respective sections.

Table 2.16-1. Recreation Management Zones

Frontcountry	Backcountry	Primitive
Management Objective		
<p>Manage this zone to provide opportunities for visitors to engage in the targeted activities in a short time frame; for primarily day-use and to gain knowledge of surrounding cultural and natural resources of the CPNM through interpretation and self-discovery. Motorized access will be limited to designated roads to protect the sensitive natural and cultural resources contained in this zone. Minimal developments and considerable protection measures will be set to retain and enhance the objects of the Proclamation.</p>	<p>Manage to provide opportunities for visitors to engage in a remote isolated recreation experience. Manage this zone to provide opportunities for visitors who use the area to engage in sustainable, access for primitive day-use and camping opportunities to gain appreciation of the natural setting of the Carrizo Plain National Monument self-discovery, and OHV touring on designated routes.</p>	<p>Manage this zone to provide opportunities for visitors to find solitude, engage in unconfined recreation, and experience personal challenge and reflection. Preserve the primitive opportunities and wilderness characteristics in this zone.</p>
Recreation Opportunity		
<ul style="list-style-type: none"> • Camping • Cultural/historical sightseeing • Wildlife viewing • Picnicking • Auto touring • Wilderness access • Photography • Hiking • Equestrian activities • Biking 	<ul style="list-style-type: none"> • Dispersed vehicle camping • Hiking • OHV touring • Cultural/historical sightseeing • Picnicking • 4-wheel-drive touring • Wilderness access • Photography • Wildlife viewing • Equestrian activities • Biking • Hunting 	<ul style="list-style-type: none"> • Hiking • Backpacking • Equestrian activities • Primitive dispersed camping • Wildlife watching • Hunting
Experience		
<ul style="list-style-type: none"> • Enjoying easy access to natural landscapes • Enjoying unguided and guided exploration • Savoring the total sensory experience of a natural landscape 	<ul style="list-style-type: none"> • Developing skills and abilities • Testing personal endurance • Savoring the total sensory experience of a natural landscape • Escaping everyday responsibilities for awhile 	<ul style="list-style-type: none"> • Gaining a greater sense of self-confidence • Testing personal endurance • Savoring the total sensory experience (sight sound, and smell) of a natural landscape • Enjoying risk-taking adventure • Feeling good about solitude, being isolated and independent • Enjoying an escape from crowds of people • Nurturing personal spiritual values and growth

Frontcountry	Backcountry	Primitive
Benefits		
<p>Personal:</p> <ul style="list-style-type: none"> • Sense of wellness • Improved physical fitness and health maintenance • Greater respect for shared cultural heritage • Closer relationship with the natural world • Enhanced sense of personal freedom • Improved capacity for outdoor physical activity <p>Community/Social:</p> <ul style="list-style-type: none"> • Feeling that this community is a special place to live • Greater community involvement in recreation and other land use decisions • Greater awareness of and appreciation for our cultural heritage. • More well-rounded childhood development <p>Environmental:</p> <ul style="list-style-type: none"> • Greater community ownership and stewardship of recreation, and natural resources • Greater retention of distinctive natural landscape features • Reduced negative human impacts • Increase awareness and protection of natural landscapes • Reduced looting of historic and prehistoric sites • Sustainability of community’s cultural heritage • Greater protection of wildlife, and plant habitat from development, and public land use impacts • Conservation of entire sustainable ecosystems • Reduced wildlife disturbance from recreation facility development <p>Economic:</p> <ul style="list-style-type: none"> • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits • Increased local tourism revenue 	<p>Personal:</p> <ul style="list-style-type: none"> • Greater self-reliance • Improved skills for outdoor enjoyment • Closer relationship with the natural world • Greater freedom from urban living <p>Community/Social:</p> <ul style="list-style-type: none"> • Feeling that this community is a special place to live • Greater community involvement in recreation and other land use decisions • More well-rounded childhood development <p>Environmental:</p> <ul style="list-style-type: none"> • Greater community ownership and stewardship of recreation, and natural resources • Greater retention of distinctive natural landscape features • Reduced negative human impacts • Increase awareness and protection of natural landscapes • Reduced looting of historic and prehistoric sites • Sustainability of community’s cultural heritage • Greater protection of wildlife, and plant habitat from development, and public land use impacts • Conservation of entire sustainable ecosystems • Reduced wildlife disturbance from recreation facility development <p>Economic:</p> <ul style="list-style-type: none"> • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits • Increased local tourism revenue 	<p>Personal:</p> <ul style="list-style-type: none"> • Greater self-reliance • A closer relationship with the natural world • Improved skills for outdoor enjoyment • Enhanced sense of personal freedom • Greater freedom from urban living <p>Community/Social:</p> <ul style="list-style-type: none"> • Feeling that this community is a special place to live • Greater community involvement in recreation and other land use decisions • More well-rounded childhood development <p>Environmental:</p> <ul style="list-style-type: none"> • Greater community ownership and stewardship of recreation, and natural resources • Greater retention of distinctive natural landscape features • Reduced negative human impacts • Increase awareness and protection of natural landscapes • Reduced looting of historic and prehistoric sites • Sustainability of community’s cultural heritage • Greater protection of wildlife, and plant habitat from development, and public land use impacts • Conservation of entire sustainable ecosystems • Reduced wildlife disturbance from recreation facility development <p>Economic:</p> <ul style="list-style-type: none"> • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits • Increased local tourism revenue

Frontcountry	Backcountry	Primitive
<i>Proposed Management</i>		
<ul style="list-style-type: none"> • Opportunities for visitors to experience a wildland setting in close proximity to their home for a wide of range environmentally sound, motorized and non-motorized, recreational activities • Greater potential for interpretive developments and signing. 	<ul style="list-style-type: none"> • Minimal improvements to achieve targeted benefits, realize potential for solitude, unconfined primitive activities; • Increased effort to manage unauthorized motor vehicle use. • Increased effort to promote authorized motorized and mechanized uses 	<ul style="list-style-type: none"> • BLM will manage this zone to protect wilderness characteristics and provide the targeted benefits and outcomes.

2.16.1.1 Primitive Zone Description

The Primitive zone is essentially roadless and a primary management goal would be focused on recognizing and managing a unique and primitive undeveloped area for its “wilderness character”. This environmental setting would offer visitors the greatest opportunity for solitude, challenge, and self-sufficiency. Management activities here would be to maintain and restore the area to a natural functioning ecosystem with minimal evidence of human intrusions. Within this zone, BLM would achieve important resource and visitor management objectives using hand tools, except in emergency situations or where motorized equipment is determined to be the minimum necessary tool. Appropriate public use would include non-motorized/non-mechanized activities with few recreational facilities, such as trails and signing for resource protection or visitor safety.

2.16.1.2 Backcountry Zone Description

The Backcountry zone would represent a broad mix of uses and management. Primary recreational activities in the Backcountry would include hunting, and motorized and non-motorized exploration. Dispersed camping would also be allowed under some management alternatives. Roads and trails with natural surfaces would be the primary recreational facilities provided. Despite the presence of roads in this zone, many parts of the Backcountry zone would remain remote and difficult to access. The Backcountry zone would present ample opportunities to explore the Monument “off the beaten path.”

2.16.1.3 Frontcountry Zone Description

Most of the CPNM’s existing developed recreation sites are included within this zone and additional visitor facilities would be focused here. Primary management goals would focus on providing visitor access to developed recreation and interpretive sites. Appropriate facilities within this zone could include interpretive overlooks, developed campgrounds, a visitor/educational center, and trailheads. The Frontcountry zone would offer readily available services to casual visitors, where they can learn about the primitive character and significant resource values of the Monument without venturing into more remote locations that typify the other zones and require a higher level of preparation.

2.16.2 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.16.2.1 Goals

- *Goal REC-1(P)*: Provide recreation opportunities and interpretative programs that enhance the public’s appreciation of the objects of the Monument Proclamation and other Monument resources.

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- *Goal REC-2(P)*: Manage Monument lands to provide quality recreation while protecting natural and cultural resources, promoting safety and minimizing conflicts between users and wildlife.
- *Goal REC-3(P)*: Identify specific management zones that will each offer distinct types of recreation settings and opportunities to Monument visitors.

2.16.2.2 Zone-Specific Setting Objectives

The zone objectives do not vary by alternative. Instead, the acreage allocated to each zone changes in each alternative. (For descriptions of each zone, refer to Section 2.16.1, Use of Recreation Management Zones).

Primitive Zone Management Objectives

Physical Setting

Objective REC-1(P): Maintain a natural landscape, with few developments, where the forces of nature predominate and the sights and sounds of human influence are minimized. Management would be kept to a minimum to provide for visitor safety or resource protection. Visitor access would be cross-country or on non-mechanized trails.

Social Setting

Objective REC-2(P): Provide opportunities and benefits that allow freedom of access, solitude, and primitive non-mechanized recreation.

Objective REC-3(P): Visitors would be expected to practice a level of personal responsibility and self-sufficiency that is compatible with a self-directed, primitive experience.

Managerial Setting

Objective REC-4(P): The majority of management actions would occur outside of the Primitive zone so that visitors can experience freedom to choose travel and camping locations once they enter the zone. Management actions would prepare visitors to enter and use the Primitive zone safely and with minimal impacts to resources and other visitors. Management presence on-site would be subtle, in the form of rustic signs and non-mechanized trails, and with relatively low levels of direct visitor contact. Motorized roads within this zone would be either converted to trails or closed to public use.

Backcountry Zone Management Objectives

Physical Setting

Objective REC-5(P): Maintain the existing, predominantly natural landscape with visitor access provided through a network of unpaved roads and trails. Provide rustic day-use facilities, such as trailheads and interpretive or informational signing and associated parking, to orient the visitor with directional, interpretive, and regulatory information necessary to enhance their recreational experiences and protect important natural and cultural resources in the area. (Dispersed camping would vary by alternative).

Social Setting

Objective REC-6(P): Provide opportunities for exploration of remote areas and allow for activities (mechanized and motorized on-road travel) not available within the Primitive zone. The Backcountry zone would also provide visitors with access points to the Primitive zone.

Objective REC-7(P): Visitors would be expected to practice a level of personal responsibility in following management guidelines and regulations to protect the natural and cultural resources in the area and the recreational facilities, and to respect the rights of other users.

Managerial Setting

Objective REC-8(P): Management activities within the Backcountry zone could occur through on-site informational and interpretive signing and visitor contacts as well as off-site through information and contacts provided within the Frontcountry zone. This would provide visitors with the opportunity to experience a mixture of personal freedom as well as feel a sense of security. Information would focus on informing visitors of recreational opportunities, safety concerns, and regulations designed to protect the natural and cultural resources in the area. Management presence on-site would continue to be more apparent than in the Primitive zone, with low to moderate levels of direct visitor contact.

Frontcountry Zone Management Objectives

Physical Setting

Objective REC-9(P): The Frontcountry zone would have the majority of facilities on the CPNM. This zone would include the Goodwin Education Center, all of the major interpretive sites, both campgrounds, all administrative sites, and all or parts of Soda Lake and Simmler and Elkhorn roads, varying by alternative. This area would include the greatest concentration of interpretation, signage, and kiosks and represents the highest level of development relative to the other zones.

Social Setting

Objective REC-10(P): The Frontcountry zone would give the visitor the opportunity to learn about the values and features of the CPNM in a relatively short time frame while having access to the greatest level of safety and comfort. The majority of the visitors would access the Monument and spend time in the Frontcountry zone, so encounters with other visitors would be anticipated.

Managerial Setting

Objective REC-11(P): Management presence on-site would be more apparent than in both the Primitive and Backcountry zones with higher levels of direct visitor contacts including some opportunities for guided tours and other interpretive programs.

2.16.2.3 Monument-Wide Objectives and Management Actions

Objective REC-12(P): Provide limited visitor facilities within the Monument as necessary for visitor access to provide interpretive opportunities, and for the protection of natural and cultural resources.

Management Actions

- *Action REC-1(P):* Conduct an assessment of recreation sites and programs to determine whether or not they meet the criteria for charging standard or extended amenity fees under the *Federal Lands Recreation Enhancement Act*. If a site or program is determined to meet the criteria, the appropriate

process for establishing fees will be followed, which will include opportunities for public involvement.

- *Action REC-2(I*)*: Assess and improve existing overlooks and interpretive facilities and programs as needed and develop additional facilities in keeping with the management goals of each zone.
- *Action REC-3(I*)*: Develop a comprehensive sign plan to include all directional, informational, educational and interpretive signage. Ensure that signing, maps, brochures, and web-based information provide complementary and consistent information and are part of a complete communication program.
- *Action REC-4(I*)*: Develop and maintain public potable water sources where feasible at developed recreation facilities such as campgrounds and the Goodwin Education Center.
- *Action REC-5(I)*: Provide adequate and timely maintenance of all facilities and signs.

Objective REC-13(P): Allow recreation activities and group uses that are compatible with cultural and biological resource objectives and provide opportunities to appreciate the natural and cultural resources.

Management Actions

- *Action REC-6(I)*: Develop a comprehensive communication program to provide information on Monument recreation opportunities:
 - Incorporate a variety of media including the internet, printed materials, and on-site signing and kiosks.
 - Incorporate visitor safety and user ethics messages.
 - Incorporate timely seasonal information such as road conditions, hunting information, and wildflower viewing updates.
 - Work with regional visitor bureaus, chambers of commerce, and other gateway community outreach groups to incorporate accurate Monument information into their programs (including safety and responsible use messages).
- *Action REC-7(I)*: Develop a driving/riding interpretive tour through the Monument.
- *Action REC-8(P)*: Establish a monitoring program to determine impacts from recreational use on natural and cultural resources and on social, physical, and operational recreation settings. If monitoring indicates direct impacts to resources such as cultural sites, paleontological sites, or special status species, take immediate corrective action, such as establishing permits, seasonal restrictions, or area closures. For less severe impacts, take adaptive corrective actions beginning with the least restrictive approach:
 - Provide visitor use and ethics information.
 - Require permits or establish seasonal restrictions.
 - Close areas.
- *Action REC-9(P)*: Permit low-impact, commercial, and organized group recreation activities and events that are compatible with cultural and biological resource objectives and are directly tied to enjoyment and appreciation of Monument resources. (Permitted competitive events would vary by alternative and zone).
- *Action REC-10(P)*: Establish supplementary rules and regulations where required (as specified in this document in Appendix I and carry forward existing supplementary rules and regulations to protect resources and provide for visitor safety. (See Appendix I, Supplemental Rules for Public Use.)

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- *Action REC-11(I)*: Develop an education and outreach program that targets motorized recreational visitors to increase resource protection and responsible use, and reduce the incidence of illegal off-road travel.
- *Action REC-12(I)*: Coordinate with the Federal Aviation Administration (FAA) and other agencies with management authority over the Carrizo Plain National Monument airspace to establish parameters for commercial touring flights over the Monument and to discourage commercial low flying aircraft. Specific restrictions and stipulations would be considered for minimum altitudes and numbers of flights to preserve the outstanding opportunities for solitude and isolation and to protect sensitive wildlife resources.
- *Action REC-13(I)*: In coordination with the FAA, set the minimum acceptable altitude for aircraft to 2,000ft without authorization from BLM for the purposes of scientific research, education, or special event. All aircraft are prohibited from landing within the Monument without specific authorization from BLM. These limitations and restrictions do not affect emergency flights and landings.
- *Allowable Use REC-1(P)*: Aerial sports, including but not limited to: hanging gliding, skydiving, paragliding, parachuting gliders and hobby aircraft, shall be managed as a discretionary action through the Special Recreation Permit process. Any person wishing to partake in an aerial sport within the Carrizo Plain National Monument will need specific authorization from BLM.

Objective REC-14(I): Provide universal access to new facilities and retrofit existing facilities to comply with the *Americans with Disabilities Act* and the recreation program objectives for each management zone. Retrofitting will also incorporate other applicable requirements such as those for historic structures.

Management Action

- *Action REC-14(I*)*: Assess all recreation, interpretive, and other public facilities and develop a retrofitting program so that they meet accessibility standards.

Objective REC-15(S): Seek out new and maintain existing partnerships with communities and user groups to further the mission of the Monument and complementary community goals.

Management Actions

- *Action REC-15(S)*: Develop and maintain partnerships with organized user groups such as mountain bike groups, hiking societies, and hunting clubs to promote responsible use, volunteerism, and self-policing, and to educate users about the Monument's cultural and natural resources.
- *Action REC-16(S)*: Develop and maintain partnerships with gateway communities to provide visitor services and/or facilities outside the Monument.

Objective REC-16(P): New types of recreation uses may be allowed if they are compatible with the goals and objectives of this plan. Such uses would be evaluated on a case by case basis to assess potential use conflicts, resource impacts, and safety concerns.

- *Allowable Use REC-2(P)*: Above-ground cache activities such as geocaching, earthcaching, and letter boxing may be allowed in non-sensitive areas if the proposed site is consistent with Monument objectives, does not disturb sensitive resources, and BLM provides written authorization for the specific cache site. Unauthorized caches would be removed. Cache activities would not be authorized at sites that are sensitive to Native Americans, such as Painted Rock.

Objective REC-17(P): Target marketing of Monument recreation opportunities to visitors seeking experiences that are compatible with area resource protection objectives and the rustic setting.

Management Action

- *Action REC-17(S)*: Develop a targeted marketing plan to ensure that visitor information and outreach messages delivered by BLM, gateway communities, and other media are compatible with the Monument's recreation niche and the protection of Monument objectives.

Objective REC-18(I): Provide a comprehensive natural and cultural resource interpretive program that tells the story of the Monument and its significance (note: This program is discussed in more detail in the Cultural Resources section).

Management Action

- *Action REC-18(I)*: Develop a comprehensive natural and cultural interpretive plan for the Monument that identifies core themes, appropriate media, key audiences, priority facility needs (including potential additional visitor center space), and other components.

2.16.3 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.16.3.1 All Zones

Objective REC-19(P): Reduce the risk of death or injury to the kit fox and other listed animal species from accidental shootings by eliminating non-game hunting (varmint hunting).

Action REC-19(P): In coordination with CDFG, eliminate non-game hunting (varmint hunting) within the Monument.

Objective REC-20(P): Continue to provide a wide variety of distinct recreation opportunities through zoning. Emphasize vast open spaces, opportunities for solitude, and provide for compatible dispersed recreation activities.

Allowable Use REC-3(P): Dispersed camping; considered to be low impact car camping and backpacking, would be allowed in designated areas (Map 3-14). Recreational vehicles, travel trailers, and fifth-wheels are only permitted in campgrounds. Dispersed camping areas would be monitored for impacts. If monitoring indicates direct impacts to resources such as cultural sites, paleontological sites, or special status species, corrective actions such as site stabilization or improvement, permits, seasonal restrictions, or area closure may be taken. For less severe impacts, corrective actions would be taken, beginning with the least restrictive approach:

- Provide visitor use and ethics information.
- Develop and encourage use of defined sites within dispersed camping areas. For example, provide for site protection, such as signage, fire rings and lantern holders, and soil stabilization.
- Require permits or establish seasonal restrictions.
- Close and rehabilitate areas.

2.16.3.2 Primitive Zone

Objective REC-21(P): Manage the existing 17,984-acre Caliente Mountain WSA plus 44,471 additional acres for wilderness characteristics within the Primitive zone. (See Map 2-3.)

Management Actions

Facilities

- *Action REC-20(I*)*: Facilities determined necessary for resource protection and visitor safety may be provided. Typical facilities within the zone may include limited trail signing, trails, and horse hitching rails.

Interpretation and Education

- *Action REC-21(I)*: Interpretive information for overlooks and other features would not be provided within this zone, and users would be expected to practice a level of self-sufficiency commensurate with wilderness access.
- *Action REC-22(I)*: Provide minimal signing within the interior of this zone only when needed for resource protection or visitor safety. Emphasis would be placed on off-site information.

Allowable Uses

Allowable Use REC-4(P): A variety of non-mechanized recreational activities such as hiking, equestrian use, camping, wildlife viewing, nature photography, and other activities consistent with the goal of providing a wilderness experience would be allowed.

2.16.3.3 Backcountry Zone

Objective REC-22(P): Manage 165,180 acres as Backcountry (see Map 2-3).

Management Actions

Facilities

- *Action REC-23(I)*: Provide amenities at designated dispersed camping areas for resource protection and to encourage use in areas that are already impacted. Facilities would retain a rustic character.

Interpretation and Education

- *Action REC-24(I)*: Provide rustic informational signage on roads, trails, at trailheads, and at other facilities.
- *Action REC-25(I*)*: Minor overlooks would be limited to pull-outs or small areas with few amenities. Most interpretive information will be obtained by the visitor in facilities located in the Frontcountry zone.

Allowable Uses

- *Allowable Use REC-5(P)*: A variety of non-motorized and motorized recreational activities such as vehicle camping, driving for pleasure, hiking, equestrian use, mountain biking, hunting, nature study, wildlife and wildflower viewing, nature photography, and other uses compatible with goals for the Backcountry zone would be allowed.
- *Allowable Use REC-6(P)*: Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and cultural and biological objectives may be authorized. Require support facilities such as parking and concessions to be located at existing or approved BLM

sites, or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species.

2.16.3.4 Frontcountry Zone

Objective REC-23(P): Manage 19,181 acres as Frontcountry. (See Map 2-3.)

Management Actions

Facilities

- *Action REC-26(I*):* Provide recreational and interpretive facilities with amenities that provide for visitor orientation, safety, comfort, and resource protection at overlooks, trailheads, and at interpretive kiosks. When possible, utilize construction standards that portray a rustic character.
- *Action REC-27(I*):* Provide trailheads, parking areas, campgrounds, the Goodwin Education Center, roads, and other facilities that support the recreational and interpretation goals of the Monument.

Interpretation and Education

- *Action REC-28(I*):* Improve and expand existing interpretive programs at existing kiosks, the Goodwin Education Center, Soda Lake Boardwalk, Soda Lake Overlook, Wallace Creek, Painted Rock, El Saucito, and other sites. Additional interpretive areas along primary access roads may be developed.
- *Action REC-29(I):* Provide guided tours of Painted Rock and El Saucito Ranch to offer the visitor an opportunity to appreciate the range of cultural history in the CPNM.
- *Action REC-30(I*):* Expand the Goodwin Educational/Visitor's Center to provide additional visitor capacity and to accommodate additional educational and interpretive programming.
- *Action REC-31(I):* Provide directional and informational signage along roads and at recreational/interpretive facilities to help minimize the impact on resources and to provide for visitor safety.

Allowable Uses

- *Allowable Use REC-7(P):* Allow a wide variety of motorized and non-motorized uses such as driving for pleasure, mountain biking, equestrian use, wildflower viewing, camping at developed campgrounds, hiking, visiting cultural sites and other interpretive sites, and picnicking.
- *Allowable Use REC-8(P):* Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and cultural and biological objectives, may be authorized. Require support facilities such as parking and concessions to be located at existing or approved BLM sites or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species.
- *Allowable Use REC-9(P):* A 1,204-acre area from Painted Rock to Selby Rocks will be closed to the following: horses, livestock, dogs, and the discharge of firearms. The closed area would not include Selby Road or Caliente Mountain Road. (See Map 2-1, Painted Rock Exclusion Zone.)
- *Allowable Use REC-10(P):* An access permit would be required for all self-guided tours to Painted Rock.
- *Allowable Use REC-11(P):* Painted Rock would be closed from dusk to dawn.

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- *Allowable Use REC-12(P)*: Prohibit campfires within the Painted Rock Exclusion Zone (Map 2-1) while still allowing for approved Native American ceremonial use of fire.

2.16.4 Alternative 1

2.16.4.1 All Zones

Objective: Protect Monument resources by allowing camping with motorized vehicles only in developed campgrounds.

Allowable Use

- Allow camping with vehicles in developed campgrounds only. Dispersed camping would not be permitted. Overnight parking would be permitted in designated locations for backpacking (where visitors travel more than ½ mile from their vehicle to camp).

2.16.4.2 Primitive Zone

Objective: Manage the existing 17,984-acre Caliente Mountain WSA plus 62,607 acres as Primitive. (See Map 2-2, Recreation Management Zones and Route Designations, Alternative 1.)

Management Actions

Facilities

- Provide only facilities necessary for resource protection and visitor safety. Typical facilities may include trail signing, trails, and horse hitching rails.

Interpretation and Education

- Interpretive and directional information for trails other opportunities would not be provided within the zone. Off-site information and interpretation would be provided before visitors enter the area.
- Provide minimal signing within the interior of this zone only to provide for resource protection or visitor safety.

Allowable Uses

- A variety of non-motorized and non-mechanized recreational activities such as hiking, equestrian use, camping, wildlife viewing, nature photography, and other activities consistent with the goal of providing a primitive experience would be allowed.

2.16.4.3 Backcountry Zone

Objective: Manage 150,844 acres as backcountry. (See Map 2-2.)

Management Actions

Facilities

- Minimal facilities will be developed in the backcountry zone. Facilities would be limited to such items as small interpretive sites and trailheads.

Interpretation and Education

- Provide rustic informational signage on roads, trails, at trailheads, and at other facilities.
- Minor overlooks would be limited to pull-outs or small areas with no amenities. Most interpretive information would be obtained by the visitor in facilities located in the Frontcountry zone.

Allowable Uses

A variety of non-motorized and motorized recreational activities such as driving for pleasure, hiking, equestrian use, mountain biking, hunting, nature study, wildlife and wildflower viewing, nature photography, and other uses compatible with goals for the Backcountry zone would be allowed.

2.16.4.4 Frontcountry Zone

Objective: Manage 15,382 acres as Frontcountry. (See Map 2-2.)

Management Actions

Facilities

- Provide recreational and interpretive facilities with amenities that provide for visitor orientation, safety, comfort and resource protection at overlooks, trailheads, and at interpretive kiosks. When possible, utilize construction standards that portray a rustic character and mimic the existing design motif of historic ranch/farm structures.
- Provide trailheads, parking areas, campgrounds, the Goodwin Education Center, roads, and other facilities that support the recreational and interpretation goals of the Monument.
- Administrative sites would also be included within this zone.

Interpretation and Education

- Improve and expand existing interpretive programs at existing kiosks, the Goodwin Education Center, Soda Lake Boardwalk, Soda Lake Overlook, Wallace Creek, El Saucito, and other sites. Additional interpretive areas along primary access roads may be developed.
- Provide guided tours of El Saucito Ranch to offer the visitor an opportunity to appreciate the range of cultural history in the CPNM (See also Cultural Resources Section).
- Expand the Goodwin Educational/Visitor's Center to provide additional visitor capacity and to accommodate additional educational and interpretive programming.
- Provide directional and informational signage along roads and at recreational/interpretive facilities to help minimize the impact on resources and to provide for visitor safety.

Allowable Uses

- A wide variety of motorized and non-motorized uses such as driving for pleasure, mountain biking, equestrian use, wildflower viewing, camping at developed campgrounds, hiking, visiting cultural sites and other interpretive sites, and picnicking would be allowed.
- A 1,204-acre area from Painted Rock to Selby Rocks will be closed to horses, livestock, dogs, and the discharge of firearms. The closed area would not include Selby Road or Caliente Mountain Road. (See Map 2-2.)

- Painted Rock would be closed to public access.

2.16.5 Alternative 3

2.16.5.1 All Zones

Objective: Continue to provide a wide variety of distinct recreation opportunities through zoning. Emphasize visitor orientation and recreation in an expanded Frontcountry zone, provide for compatible dispersed recreation activities, and continue to provide opportunities for solitude within the Wilderness Study Area.

Allowable Use

Dispersed camping in designated areas would be allowed and monitored for impacts. If monitoring indicates direct impacts to resources such as cultural sites, paleontological sites, or special status species, corrective actions such as site stabilization or improvement, permits, seasonal restrictions, or area closure, may be taken. For less severe impacts, corrective actions would be taken, beginning with the least restrictive approach:

- Provide visitor use and ethics information.
- Develop and encourage use of defined sites within dispersed camping areas. For example, provide amenities for site protection, such as signage, fire rings and lantern holders, soil stabilization, etc.
- Require permits or establish seasonal restrictions.
- Close and rehabilitate areas.

2.16.5.2 Primitive Zone

Objective: Manage the existing 17,984-acre Caliente Mountain WSA as Primitive. (See Map 2-4, Recreation Management Zones and Route Designations, Alternative 3.)

Management Actions

Facilities

- Facilities determined necessary for resource protection and visitor safety may be provided. Typical facilities within the zone may include limited trail signing, trails, and horse hitching rails.

Interpretation and Education

- Interpretive and directional information for overlooks, trails, cultural sites, and other features would not be provided. Information would be provided outside of the zone through sources such as brochures, the internet, and audio tours.
- Provide minimal signing within the interior of the Primitive zone only when needed for resource protection or visitor safety.

Allowable Uses

- A variety of non-motorized and non-mechanized recreational activities such as hiking, equestrian use, camping, wildlife viewing, nature photography, and other activities consistent with the goal of providing a primitive experience would be allowed.

2.16.5.3 Backcountry Zone

Objective: Manage 200,091 acres (see Map 2-4) as backcountry.

Management Actions

Facilities

- Provide amenities at designated dispersed camping areas for resource protection and to encourage use in areas that are already impacted. Facilities should retain a rustic character.

Interpretation and Education

- Provide rustic informational signage on roads, trails, at trailheads, and at other facilities.
- Minor overlooks would be limited to pull-outs or small areas with few amenities. Most interpretive information will be obtained by the visitor in facilities located in the Frontcountry zone.

Allowable Uses

- A variety of non-motorized and motorized recreational activities such as vehicle camping, driving for pleasure, hiking, equestrian use, mountain biking, hunting, nature study, wildlife and wildflower viewing, nature photography, and other uses compatible with goals for the backcountry Zone would be allowed.
- Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and cultural and biological objectives may be authorized. Require support facilities such as parking and concessions to be located at existing or approved BLM sites, or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species.

2.16.5.4 Frontcountry Zone

Objective: Manage 28,741 acres (see Map 2-4) as Frontcountry.

Management Actions

Facilities

- Provide recreational and interpretive facilities with amenities that provide for visitor orientation, safety, comfort, and resource protection at overlooks, trailheads, and at interpretive kiosks. When possible, utilize construction standards that portray a rustic character.
- Provide trailheads, parking areas, campgrounds, the Goodwin Education Center, roads, and other facilities that support the recreational and interpretation goals of the Monument.

Interpretation and Education

- Provide guided tours of Painted Rock and El Saucito Ranch to offer the visitor an opportunity to appreciate the range of cultural history in the CPNM.

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- Improve and expand existing interpretive programs at existing kiosks, the Goodwin Education Center, Soda Lake Boardwalk, Soda Lake Overlook, Wallace Creek, Painted Rock, El Saucito, and other sites. Additional interpretive areas along primary access roads may be developed.
- Expand the Goodwin Educational/Visitor's Center to provide additional visitor capacity and to accommodate additional educational and interpretive programming.
- Provide directional and informational signage along roads and at recreational/interpretive facilities to help minimize the impact on the resources and to provide for visitor safety.

Allowable Uses

- A wide variety of motorized and non-motorized uses such as driving for pleasure, mountain biking, equestrian use, wildflower viewing, camping at developed campgrounds, hiking, visiting cultural sites and other interpretive sites, and picnicking would be allowed.
- Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and cultural and biological objectives, may be authorized. Require support facilities such as parking and concessions to be located at existing or approved BLM sites, or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species.
- A 1,204-acre area from Painted Rock to Selby Rocks would be closed to horses, livestock, dogs, and the discharge of firearms. The closed area does not include Selby Road or Caliente Mountain Road. (See Map 2-1, Painted Rock Exclusion Zone.)
- An access permit would be required for all self-guided tours to Painted Rock.
- Painted Rock will be closed from dusk to dawn.

2.16.6 No Action Alternative

2.16.6.1 Facilities

Goal: Provide recreational facilities including trails and interpretive exhibits.

Objective: Develop facilities that would enhance public enjoyment and educational experiences while minimizing impact on resources and existing uses.

Management Actions

- Design facilities to have the least adverse impact possible on resources and existing uses.
- Monitor impacts associated with visitor use and facility development.
- Provide facilities at the Painted Rock Parking Area and interpretation on a portion of the Painted Rock Trail.
- Maintain a parking area along Elkhorn Road near Wallace Creek.
- Maintain the Soda Lake Boardwalk, near the overlook, to interpret the different plant communities.
- Remove the plaques from the top of the hill at the Soda Lake Overlook and relocate them at a lower elevation to restore the visual integrity of the site.
- Develop a roadside pullout with a kiosk at the southern end of Soda Lake Road.

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- Use traffic counters, trail registers, and visitor questionnaires to monitor visitor use and requirements.

2.16.6.2 Camping

Objective: Provide designated camping areas and related facilities compatible with the goals of the CPNM.

Management Actions

- Designated camping areas identified in this plan will be monitored for impacts and visitor use surveys will be made to determine present and future demands.
- Limit overnight camping to 14 days in any 30-day period and no more than 28 days in one year, and to designated camping areas, except as specified in writing by the CPNM Manager.
- Maintain and improve Selby and KCL campgrounds.
- Portions of the Temblor and Caliente Mountains will be designated camping areas allowing for car, tent, backpack, or horse camping. Low impact ("primitive") and horse camping will be allowed along the Caliente ridge and within the Caliente Mountain WSA. No facilities will be located within this designated camping area.
- If additional camping areas are required, evaluations of potential sites will be based on, but not limited to, potential for deleterious environmental impacts, accessibility to all-weather roads, size of the area, appropriate location for visitor interest and use, availability of water, viewshed and VRM impacts, and security.

2.16.6.3 Hunting

Objectives: Provide opportunities for hunting consistent with the mission. Manage hunting and shooting in a manner compatible with the goals of the Monument Proclamation.

Management Actions

- All sections of the California Fish and Game Code and the California Code of Regulations Title 14 are in effect and will be enforced by any law enforcement officer.
- Monitor hunting to determine if conflicts exist with sensitive resources. The finding will determine if changes in hunting areas are warranted.
- Develop a hunter information guide with maps showing open and closed hunting areas, the mission of the CPNM, and use restrictions. Emphasis should be placed on special concerns for cultural resources and the California condor and its recovery.
- Direct visitors to established facilities outside the CPNM for target shooting.
- Close the area from Painted Rock to the Goodwin Education Center to the discharge of firearms because of the high visitor use in this area. (See details in Appendix I, Supplemental Rules for Public Use.)
- Establish a quarter-mile radius closure for the discharge of firearms around the Selby and KCL campgrounds, Goodwin Education Center, Washburn and MU ranch headquarters, Soda Lake Overlook complex, and the Wallace Creek interpretive site.

2.16.6.4 Other Recreation

Objectives: Permit other types of recreation if compatible with sensitive resources. Allow Special Recreation Use Permits compatible with the goals and objectives of this plan.

Management Actions

- A Special Recreation Use Permit or Letter of Authorization will be required for activities that are consistent with the management plan for organized groups of 20 or more people. Permits will be administered by BLM in coordination with the managing partners.
- Other recreational activities not identified in this plan will be denied if they are found to be incompatible with the sensitive resources or the Monument Proclamation. Examples include certain types of competitive and large-group activities, such as motorcycle runs and organized equestrian events.
- If a proposed event detracts from the natural, cultural, or esthetic values of the CPNM or poses a risk to those resources that could be avoided by simply moving the event outside of the CPNM, then the application will be denied. Recreational activities that focus on the special resources of the CPNM, benefit the CPNM, or provide public education opportunities with no potential for causing negative impacts to those resources may be approved.

2.16.6.5 Interpretation

Goal: Convey an understanding and appreciation of the unique resources so that visitors may enjoy and protect them.

Objective: Increase the understanding and awareness of the resource values of the CPNM and foster an interest in their protection.

Management Actions

- Use the existing Interpretive Prospectus as an outline for CPNM interpretive services.
- Continue developing outreach programs with local schools, universities, and special interest groups.

Objective: Operate the Guy L. Goodwin Education Center to enhance the educational and recreational enjoyment of visitors.

Management Actions

- Develop an operational strategy for the Goodwin Education Center including long-term goals, funding, and staffing.
- Establish the Goodwin Education Center as the primary location for visitor information and educational materials.
- Establish a docent recruitment and training program to provide interpretive services and assist with public outreach. This will provide opportunities for public involvement.

2.17 Administrative Facilities

In general, the CPNM has adequate administrative facilities to support the management programs envisioned under the RMP. However, over the life of the plan, there may be a need to develop additional

facilities and there will be a need to upgrade existing facilities to accommodate the administration of the Monument.

2.17.1 Goal, Objectives, and Management Actions Common to All Action Alternatives

Goal ADM-1(P): Provide facilities that are consistent with the mission of the Monument and support the management goals identified in this RMP.

Objective ADM-1(P): Provide administrative and maintenance facilities to support the management of the Monument.

Management Actions

- *Action ADM-1(I*):* Continue to maintain existing administrative sites on the Monument. This includes the Washburn Ranch and the MU Ranch. Consider development of an administrative headquarters to improve the efficiency of CPNM management, either on-Monument or in an adjacent area.
- *Action ADM-2(I*):* Determine the need to accommodate future employees, seasonal workforce, and researchers at the Washburn Ranch and increase housing capabilities as needed.
- *Action ADM-3(I*):* Provide location(s) for researchers to link to the internet and other communication mediums for data transmission and other support needs.
- *Action ADM-4(I):* Maintain the facilities at the MU Ranch for employees and research housing.
- *Action ADM-5(I*):* Expand the Visitor Center to better accommodate employees and enhance educational opportunities for the public.

Objective ADM-2(I): Use “green” building techniques that minimize use of natural resources and energy and minimize the need for commercial power and utility corridors related to Monument administrative sites.

Management Actions

- *Action ADM-6(I*):* Work with Pacific Gas & Electric and CDFG to install solar power at the Visitor Center and the Painted Rock Ranch to eliminate the need for the existing transmission line across the Monument.
- *Action ADM-7(S):* Incorporate green design elements and alternative sources of power when developing or retrofitting any administrative sites.

2.17.2 No Action Alternative

No explicit objectives or actions are included in existing management plans regarding administrative facilities.

2.18 Travel Management

The CPNM has a long history of mechanized farming that has resulted in a large network of roads throughout the Monument. Some of these roads are used for visitor enjoyment of the area and for resource management activities. However, many other roads are no longer necessary, poorly sited, redundant, or causing impact on the land. The intent of the travel management program is to provide a travel network

that will protect the Monument's natural and cultural resources, allow for administrative access for management and restoration activities, and provide opportunities for visitors to experience the uniqueness of the CPNM while protecting the objects of the Proclamation. The travel management program also includes limitations on use to ensure safety or to protect resources from degradation due to excessive erosion, dust, wildlife disturbance, and other impacts.

All public lands in the planning area are designated through a two-level process in this RMP. The first level is the Area Designation. Under the Area Designation, all BLM lands in the planning area are designated as either an open area, a limited area, or a closed area regarding vehicle travel under the BLM OHV regulations (at 43 CFR 8342). Under the Monument Proclamation, no off-road motorized or mechanized travel is permitted, so the area designations are either limited area or closed area in the RMP alternatives. A second level of designation applies to the roads themselves. Roads are designated within the RMP along with limitations on the types of use allowed. The full definitions are described under Travel Management Terms in the next section. Note that BLM travel management designations only apply to BLM-managed lands, roads and trails, and not to county roads such as Soda Lake or Elkhorn roads. Also:

- Public vehicle use in the planning area is limited to routes designated in this plan. Any areas and routes on public lands within the planning area that are not identified explicitly in this document and associated maps are closed to vehicle use.
- Short spur routes designed for passenger car access to and within campgrounds, trailhead parking areas, and other BLM recreation sites, although they are not identified explicitly, are open to vehicles unless signed, gated, or otherwise closed. Use of routes regardless of designation is allowed for fire, emergency, administrative and other purposes as authorized under 43 CFR 8340.0-5(a)(2), (3), (4), and (5).

2.18.1 Travel Management Terms

Open Area: Designated areas where motorized vehicles may be operated, subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343; or an area where all types of vehicles are permitted at all times, subject to the standards in BLM Manuals 8341 and 8343. There are no open areas designated in the planning area or proposed under this RMP, since under the Monument Proclamation, no off-road motorized or mechanized travel is permitted.

Limited Area: Designated areas where the use of off-road vehicles is subject to restrictions, such as limiting the number or types of vehicles allowed (for example, street-legal vehicles only), dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under this designation, use would be allowed only on roads that are signed for use. Combinations of restrictions are possible, such as limiting certain types of vehicles during certain times of the year.

Closed Area: Designated areas and trails where the use of off-road vehicles is prohibited. The use of off-road vehicles in closed areas may be allowed for certain reasons; however such use shall be made only with the approval of the authorized officer.

Designated Roads: Specific roads, primitive roads, routes, and trails as defined by BLM travel management policy where one of the following allowable uses apply:

- **Motorized:** Vehicles that are motorized including but not limited to cars, trucks, motorcycles, and all-terrain vehicles (ATVs) powered by combustion engines or other means. Further restrictions

may apply including type and size of vehicle, seasonal use, and license type or permit. (Note: For the CPNM, only street-legal vehicles would be permitted under the proposed plan alternative.)

- Non-motorized: All modes of transport propelled by means other than combustion or electric motor. This includes bicycles, equestrian, pedestrian, and other livestock-based modes of transportation. Further restrictions may apply including type and nature of transport, size of vehicle, and seasonal use.
- Non-mechanized: Modes of transport consisting of no machined parts. This includes pedestrian travel and travel by livestock.
- Authorized use: Modes of transport authorized by the authorizing agency.
- Closed: Routes where no form of public travel is permitted.

The vast majority of the roads within the Monument are designated for authorized use, public foot, equestrian, and non-motorized traffic (such as mountain bikes). The following are exceptions:

- Any road within ¼ mile of the Washburn Administrative Site and the access road to the MU Ranch Headquarters buildings are closed to all public access except for specific events authorized by BLM (5 miles).
- The road between the Goodwin Education Center and Painted Rock would remain closed to all public use from March 1st to July 15th to protect nesting birds (2.5 miles).
- Primitive routes within the Caliente Mountain WSA and areas identified for management for wilderness characteristics would be closed to motorized uses and mechanized uses such as mountain bikes.

2.18.2 Goals, Objectives, Management Actions, and Allowable Uses Common to All Action Alternatives

2.18.2.1 Goal TRV-1(P)

Identify and manage an effective travel network that supports management activities and appropriate public uses while protecting the objects of the Monument Proclamation.

2.18.2.2 Objectives, Management Actions, and Allowable Uses

Objective TRV-1(P): Provide a safe and effective travel network (including roads and trails) that supports administration and public recreation use of the Monument commensurate with the respective recreation management zone objectives.

Allowable Use

Allowable Use TRV-1(P): Travel designation is limited area for the Backcountry and the Frontcountry zones. The Primitive zone will be designated as a closed area. No areas in the Monument are designated as open areas based on the Monument Proclamation. Under the Monument Proclamation, “the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.”

Management Actions

- *Action TRV-1(I)*: Develop a comprehensive travel information program that includes road/trail signing, brochures, web information, and other appropriate media to inform visitors of conditions, vehicle limitations, rules, regulations, and other safety concerns.
- *Action TRV-2(I)*: Roads would be subject to temporary closure during wet periods and after washouts to minimize road damage, reduce resource impacts, and for public safety reasons. These closures would typically be short-term (closures would be implemented under the emergency closure authority of 43 CFR 8340) but would be in place until conditions improve or repairs are completed.

Objective TRV-2(P): Provide reasonable access to private surface land inholders and mineral estate owners as required by law.

Management Action

See Lands and Realty section for right-of-way authorizations.

Objective TRV-3(I*): Ensure that the Monument road network is designed and managed to minimize impacts to natural and cultural resource values.

Management Actions

- *Action TRV-3(I)*: Develop a road maintenance plan that identifies and determines maintenance techniques or reconstruction opportunities to protect cultural and biological resource sites.
- *Action TRV-4(I)*: Identify and close unneeded or redundant travelways as identified on Map 2-3.
- *Action TRV-5(I)*: Upon acquisition of private land inholdings, access roads to these parcels would be evaluated for inclusion in the transportation network or closure based on the following criteria:
 - Are they compatible with the objectives of the RMP for protection of cultural and natural resources?
 - Do they provide necessary access for administrative purposes?
 - Do they enhance public recreation access or experiences identified for the respective recreation management zone?
- *Action TRV-6(I*)*: Roads that meet at least the first two criteria will be designated as non-motorized roads that meet at least the first and last criteria will remain open to public access (designated as motorized). All other roads will be closed.
- *Action TRV-7(I*)*: Minimize impacts to water quality and other resources through proper design, maintenance, or minor rerouting of roads.
- *Action TRV-8(I*)*: Take actions to reduce illegal off-road travel such as education, enforcement, and placement of physical barriers.
- *Action TRV-9(P)*: Improve public safety and reduce the number of animal road-strikes by establishing reduced speed limits on BLM roads in high public use areas or areas with a high frequency of wildlife road strikes. Recommend speed limit reductions on county road segments with same issues.
- *Action TRV-10(P)*: All existing routes within the Primitive zone would be managed for wilderness characteristics and designated as closed to public use. These roads will be converted into trails or

rehabilitated back to their natural state. Certain specific routes that are necessary for administrative access would be available for this use based on a minimum requirements assessment (that is, an assessment that determines vehicle access as a necessity with no reasonable alternatives for access, for example, to carry heavy materials for fence repair or to remove and haul out derelict structures).

2.18.3 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

Allowable Use TRV-2(P): Under Alternative 2, the travel network will be designated as shown on Map 2-3. The miles of specific road designations are listed below:

Road Designations		Area Designations	
Motorized: street-legal only	166 miles	Open	0 acres
Motorized	18 miles	Limited	184,361 acres
Non-motorized	113 miles	Closed	62,455 acres
Closed roads	42 miles		
Non-mechanized	24 miles		
Authorized use only	5 miles		
Pedestrian only	2.3 miles		

2.18.3.1 Backcountry Zone

Objective TRV-4(P) – Road Maintenance: The majority of the roads in the Backcountry zone would be maintained at a level 1 and 2 BLM maintenance standard (see Appendix J, Road Maintenance Classifications). Many of the roads in this zone would be maintained only based on significant public safety issues or to prevent and/or repair damage to a natural or cultural resource. Roads in this zone would only be accessible with high clearance or four-wheel drive vehicles.

Allowable Use

Allowable Use TRV-3(P): Only street-licensed vehicles would be allowed in the Backcountry zone. No green or red sticker vehicles registered under the state OHV program would be allowed. Non-street licensed vehicles (ATVs, motorcycles) would be permitted on a portion of the Temblor Ridge Road from T31S, R21E, Section 23 to T11N, R24W, Section 7 allowing connectivity to the eastern slopes of the Temblors. Staging for activities and trailing of non-street licensed vehicles would be prohibited along Temblor Ridge Road.

2.18.3.2 Frontcountry Zone

Objective TRV-5(P) – Road Maintenance: BLM roads in this zone would be maintained at a level of 3 or 4 (see Appendix J, Road Maintenance Classifications). This would allow most passenger cars to access popular recreation sites in good weather.

Allowable Use

Allowable Use TRV-4(P): Only street-licensed vehicles would be allowed in the Frontcountry zone. No green or red sticker vehicles registered under the state OHV program would be allowed.

Management Action

Action TRV-11(S): Work with San Luis Obispo County to maintain Soda Lake Road comparable to a level 4 BLM maintenance standard.

2.18.4 Alternative 1

Under Alternative 1, the travel network will be designated as shown on Map 2-2. The miles of specific road designations are listed below:

<u>Road Designations</u>		<u>Area Designations</u>	
Motorized: Street-legal only	184 miles	Open	0 acres
Non-motorized	91 miles	Limited	166,226 acres
Closed roads	80 miles	Closed	80,591 acres
Non-mechanized	9 miles		
Authorized use only	5 miles		

2.18.4.1 Backcountry Zone

Road Maintenance Objective: The majority of the roads in the Backcountry zone would be maintained at level 1 and 2 BLM maintenance levels (see Appendix J, Road Maintenance Classifications). Many of the roads in this zone would be maintained only based on significant public safety issues or to prevent and/or repair damage to a natural or cultural resource. Roads in this zone would only be accessible with high clearance or four-wheel drive vehicles.

Allowable Use

Only street-licensed vehicles would be allowed in the Backcountry zone. For example, no green or red sticker vehicles registered under the state OHV program would be allowed.

2.18.4.2 Frontcountry

Road Maintenance Objective: BLM-administered roads in the Frontcountry zone would be maintained at a level of 3 or 4 (see Appendix J, Road Maintenance Classifications). This would allow most passenger cars to access popular recreation sites in good weather.

Management Action

BLM would work with San Luis Obispo County to maintain Soda Lake Road comparable to a maintenance level 3 gravel road.

Allowable Use

Only street-licensed vehicles would be allowed on BLM roads in the Frontcountry zone. For example, no green or red sticker vehicles would be allowed.

2.18.5 Alternative 3

Under Alternative 3, the travel network will be designated as shown on Map 2-4. The miles of specific road designations are listed below:

Road Designations		Area Designation	
Motorized: Street-legal only	240 miles	Open	0 acres
Non-motorized	109 miles	Limited	228,832 acres
Closed roads	10 miles	Closed	17,984 acres
Non-mechanized	5 miles		
Authorized use only	5 miles		

2.18.5.1 Backcountry Zone

Road Maintenance Objective: Same as Alternative 1 and 2.

Allowable Use

Only licensed vehicles and other vehicles registered with state OHV programs (green or red sticker vehicles) such as off highway motorcycles, four wheelers, and other OHVs would be allowed on designated roads within the Monument. See Appendix I, Supplemental Rules for Public Use, for details.

2.18.5.2 Frontcountry

Road Maintenance Objective: Same as Alternative 1 and 2.

Management Action:

Work with San Luis Obispo County to maintain Soda Lake Road comparable to a BLM level 4 paved road.

2.18.6 No Action

Under the no action alternative, the travel network would be the same as shown on Map 2-4. The miles of specific road designations are provided below:

Road Designations	
Motorized: Street-legal only	322 miles*
Non-motorized	115 miles
Closed roads	10 miles
Non-mechanized	7 miles
Authorized use only	6 miles

*Includes county road mileage

2.18.6.1 Goal

Access will be provided to make use of recreational opportunities within the Monument as consistent with the Monument Proclamation.

2.18.6.2 Objective

Provide access for recreation and to facilities, where compatible with sensitive resources.

2.18.6.3 Management Actions

- Under the Monument Proclamation, no off-road motorized or mechanized travel would be permitted.
- Roads are subject to temporary closure during wet periods and after washouts for public safety reasons.
- Areas will be monitored each year to determine if routes should be closed permanently or seasonally. Closures are designed to reduce safety hazards (fire danger and washouts), impacts to sensitive resources, and unnecessary damage to roads.
- Provide access to Painted Rock. The portion from Soda Lake Road to the Goodwin Education Center will be upgraded to an all-weather surface. Access from Selby Road will be maintained for administrative use and for groups having special permission.

2.19 Minerals

The Monument contains a number of extractable minerals, that is, minerals that are removed from the land by mining, through a well bore, or by other means. These minerals include oil and gas, sand and gravel, gypsum, phosphate, sodium sulfate, and others.

Under the Monument Proclamation, all federal lands and interests in lands within the boundaries of this Monument were appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument. However, the establishment of the Monument was also subject to valid existing rights. Accordingly, only those valid leases, claims, and other rights that existed as of the date of the Proclamation, January 17, 2001, may see mineral development on federal lands within the Monument.

These minerals will be managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1970; the *Mining Law* of 1872, as amended; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987 (*Reform Act*); FLPMA; 43 CFR, Onshore Orders 1-8, Notices to Lessees; NEPA; the *Energy Policy Act* of 2005; and other laws, regulations, and orders, and also in accordance with all applicable state, county, and local laws and ordinances.

Most aspects of the Monument's mineral development are controlled by law and policy that give little latitude for discretion at the RMP level. Therefore, there is a fairly narrow range of alternatives for managing minerals within the CPNM, both solids and oil and gas. BLM will require existing lessees to strictly adhere to all laws, regulations, and policies that govern existing oil and gas leases, while at the same time recognizing that existing leases grant the lessee certain rights. No additional requirements can be placed on an existing lessee that conflict with the rights already granted by the lease. However, BLM will actively work with leaseholders and encourage them to implement management practices that recognize and protect the special qualities of CPNM resources.

As discussed in Chapter 3, much of the Monument is underlain with privately owned mineral rights. This private ownership interest is not subject to the same framework of regulations that apply to Federal leases and so is discussed as a separate topic in the alternatives. Land management decisions must not preclude the ability of private mineral owners to make reasonable use of the surface, as determined in consideration of deed provisions as well as state and Federal law. Reasonable surface use for the development and operation of subsurface rights will be evaluated based on the design criteria and other

direction of this plan. Private mineral development is subject to the provisions of NEPA (and/or *California Environmental Quality Act*), the Endangered Species Act and applicable state, county, and local laws and ordinances.

2.19.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.19.1.1 Goals

- *Goal MNL-1(P)*: Manage the exploration, development, and abandonment of oil and gas on existing federal leases in a manner that protects the objects of the Monument Proclamation.
- *Goal MNL-2(P)*: Work with federal, state, county, and local agencies to ensure that the mission and purpose of the CPNM are furthered and only reasonable uses of public lands are made to access and develop private mineral estate.
- *Goal MNL-3(P)*: Develop and manage small mineral material borrow sites on federal mineral estate for emergency and/or administrative use in a manner compatible with the mission of the CPNM.

2.19.1.2 Objectives

All Mineral Exploration and Development

Objective MNL-1(I)*: Establish SOPs and implementation guidelines, including BMPs, for all projects to ensure that Monument resources are protected while allowing reasonable access for valid existing rights for mineral development. SOPs and BMPs will also incorporate requirements to minimizing noise impacts.

Existing Oil and Gas Leases

- *Objective MNL-2(I*)*: Manage existing leases to ensure ongoing interim and timely final restoration of leased lands so that they are returned to natural function and conditions.
- *Objective MNL-3(S)*: Enforce good housekeeping requirements (that is, require operators to maintain a neat and orderly appearance of sites, remove junk and trash, and otherwise minimize landscape intrusions).
- *Objective MNL-4(I*)*: Manage leases to minimize fragmentation of habitat (including removal of redundant roads and unused pipelines, storage tanks, and other infrastructure).
- *Objective MNL-5(I*)*: Process permits in a timely fashion as required by the *Leasing Reform Act* of 1987, Onshore Orders and Notices to Lessees, the *Energy Act* of 2005, and other laws, regulations, and policies; and consistent with federal, state, and local laws and regulations and dependent on agency staff and resource limitations.

Other Minerals (Solids)

- *Objective MNL-6(I*)*: Provide for small volumes (less than 10 yards per incident) of administrative/emergency sand and gravel materials (for maintenance).

2.19.1.3 Management Actions

Existing Oil and Gas Leases

- *Action MNL-1(I*)*: All projects will be reviewed and the SOPs contained in Appendix O (Biological Standard Operating Procedures) and Appendix P (Minerals Standard Operation Procedures) will be applied.
- *Action MNL-2(I)*: BLM inspection staff will inspect all facilities for environmental compliance on federal lands. Shut-in or abandoned wells will be inventoried and evaluated for final plugging and restoration prioritization. This inventory and evaluation will be completed within six months of the effective date of this RMP.
- *Action MNL-3(S)*: As leases stop producing, process termination or expiration in a timely manner.
- *Action MNL-4(I*)*: Conduct annual surface inspection on all leases within the CPNM to identify and remediate any hazards or impacts to Monument resources such as threatened and endangered species and cultural resources.
- *Action MNL-5(I*)*: Conduct training for operators regarding CPNM management goals and sensitive resource values and recommended BMPs to protect these values. Review, revise, and/or develop additional CPNM-specific BMPs every five years, or more frequently if necessary, to protect these management goals and sensitive resource values.
- *Action MNL-6(I*)*: Manage the existing oil producing acreage on the southern side of the Caliente Range to maintain ecological processes and to assure prompt lease restoration upon final abandonment of the last well.
- *Action MNL-7(I*)*: Review (in conjunction with operators) existing disturbed areas (such as roads and well pads) and require reclamation of those areas determined to be redundant or no longer needed. Conduct this review within one year of the effective date of this RMP.
- *Action MNL-8(I*)*: Design roads, well pads, and facilities to impact and fragment the least acreage practicable. New facilities will be designed to maintain natural drainage and runoff patterns, reduce visual impacts, and reduce hazards to wildlife, especially California condors. Encourage operators to modify existing facilities when necessary to achieve the above objectives, and consider providing BLM funds to assist if requiring modifications is beyond BLM's authority on existing leases.
- *Action MNL-9(I*)*: Ensure best management practices are followed. Examples include:
 - Placing pipelines along roads and consolidating facilities when feasible.
 - Selecting appropriate paint colors to minimize visual impacts and otherwise meeting VRM goals.
 - Timely interim reclamation/reduction of footprint of operations after initial drilling.
 - Operators will be encouraged/required to place multiple wells on a single pad where feasible in order to minimize unnecessary disturbance.
- *Action MNL-10(I*)*: Wells that are not commercially developed must be properly plugged and abandoned and reclaimed to natural contours and revegetated as soon as appropriate; that is, restoration methods will consider timing of planting, acceptable species and evaluation criteria, and will be tailored to area-specific resource conditions and be compatible with the Monument Proclamation.
- *Action MNL-11(I*)*: Applications for Permit to Drill, Sundry Notices (leasehold activities requiring surface disturbance), and Final Abandonment Notices will be reviewed using the existing NEPA

approval process, including timely posting on the web at:
<http://www.blm.gov/ca/forms/nepa/search.php?fo=Bakersfield>.

- *Action MNL-12(I*)*: Require timely plugging and abandonment of depleted wells. This includes plugging the well bore with cement, removing all materials and equipment, and recontouring/revegetation as specified in the conditions of approval.

Other Minerals (Solids)

- *Action MNL-13(I*)*: Identify potential site for emergency/administrative sand and gravel extraction (minor amounts, less than 10 yards per incident) for road maintenance, etc.

Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)

- *Action MNL-14(I*)*: For all private oilfield actions that require use of BLM surface, including cross-country travel on BLM lands to reach private minerals, any authorization will require the operator to implement “take avoidance” measures and mitigation that will protect the objects of the Monument Proclamation.
- *Action MNL-15(I*)*: BLM will meet with operators to determine what sort of limitations should be placed on exploration and development activities to protect Monument objects while still meeting the legal requirements to provide “reasonable access.” This will include multiple wells per pad, seasonal restrictions, modifications to meet visual goals, and others. BLM will also periodically meet with operators and other interested parties to present proposed conditions and respond to comments.

2.19.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.19.2.1 Existing Oil and Gas Leases

Objective MNL-7(P): Manage existing leases with additional requirements (above federal standards) to protect Monument resources.

Management Actions

- *Action MNL-16(I*)*: For all new lease actions, require protection based on lease stipulations, conditions of approval, and BLM regulations, consistent with other BLM leases within threatened and endangered species habitat.
- *Action MNL-17(I*)*: Encourage and work with operators to implement management actions to lessen the visual impacts of existing developments.
- *Action MNL-18(S)*: Over and above the requirements of BLM’s Inspection and Enforcement Strategy, petroleum engineering technicians will conduct detailed lease inspections of federal oil facilities and wells at least annually and more often when problems are found. The purpose of the inspections will be to ensure compliance with all laws, regulations, conditions of approval, and other requirements that affect areas such as safety, production and royalty accountability, and the environment.
- *Action MNL-19(I*)*: Encourage operators to concentrate on using federal wells to meet California Division of Oil, Gas, and Geothermal Research idle well requirements. These requirements call for each operator to eliminate (return to production or plug) 4 percent of all 5-year idle wells (federal or private) per year. BLM will encourage operators to focus on federal wells within the Monument.
- *Action MNL-20(S)*: Prioritize termination of all idle leases in the Monument.

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- *Action MNL-21(P)*: Allow access for geophysical exploration, but with conditions of approval that ensure protection of Monument objects (such as threatened and endangered species).
- *Action MNL-22(I*)*: Encourage operators to conduct interim reclamation of redundant or unnecessary disturbed areas.

2.19.2.2 Solid Minerals

Objective MNL-8(P): Provide materials to facilitate limited emergency road repair or maintenance.

Management Action

- *Action MNL-23(P)*: Identify and develop a material site in the Monument for limited administrative/emergency Monument use (less than 10 yards per incident) on BLM roads. No other mineral materials uses will be authorized.

2.19.2.3 Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)

Objective MNL-9(P) -- Non-Geophysical: Allow for reasonable exploration and development of private mineral estate consistent with protection of Monument resources.

Management Actions

- *Action MNL-24(I*)*: Primary focus is to attempt to acquire private minerals from willing sellers whenever surface estate is purchased.
- *Action MNL-25(I*)*: Secondary focus is to attempt to acquire (from willing sellers) split estate private minerals (where BLM already owns the surface).

2.19.2.4 Geophysical Exploration

Objective MNL-10(I*): Authorize geophysical activities within the Monument for exploration of mineral resources (regardless of ownership) inside or outside the boundary of the Monument in a manner that protects the objects of the Monument Proclamation.

Management Action

- *Action MNL-26(I*)*: Only authorize geophysical activities that do not result in damage to the objects of the Monument Proclamation. Such activities will include walking out and/or the use of helicopters to deploy geophone lines. On a case-by-case basis, ATVs could be used to deploy geophone lines. Other activities will include limiting all source points (vibroseis and shot holes) to existing roads. On a case-by-case basis, drilling of shot holes using heliportable or small portable drills for underground detonation will be allowed off road.

2.19.3 Alternative 1

2.19.3.1 Existing Oil and Gas Leases

Objective: Minimize the effects of oil and gas operations at BLM expense for existing and new operations.

Management Actions

- Provide extra resources (such as funds and expertise) to operators at BLM expense for existing and new operations.
- Inspect more frequently (annually).
- Encourage operators in CPNM to focus on plugging or returning to production, federal idle wells first, then fee wells.
- Prioritize termination of all idle leases in the Monument.
- Maximize interim reclamation of redundant or unnecessary disturbed areas.

2.19.3.2 Solid Minerals

Objective: Facilitate Monument road maintenance by identifying off-site sources.

Management Action

- All materials would be imported from outside the Monument.

2.19.3.3 Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)

Objective (Non-Geophysical): Allow for reasonable exploration and development of private mineral estate consistent with protection of Monument resources.

Management Actions

- To the extent practical, minimize disturbance due to development of private minerals by purchasing split estate mineral estate and by emphasizing protection of resources
- Attempt to acquire private minerals from willing sellers in conjunction with purchase of surface estate, or for split estate minerals (where BLM already owns the surface) whenever specifically designated funds are made available by outside sources.

2.19.3.4 Geophysical Exploration

Objective: Authorize geophysical activities within the Monument for exploration of mineral resources (regardless of ownership) inside or outside the boundary of the Monument in a manner that protects the objects of the Monument Proclamation.

Management Action

- Only authorize geophysical activities that do not result in damage to the objects of the Monument Proclamation. Such activities would include walking out and/or the use of helicopters to deploy geophone lines. On a case-by-case basis, ATVs could be used to deploy geophone lines. Other activities would include limiting all source points (vibroseis and shot holes) to existing roads. On a case-by-case basis, drilling of shot holes using heliportable or small portable drills for underground detonation would be allowed off road.

2.19.4 Alternative 3

2.19.4.1 Existing Oil and Gas Leases

Objective: Manage existing leases to standards required by law.

Management Actions

- For all new lease actions, require protection based on lease stipulations, conditions of approval, and BLM regulations, consistent with other BLM leases within threatened and endangered habitat.
- As required by BLM's Inspection and Enforcement Strategy, petroleum engineering technicians would conduct detailed lease inspections of federal oil facilities and wells at least every three years, more often when problems are found. The purpose of the inspections would be to ensure compliance with all laws, regulations, conditions of approval, and other requirements that would affect areas such as safety, production and royalty accountability, and the environment.
- Require wells that have been idle (not active) for longer than 5 years to be plugged or returned to production per agreement with the California Division of Oil Gas and Geothermal Resources (4 percent per year, federal or non-federal).
- Pursue termination of idle leases in the Monument (keep two existing idle leases at their current place on the priority list for termination). Currently, the two leases are very low on the priority list for termination because there is no surface disturbance on the CPNM portion of the lease and both operators are major oil companies, posing virtually no risk. They both have large comprehensive bonds (nationwide with BLM, and statewide with California Division of Oil Gas and Geothermal Resources) and have never defaulted on a single lease anywhere in the country.
- Reclaim disturbed areas only upon final abandonment or lease termination.

2.19.4.2 Solid Minerals

Objective: Provide materials to facilitate limited Monument road maintenance.

Management Action

- Identify and develop a material site in the Monument for limited Monument use.

2.19.4.3 Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)

Objective (Non-Geophysical): Allow for reasonable exploration and development of private mineral estate consistent with protection of Monument resources.

Management Action

- Attempt to acquire private minerals from willing sellers only in conjunction with purchase of surface estate.

2.19.4.4 Geophysical Exploration

Objective (Geophysical Exploration): Authorize geophysical activities within the Monument for exploration of mineral resources (regardless of ownership) inside or outside the boundary of the Monument in a manner that protects the objects of the Monument Proclamation.

Management Action

- Only authorize geophysical activities that do not result in damage to the objects of the Monument Proclamation. Such activities would include walking out and/or the use of helicopters to deploy geophone lines. On a case-by-case basis, ATVs could be used to deploy geophone lines. Other activities would include limiting vibroseis to existing roads to the maximum extent practical. Drilling shot holes using heliportable or small portable drills for underground detonation would be allowed off road (on a case-by-case basis) and on existing roads.

2.19.5 No Action Alternative

There is no explicit goal in the existing plan. Minerals would continue to be managed to permit reasonable use and development as existing rights, subject to requirements of state and federal regulations.

2.19.5.1 Existing Oil and Gas Leases

Objective: Manage existing leases to standards required by law.

Management Actions:

- For all new lease actions, require protection based on lease stipulations, conditions of approval, and BLM regulations, consistent with other BLM leases within threatened and endangered habitat
- Petroleum engineering technicians would inspect all oil facilities and wells at least every three years, more often when problems are found. The purpose of the inspections would be to ensure compliance with all laws, regulations, conditions of approval, and other requirements that would affect areas such as safety, production and royalty accountability, and the environment.
- Require wells idle for 5 years to be plugged or returned to production per agreement with California Division of Oil, Gas, and Geothermal Research (4 percent per year, federal or non-federal).
- Allow access for geophysical exploration with all conditions of approval necessary to ensure protection of the objects of the Monument Proclamation (such as threatened and endangered species, cultural resources, and others).
- Attempt to acquire private minerals from willing sellers only in conjunction with purchase of surface estate.
- Encourage operators to conduct interim reclamation of redundant and unnecessary disturbed areas.

2.19.5.2 Solid Minerals

Objective: Provide materials to facilitate limited Monument road maintenance.

Management Action: Develop a mineral materials site (for example, sand and gravel) in the Monument for limited administrative/emergency use in the Monument.

2.19.5.3 Private Mineral Estate

No Monument-specific direction has been provided in the Monument Proclamation. Management will be based on existing federal and state policy.

2.20 Lands and Realty

This section provides direction for realty actions within the Monument grouped into two major categories:

- Land tenure adjustments, which are primarily acquisition of private lands to increase the public land acreage within the Monument.
- Realty actions and utility corridors, which involve authorizing access across and use of public lands within the Monument for specific purposes.

The Proclamation establishing the CPNM is subject to valid existing rights. The Monument Proclamation provides specific guidance regarding acquisition of private inholdings, both surface estate and mineral estate. Lands would be acquired by BLM under the authority of FLMPA Section 205 or under any specific authority enacted subsequent to the plan. The requirements of the *Uniform Relocation and Real Property Acquisition Policies Act* of 1970 would need to be met in all land acquisitions. The Monument Proclamation provides specific guidance regarding land use authorizations such as rights-of-way, recreation and public purpose leases, land use permits, and easements. This plan incorporates the guidance under the authority of FLPMA Title V, Sections 501–511; Section 28 of the *Mineral Leasing Act* of 1920, as amended; and the BLM Right-of-Way Manual, Sections 2801.11 and 2801.12.

2.20.1 Goals, Objectives, and Management Actions Common to All Action Alternatives

2.20.1.1 Goals

- *Goal LR-1(P)*: Land tenure adjustments such as acquisition within the Monument would be managed to further the overall purposes of the Monument Proclamation, which are protection of natural features, including endangered, threatened, and rare animal and plant species; the San Andreas Fault zone; Soda Lake; fossil resources; and cultural resources.
- *Goal LR-2(P)*: All realty actions such as rights-of-way, land use permits, and other realty actions within the Monument would comply with the overall purposes of the Monument Proclamation.
- *Goal LR-3(P)*: Eliminate unauthorized use of public lands.

2.20.1.2 Objectives and Management Actions

Land Tenure

Objectives

- *Objective LR-1(P)*: Retain all lands within the CPNM currently in federal ownership, except for certain specific situations that would further the purposes of the Monument Proclamation as described in the management actions below.
- *Objective LR-2(P)*: Consolidate and/or acquire land and/or mineral estate from willing sellers.

Management Actions

- *Action LR-1(I*)*: Acquire all non-federal land and/or mineral estate within the boundaries of the Monument if it may further the protective purposes of the Monument, from willing sellers by purchase, exchange, or donation, as opportunities arise.
- *Action LR-2(S)*: Work with partners, such as TNC and CDFG, to pool resources and avoid duplication of effort.

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- *Action LR-3(I*)*: Where land cannot be acquired, pursue conservation easements or other forms of protection.
- *Action LR-4(P)*: The only form of land exchange within the Monument boundary, as stated in the Monument Proclamation, would be an “exchange that furthers the protective purposes of the Monument.” Exchanges would be evaluated on a case-by-case basis. Lands acquired with Land, Water, and Conservation Funds are not available for disposal or exchange. All lands acquired through a compensation program would only be exchanged after consultation with appropriate agencies, such as USFWS and CDFG.
- *Action LR-5(P)*: Federal lands within the Monument are “...hereby appropriated and withdrawn from all forms of entry, location, selection, sale or leasing or other disposition under the public land laws...” Therefore, these federal lands are not open to application for land sales, state grants, *Recreation and Public Purposes Act* leases or sales, desert land entries, native allotments, or agricultural leases.
- *Action LR-6(I*)*: Use so-called friendly condemnation authority to acquire parcels within the Monument where the landowners are willing sellers, but are unable to complete a sale to BLM due to title problems. (This process is described further in Lands and Realty, Section 3.20 in the Affected Environment chapter.)

Realty Actions and Utility Corridors

Objectives

- *Objective LR-3(P)*: Ensure that all real estate actions initiated by BLM protect or enhance the values identified within the Monument Proclamation.
- *Objective LR-4(P)*: Ensure that all real estate actions initiated by parties other than BLM are compatible with the values identified within the Monument Proclamation.
- *Objective LR-5(P)*: Manage all existing authorizations within the Monument in keeping with overall purposes of the Monument Proclamation while respecting valid existing rights.

Allowable Uses

- *Allowable Use LR-1(P)*: The Monument would be a right-of-way avoidance area. This means that applications for new rights-of-way for utility lines, wind energy, solar energy, pipelines, or other purposes that would cross the Monument and not directly serve a land parcel within the Monument would be discouraged and would likely be rejected. The U.S. could reserve rights-of-way for federal facilities, administrative roads, or utility rights-of-way.
- *Allowable Use LR-2(I*)*: Right-of-way applications would be evaluated on a case-by-case basis, such as applications for research or scientific rights-of-way, or existing roads for private lands within the Monument. If granted, rights-of-way would contain terms and conditions to protect resources, such as any listed species and their habitat, other wildlife and their habitat, significant geologic features, and paleontological and cultural resources.
- *Allowable Use LR-3(P)*: Since the Monument Proclamation withdrew all federal lands, no new withdrawals would be pursued or anticipated within the Monument boundary.
- *Allowable Use LR-4(P)*: Applications for land use permits, such as filming permits, would be evaluated on a case-by-case basis. A permit is required for all commercial filming activities on public lands (this process is described further in Lands and Realty Section in Chapter 3, Affected Environment.) No apiary permits will be issued in the Monument. Still and video photography of the

pictograph images at Painted Rock and other rock art sites in the Monument would be prohibited for commercial purposes. Permits would only be issued for photography related to activities of accredited scientific, academic, or research institutions (for example, museum or university). Applications would be evaluated on a case-by-case basis.

- *Allowable Use LR-5(P)*: Pursue extinguishing overlapping withdrawals within the Monument, such as the “National Cooperative Land and Wildlife Management Areas” and the “Classification and Multiple Use” classifications.
- *Allowable Use LR-6(I*)*: Pursue relinquishing unneeded, existing rights-of-way, such as power lines, private easements, and county road easements.
- *Allowable Use LR-7(I)*: BLM would survey and Monument (place survey markers) the exterior boundary of the Monument and any other boundaries within the Monument needed for administrative purposes.
- *Allowable Use LR-8(P)*: The Caliente Mountain WSA and all areas to be managed for wilderness characteristics (Primitive recreation management zone) would be rights-of-way exclusion areas (with the exception of required administrative and private inholder access).
- *Allowable Use LR-9(P)*: The two current utility corridor designations would be removed in keeping with the management of the Monument as a right-of-way avoidance area. The existing rights-of-way currently within the designated utility corridors would be continued as long as the holders maintain the authorizations. Note: BLM Manual Part 2801 directs that designated utility corridors can be removed through a land use planning decision.

2.20.2 Objectives and Actions Specific to the Proposed Plan (Alternative 2)

2.20.2.1 Land Tenure

Objective LR-6(P): Pursue acquisition of all lands within the Monument boundary. Where opportunities exist, prioritize acquisition efforts to those lands with important biological and cultural resources, especially those habitat types or cultural sites that currently have limited acreage in public ownership.

Management Actions

- *Action LR-7(I)*: Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, development threats, and management needs.
- *Action LR-8(I)*: Identify target inholdings. Encourage sale or transference of target properties through a variety of methods and incentives.
- *Action LR-9(I)*: Primary focus would be to acquire property that supports important cultural resources or habitat for and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.
- *Action LR-10(I)*: Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and its playa system) that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, San Joaquin kit fox, bull-nosed leopard lizard, San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toad, fairy shrimp, mountain plover, rare plants).
- *Action LR-11(I)*: Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.

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- *Action LR-12(I)*: Target inholdings that may have management needs or risk of development or occupancy.
- *Action LR-13(I)*: Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.

2.20.2.2 Rights-of-Way and Utility Corridors

Objective LR-7(P): Minimize communication rights-of-way authorizations on the Monument.

Management Actions and Allowable Uses

- *Allowable Use LR-10(P)*: No new or renewed communication right-of-way would be authorized unless they could meet the objectives of the Monument Proclamation and the VRM classifications in this plan. All applications would be analyzed and authorized on a case-by-case basis. However, consideration will only be given to applications that are proposing to use an area that already has existing sites and can utilize existing facilities with no or negligible visual intrusions. As part of the application process, project proponents would need to provide a visual simulation of the project showing mitigating features to reduce its visibility from key observation points within the Monument.
- *Allowable Use LR-10(P)*: Require applicants to clearly demonstrate that no feasible off-Monument alternatives exist for placement of facilities prior to analyzing placement within the CPNM (that is, the burden will be on the applicant to demonstrate that location on the Monument is clearly justified given the management goals for the area).
- *Action LR-14(I)*: Work with existing communication site right-of-way holders to find alternative off-Monument locations for facilities once their current leases expire.

2.20.3 Alternative 1

2.20.3.1 Land Tenure

Objective: Increase the amount of protected land for objects identified under the Monument Proclamation, with particular emphasis on rare species, important ecological habitats, and significant cultural resources.

Management Action

- Acquire lands or interest as parcels become available (such as when willing seller contacts BLM, county tax parcel, conservation organization such as Packard Foundation contacts BLM).

2.20.3.2 Rights-of-Way and Utility Corridors

Objective: Eliminate all existing communication rights-of-way on the Monument upon expiration of current authorization.

Management Actions

- Communication rights-of-way will not be renewed.
- No new communication rights-of-way will be authorized.

2.20.4 Alternative 3

2.20.4.1 Land Tenure (Same as Alternative 2)

Objective: Direct acquisition efforts to those lands with important biological and cultural resources, especially those that currently have limited acreage in public ownership.

Management Actions

- Identify target inholdings. Encourage sale or transference of target properties through a variety of methods and incentives.
- Primary focus would be to acquire property that supports important cultural resources or habitat for and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.
- Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and its playa system), that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, San Joaquin kit fox, bull-nosed leopard lizard, San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toad, fairy shrimp, mountain plover, rare plants).
- Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.

2.20.4.2 Rights-of-Way and Utility Corridors

Objective: Allow new communications facilities and maintain existing facilities consistent with the Monument Proclamation.

Management Actions

- Issue authorizations for new and existing facilities.
- Renew existing authorizations that may include expansion of existing facilities.

2.20.5 No Action Alternative

2.20.5.1 Goals

- Acquire remaining private lands to protect and enhance natural and cultural values.
- Allow new land uses consistent with the mission of the CPNM.

2.20.5.2 Objectives

- Acquire, from willing sellers, all remaining private lands within the boundaries of the CPNM.
- Evaluate new land use applications for consistency with the long-term goals and objectives.

2.20.5.3 Management Actions

- Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, and management needs.
- Acquire remaining private land to protect and enhance natural and cultural values.
- Establish agreements or acquire easements to protect resources with owners of parcels that cannot be acquired in fee.
- Cooperate with San Luis Obispo County to address private land development issues within the CPNM.
- Retain all acquired lands and original public land within the CPNM, but allow for exchange of parcels between BLM, TNC, and CDFG if mutually beneficial for management purposes. Retain all original mineral rights on split estate lands.
- The managing partners may authorize actions that are consistent with the Monument Proclamation. The CPNM will be a right-of-way avoidance area, meaning that new applications will be discouraged and may be rejected.
- The managing partners will evaluate and may authorize actions affecting their respective properties.
- Land use authorizations will include measures that result in an environmentally superior alternative.
- New applications that are inconsistent with the goals and objectives will not be authorized. *Recreation and Public Purposes Act* patent applications, desert land entry applications, and Indian allotment applications are considered inconsistent with the objectives and will be rejected.

2.21 Research Management

The Monument Proclamation directs BLM to care for and manage the biological, archeological, historical, paleontological, and geological resources of the Monument. Research provides critical knowledge to make informed, effective, and timely decisions regarding these resources and the effects of allowable uses and outside factors such as climate change or air quality that may affect the Monument. Research is a critical component of an adaptive management approach. It provides the public with an increased understanding of the resources and the value of protecting them. Information gained through research better equips the public to provide informed input about how their public lands should be managed. Some research, as with studies along the San Andreas Fault, can increase scientific understanding and benefit public welfare. Monitoring ongoing changes at the micro and macro level, surveying existing resources, and inventorying new resources are necessary for maintaining an overall understanding of the natural processes that are occurring and for adapting management actions in response to new information. See sections on Geology and Paleontology, and Cultural Resources for more detailed information on research related to these fields. The goal, objectives, and management actions for research activities are stated below.

2.21.1 Goal, Objectives, and Management Actions Common to all Action Alternatives

2.21.1.1 Goal

Goal RM-1(P): Conduct research within the Monument to improve understanding, management, and protection of Monument resources and to further scientific knowledge of those resources.

2.21.2 Objectives and Management Actions

Research Priority

Objective RM-1(I): Authorize and encourage on-Monument research in the following order of priority:

- Research that has direct implications for improving management and protection of objects of the Monument Proclamation as identified as objectives in the RMP and the Conservation Target Table (Appendix C).
- Research that furthers scientific understanding of Monument resources.
- Research that has scientific value, but may have only indirect benefits for understanding or management of Monument resources.

Management Actions

- *Action RM-1(I):* Identify research priorities and update or revise annually or on an as-needed basis.
- *Action RM-2(I):* Working through organizations such as The Nature Conservancy and universities, allow outside review by scientific experts, as needed, to provide recommendations on study design or effectiveness in meeting management goals.
- *Action RM-3(I):* Focus research efforts on projects or studies whose topics are useful in formulating management actions and promote conservation, with special emphasis on listed or sensitive species and their habitats and significant cultural resources.
- *Action RM-4(I):* Develop a strategy for prioritizing multiple research proposals.
- *Action RM-5(I):* Create and adopt a research code of ethics in cooperation with the managing partners and other professionals.
- *Action RM-6(I):* Maintain the Conservation Target Table (Appendix C) to determine management prescriptions of biological resources. Encourage and assist researchers in developing studies to answer questions relating to the resource targets and how management actions affect them. Update the table as knowledge is gained.

Research Outreach and Support

Objective RM-2(I): Provide a framework that encourages and facilitates quality research in areas of biologic, paleontological, geologic, and cultural resources.

Management Actions

- *Action RM-7(I):* Provide support, such as housing, within the Monument for researchers when available. Investigate other housing opportunities such as acquiring used mobile units or working with neighboring communities to identify available housing in the private sector.
- *Action RM-8(I):* Provide existing GIS, weather, and vegetation mapping data or other data as available, to researchers.
- *Action RM-9(I):* Work with species experts, members of academia, and other professionals to encourage research involvement. Encourage research projects that will aid in maintaining stable and increasing populations of threatened and endangered species, investigating topics identified in recovery plans.

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- *Action RM-10(I)*: Consider other outreach methods including sponsoring research symposia to inform the scientific and professional communities of research opportunities within the Monument.
- *Action RM-11(I)*: Coordinate with partners and the scientific community to assess opportunities for establishing an on-Monument research facility.
- *Action RM-12(I)*: Work with local schools, organizations and groups, and local communities to enlist citizen-scientists or other volunteers to assist with monitoring and research or field activities.

Research Data

Objective RM-3(I): Data gathered through research, inventories, and monitoring will be made available to the scientific community and the public to the greatest extent possible. This will exclude proprietary information such as cultural and paleontological resource data.

Management Actions

- *Action RM-13(I)*: Use state-of-the-art equipment and technology consistent with BLM standards for accurate data collection, retrieval, and storage, and for the benefit of information-sharing with the public, educational institutions, and other governmental agencies.
- *Action RM-14(I)*: Create a local information archive system of CPNM-generated research, inventory, and survey data for easy retrieval and use by the scientific community, other agencies, partner organizations, and others, to be maintained in conjunction with the Carrizo Library (excluding cultural resources, Native American, or other proprietary information).
- *Action RM-15(I)*: Manage data consistent with CPNM, BLM, and National Landscape Conservation System (NLCS) policies such as the Department of the Interior's *Adaptive Management Technical Guide* (USDI 2007) and the *NLCS Science Strategy's* science goals and objectives (BLM 2007).
- *Action RM-16(I)*: Maintain a list of past and current research, inventory, and survey data on the CPNM website for use by the public.
- *Action RM-17(I)*: Maintain current aerial photography imagery of the CPNM, digital GIS layers of resources and infrastructure, and utilize other technologies as changes occur and staffing and funding is available.
- *Action RM-18(I)*: Develop an educational component to data sharing in conjunction with the Goodwin Education Center and the Friends of the Carrizo to provide outreach to schools and the public.
- *Action RM-19(I)*: Increase the Monument's capacity to collect relevant weather data across the landscape in varying habitats.

Research Proposal Evaluation/Authorization

Objective RM-4(I): Evaluate and process proposals in a timely manner while ensuring that projects meet Monument research objectives and protect sensitive resource values. The application process/form is included in Appendix D, Research.

Management Actions

- *Action RM-20(I)*: All research projects will undergo an evaluation and approval process which will include:
 - An assessment of its priority level (see Research Priority objective).

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- An appropriate level of environmental analysis (NEPA) by BLM staff.
- Incorporating project-specific stipulations.
- A final written determination, which will be in the form of an authorization, a request for changes to the proposal for resubmission, or denial of the project. (Cultural research and paleontological proposals must meet permit standards and receive approval from the State Office and Field Office to proceed in the field or they must be authorized through a volunteer or cooperative partnership meeting BLM's Cultural Resources Manual 8100 and permit standards).
- *Action RM-21(I)*: Proposals determined to require further evaluation will be submitted to knowledgeable members of the scientific community. These experts will review proposals for scientific merit, how best to incorporate findings into management actions, and to propose additional research needs.
- *Action RM-22(I)*: BLM will coordinate with the Monument's Native American Advisory Committee and tribal and other Native Americans before approving research for cultural resources.

2.21.2 No Action Alternative

Goal: Provide a framework that will both facilitate quality research and allow project staff to fulfill their responsibilities.

Objectives

- Encourage interest among academic and professional communities to conduct research that addresses management needs.
- Maintain research facilities on the CPNM.
- Establish a Research Advisory Council to provide input to the managing partners on the scientific merit of proposed projects, review project findings, determine how best to incorporate finds into management actions, and identify additional research needs
- Develop a program to coordinate authorization, communications, facilities logistics, and scheduling of field activities.
- Make information available to other agencies, organizations, and individuals with an interest or responsibility in managing similar natural lands.
- Develop and update a map of known vegetation community boundaries at the 1:24,000 scale, correlated to soil type.
- Develop an understanding of the factors affecting the sustainability of the CPNM natural communities.
- Develop an understanding of the role of extraordinary events as an ecological process. Such events include fire, catastrophic runoff, wind and dust storms, prolonged drought, and disease epidemics.
- Determine if management activities cause large population fluctuations or seriously impair community function.
- Assess the effectiveness of management in achieving stated project goals.

Management Actions

- Develop a database of former and current researchers and interested professionals encompassing the range of resources, topics, and issues of the CPNM.
- Maintain an updated file of necessary research needs that may be disseminated to specialists, academic institutions, and other interested parties.
- Coordinate an outreach program to present information about CPNM research needs, project facilities, and other pertinent information.
- Make the Painted Rock Ranch and Washburn Ranch available to house researchers and meetings
- Secure agreements from 10 to 12 external specialists from various fields of study to serve on the council.
- Convene the council on an annual basis to review research progress.
- Require proposals for all research prior to initiation.
- If research is approved by the managing partners, confirm with a letter of authorization to the principle investigator stating that field work may begin.
- Provide a list of standard operating procedures required for all projects to every researcher.
- Designate a primary Research Coordinator.
- Create an information archive system at a central location for storage and retrieval of all project data, reports, and literature.
- Encourage researchers and staff to disseminate information in a timely manner through participation in regional conferences, symposia, and the publication process.
- Adopt a standard vegetation classification scheme. Acquire aerial photo coverage every five years.
- Develop and maintain an inventory of all species inhabiting the CPNM.
- Initiate and commit to long-term studies of the factors influencing community composition, structure, and function.
- Map all major perturbations (fire, flood, disease episodes) of vegetative communities.
- Determine the function of extraordinary events in plant and animal community dynamics.
- Conduct field observation at least seasonally of each biotic community to assess resource conditions and management effect.
- Employ recommendations based on monitoring results to help correct the causes leading to impacts.
- Develop and maintain a list of monitoring needs in order of priority.
- Conduct monitoring for high-priority issues. The results of these studies will be used to evaluate current and future management actions.

The Alternatives Summary table below lists by alternative the objectives and management actions from Chapter 2. See Chapter 2 for more specific details. The black shaded boxes with white lettering are the resource areas as listed in Chapter 2, with the resource subtopics below it shaded in dark gray, also with white letters. The objectives for the alternatives are in the light gray color boxes. The boxes containing text without shading are the management actions.

The proposed plan alternative (Alternative 2) has been revised in this PRMP/FEIS compared to the Draft RMP/EIS. Changes to this alternative from the Draft RMP/EIS are shown throughout this table with strikeouts (deletions) and underline (additions). In general, Alternatives 1 and 3, and the No Action Alternative, were not changed. However, all of the alternatives, include updates in acreage and/or mileages due to refined GIS data.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2.4 Biological Resources			
<i>All Wildlife and Vegetation Resources</i>			
Follow SOPs and implementation guidelines for all projects to ensure that native wildlife and plants are protected.		Follow SOPs listed in the 1996 CPNA Management Plan	
Review all projects to ensure compliance with the SOPs contained in Appendix O (Biological Standard Operating Procedures) and Appendix P (Standard Operating Procedures for Oil and Gas).		Implement the strategy described in Section III.a of the 1996 CPNA Management Plan.	
<u>When necessary, oil and gas related actions will require individual Section 7 consultations.</u>			

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p><i>Specific to Rare Plants, Plant Communities, Viable Populations of Plants and Animals, Native Perennial Grasses and Wildflowers, Habitat Structure Diversity, Avian Species, and Soda Lake ** for the NO ACTION ALTERNATIVE ONLY the following objectives apply **</i></p>			
<ul style="list-style-type: none"> • Mimic the range of natural processes and disturbances and restore and maintain natural communities. • Maintain representative shrub-scrub communities across the landscape to assure their continued existence. • Manage grasslands to increase the importance of native plants and promote full representation of native species. • Develop an <u>Increase our</u> understanding of the effects of livestock grazing on current biotic communities and plant and animal species. • Reintroduce native plants and animals when appropriate and sustain the integrity of natural vernal pool communities. • Determine location and extent of populations of exotic species and implement a prioritized control strategy. • Reduce impacts to non-listed native species through implementation of management and research actions. • Provide for the natural expansion and fluctuations of populations of non-listed native species. • Develop understanding of factors affecting sustainability of CPNM natural communities, and role of extraordinary events as an ecological process. • Determine if management activities cause large population fluctuations or seriously impair community function. This level of monitoring is intended to show large-scale impacts to species and their communities in a timely manner. Smaller-scale impacts usually require more detailed study to determine effects. Maintain riparian zones in proper functioning condition. • Assess the effectiveness of management in achieving stated project goals. 			
<p><i>Rare Plants</i></p>			
<p>Maintain and enhance viable populations of threatened and endangered and other rare plants on the Monument (see Table 3.2-3). Allow populations to naturally fluctuate (population size and distribution) <u>due to natural influences, but minimize impacts from human activities and prevent populations from falling below critical levels. Protect rare plant populations and rare plant habitat from impacts associated with allowable uses authorized under the RMP.</u></p>		<p>Provide for the natural expansion and fluctuations of populations of listed species consistent with species recovery.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Map populations of threatened and endangered and other rare plants. Map potential rare plant habitat. – Monitor to confirm continued presence of rare plant populations and status of pollinator communities. – Support research into factors that influence target species’ population trends and biology/ecology. – Manage rare plants <u>populations</u> and rare plant habitat as identified in the Conservation Target Table and using tools as outlined in the Vegetation Management Toolbox. <u>Protect vulnerable habitat by changing management prescriptions or management actions, such as removing weeds from rare plant habitat, relocating potentially damaging activities, restricting or eliminating grazing, and realigning or closing roads.</u> – Design other management actions to avoid direct impacts. – Reduce competition from weedy species. – Modify, restrict, or prohibit grazing if needed to protect rare plant habitat. If necessary, fence known sites <u>and adjacent suitable habitat</u> to preclude damage. – Promote seed bank recharge. 			<ul style="list-style-type: none"> – Develop a list of regionally and locally extirpated species and determine priorities for reintroduction. – Assess habitat quality and environmental conditions to determine the probability of a successful reintroduction. – Weigh reintroduction benefits against risks to other species and communities.
<i>Native Plants</i>			
<p>Rely only on natural process to maintain ecologically important plant communities and populations. Examples include native perennial grasslands, alkali sink, saltbush scrub, upper Sonoran sub-shrub scrub, vernal pools, bulb plants, native grasses, annual and perennial herbs, wildflowers, biological crusts, Alvord and blue oaks, yuccas, saltbush, ephedra, and manzanita.</p>	<p>Maintain, increase, and restore ecologically important plant communities and populations. Examples include native perennial grasslands, alkali sink, saltbrush scrub, upper Sonoran sub-shrub scrub, vernal pools, bulb plants, native grasses, annual and perennial herbs, wildflowers, biological crusts, Alvord and blue oaks, yuccas, saltbush, ephedra, and manzanita.</p>		<p>Maintain, increase, and restore ecologically important plant communities and populations. See No Action Alternative above for objectives specific to Rare Plants, Plant Communities, Viable Populations of Plants and Animals, Native Perennial Grasses and Wildflowers, Habitat Structure Diversity, Avian Species, and Soda Lake.</p>
<p>Map ecologically important plant communities and populations. For communities, follow nomenclature system developed by Sawyer and Keeler-Wolf (1995).</p>			<p>Adopt a standard vegetation classification scheme and develop plant community maps.</p>
<p>Monitor target plant communities and populations. Identify potential and current threats.</p>			<p>Monitor vernal pools, grazed vs. ungrazed areas, riparian areas, non-listed native species, and biotic communities. Evaluate threats.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Prohibit livestock grazing in areas of target plant resources.	Protect from livestock grazing, if necessary.		<ul style="list-style-type: none"> – Manage (or exclude) livestock grazing to maintain high-priority shrub-scrub stands and enhance all other stands as appropriate. – Identify replicate pastures to be grazed annually to the 500-pounds-per-acre mulch level prescription to evaluate the response of native and nonnative plant species to a consistent livestock grazing treatment.
Support research related to the management of CPNM plant communities and populations.	<p>Support research related to the management of CPNM plant communities and individual plant species.</p> <p>Initiate studies to define important community parameters and design threshold values for management actions.</p> <p>Support research on the biology/ecology of target species.</p>		<ul style="list-style-type: none"> – Initiate studies of soil-vegetation relationships and historical distributions of plant communities. – Test restoration plots to evaluate techniques for reintroducing native grass species. – Perform long-term studies of the factors influencing community composition, structure, and function. – Determine the function of extraordinary events in plant and animal community dynamics.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - Do not mow, burn, or reseed to improve native plant habitat. - Use weed control only to eradicate noxious weeds. Allow populations of other non-native plants to respond to natural processes - Allow plant resources to respond to fire with minimal intervention when other Monument objectives are not threatened. 	<ul style="list-style-type: none"> - Manage select native plant resources and habitat as identified in the Conservation Target Table. - Protect from livestock grazing, if necessary. Restrict livestock grazing in saltbush and other shrub communities, unless necessary to meet important biological objectives. Restrict livestock grazing in saltbush recruitment years. - Control nonnative species using IPM principles. - Protect saltbush and other vulnerable shrub communities from fire. - Maintain, restore, and/or increase native <u>herblands and</u> grasslands, saltbush and other shrub communities, blue and Alvord oak habitats, vernal pools, and crust communities by active management and restoration. 		<ul style="list-style-type: none"> - Collect and use local materials for plant propagation. - Restore riparian zones - Restore and maintain natural communities. - Design potentially disturbing activities to allow continued expansion of native species.
<i>Nonnative Plants</i>			
Control the spread of noxious weeds (CDFA 2007, 2008), but allow the distribution and population size of other introduced species to be dictated by natural processes	Control the spread of noxious weeds <u>nonnative weedy species</u> (CDFA 2007, 2008) and other nonnative plants.		Determine location and extent of populations of exotic species and implement a prioritized control strategy
Monitor to detect new populations of noxious weeds.	Monitor to detect new populations of nonnative plants.		Conduct inventories of exotic species.
Eliminate noxious weed founder populations by hand or mechanical methods only.	Aggressively eliminate nonnative founder populations using IPM methods before they can spread.		Determine the most efficient way to control exotic species.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Eradicate target weed species such as yellow star thistle, saltcedar, hoary cress, and Russian knapweed.</p>	<ul style="list-style-type: none"> – Eradicate target weed species such as yellow star thistle, bull thistle, saltcedar, <u>tamarisk</u>, hoary cress, and Russian knapweed. Control and eradicate tree-of-heaven and, for plantings that have cultural or biological importance, replace with historically acceptable, but non-invasive species such as black walnut. Work on landscape-wide methods for controlling widespread species such as Russian thistle and horehound. – On a landscape level, suppress nonnative annual grasses and herbs. Seed with native species, as applicable. – <u>Remove nonnative weeds and restore native vegetation to disturbed areas that were created by past grazing activities.</u> 		<p>Aggressively control invasive exotic plants such as tamarisk and yellow starthistle, as well as other exotic species considered a threat to biotic communities. Evaluate the threats and value of nonnative tree species and eradicate when necessary.</p>
<p>Minimize the spread of weeds by livestock and equestrian activities.</p>			
<p><i>Core Area Threatened and Endangered Animals</i></p>			
<p>Maintain and enhance viable populations within core areas of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Within the core areas, allow the populations of these target species to naturally fluctuate up and down in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values) (see Appendix C, Conservation Target Table).</p>			
<ul style="list-style-type: none"> – Identify and map core areas for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Focus habitat management for these core species on these core areas. Manage core areas so they provide a “safety net” to prevent core area species from disappearing from the Monument. – Manage core area habitat to promote the more open, desert-like structure favored by the core area species. (Note that Alternative 3 would allow for grazing management in Section 15 allotments under the guidelines found in Appendix S). – Take measures to reduce mortality of target species, such as reducing vehicle strikes on roads within core areas, removing problem raptor perches, and maintaining escape cover. – Reestablish populations in core areas, if necessary, through translocation. 			<ul style="list-style-type: none"> – Decrease human-caused hazards to listed species. – Design potentially disturbing activities to allow continued expansion of listed species into new areas or their return to historically occupied areas. – Compile, centralize, and make available historic distribution and abundance data.
<ul style="list-style-type: none"> – Monitor populations to determine trends and further define minimum population threshold values to identify when to take management actions. – Support research that identifies and defines factors that influence population trends of target species. Support research on the biology/ecology of target species. 			<ul style="list-style-type: none"> – Encourage further pollen analysis. – Inventory current distribution and abundance of core species relative to soils, plant associations, and past

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Do not burn, conduct seeding, apply herbicides, or use livestock grazing to manage vegetation to maintain or enhance viable populations in core areas.</p>	<p>Manage vegetation in core areas as identified in the Vegetation Management Toolbox and the Conservation Target Table.</p>		<p>and present land uses.</p> <ul style="list-style-type: none"> – Monitor changes in abundance and distribution. – Develop field observation forms for use by all cooperators. – Determine habitat requirements for listed species.
<p><i>Non-Core Area Threatened and Endangered Animals</i></p>			
<p>Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) within the Monument. Allow these species’ populations in non-core areas to naturally fluctuate, in terms of number and distribution. Allow target populations to disappear and reappear in non-core portions of the Monument, but take action to prevent a target species from completely disappearing from the Monument.</p>	<p>Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) within the Monument, with emphasis on the subregions per Table 2.4-3. Target Species and Their Ecological Subregions, Alternative 2. Allow the populations of these target species to naturally fluctuate, in number and distribution, but take action to prevent populations from disappearing from the Monument.</p>	<p>Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) in areas of suitable habitat per Table 2.4-5. Target Species and Their Ecological Subregions, Alternative 3. Allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions to prevent populations from disappearing from areas of suitable habitat.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
		Identify and map areas of suitable habitat for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Manage areas of suitable habitat the same as core areas to prevent target species from disappearing from areas of suitable habitat.	
Monitor populations or use surrogate values to estimate target population trends and abundance.	Monitor populations to determine trends and further define minimum population threshold values.		
<ul style="list-style-type: none"> – If Monument-wide disappearance threshold is approached, initiate management actions. – Do not apply livestock grazing or fire to manage non-core areas. 	If necessary to prevent target species populations from disappearing from the Monument, take action in non-core habitat in addition to taking action in core habitat.	<ul style="list-style-type: none"> – If populations approach target minimums, initiate management actions. – In those years when target species populations are low and vegetation structure is above optimum, use vegetation management tools. 	
	Encourage partnerships with private landowners within habitat areas to manage target populations and habitat in concert with BLM goals.		
<i>Viabale Populations of Animals</i>			
Maintain or increase viable populations of special status, declining, or unique species <u>within the Monument</u> . Maintain viable populations for species such as bats, burrowing owls, fairy shrimp, spadefoot toads, sphinx moths, and Le Conte’s thrasher as indicated by subregion in Chapter 2. For giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel, see the alternative-specific non-core area threatened and endangered animals objectives and management actions.			Follow SOPs listed in the 1996 CPNA Management Plan

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Monitor populations of special status, declining or unique species and assess habitat quality and potential or actual threats.</p> <p>Support research and education on special status, declining, or unique species.</p> <p>Manage habitat (vegetation and features) to provide suitable areas for essential activities such as roosting, nesting, aestivation, and reproduction of target species.</p>			<ul style="list-style-type: none"> - Develop a list of regionally and locally extirpated species and determine priorities for reintroduction. - Develop a reintroduction strategy cooperatively with the CDFG, BLM, TNC, and other experts, including USFWS, as appropriate. - Use scoping process in Section III.a of the CPNA Plan to determine significant impacts. - Monitor changes in abundance and distribution. - Design potentially disturbing activities to allow continued expansion of non-listed native species into new areas or their return to historically occupied areas. - Reintroduce native animals when appropriate.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Native Ungulates</i>			
<ul style="list-style-type: none"> • Allow natural conditions to determine the quality of pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions and, by extension, pronghorn numbers and distribution on the Monument. Allow population to disappear if dictated by natural conditions. • Allow natural conditions to determine the quality of elk calving and foraging habitat on the Monument and, by extension, elk numbers and distribution. Allow population to disappear if dictated by natural conditions. 	<ul style="list-style-type: none"> • Develop and maintain a CPNM herd of 250 pronghorn. Implement management actions to improve the quality of fawning and foraging habitat. • Provide and improve calving and foraging habitat in the Monument adequate to support a CPNM-based herd of 500 tule elk. 	<ul style="list-style-type: none"> • Provide and improve pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions so that a CPNM-based herd of 250 pronghorn can be achieved within 10 years. • Provide and improve calving and foraging habitat in the Monument adequate to support a CPNM-based herd of 500 tule elk can be achieved within 10 years. 	
Do not augment existing populations of pronghorn and tule elk.	Introduce pronghorn and tule elk from other areas if necessary to achieve herd objectives, as long as CPNM habitat is adequate to support target population.	Introduce pronghorn and tule elk from other areas if necessary to achieve the herd objectives within 10 years.	Explore options for increasing herd size and distribution of native pronghorn and elk.
Support CDFG in efforts to monitor CPNM native ungulate populations and in new studies to determine pronghorn and tule elk diet, habitat use, population dynamics, and biology.			
Protect herds by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).			

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Maintain areas of pronghorn and elk habitat solely by natural means. Do not engage in active restoration.</p>	<ul style="list-style-type: none"> - Maintain and improve pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions. - Maintain and improve elk habitat in the Caliente Foothills North and Carrizo Plain North subregions. - Maintain adequate acreage of tall grassland elk habitat within the Carrizo Plain North subregion and restore native bunchgrass communities in previously cultivated areas. - Restore elk habitat in previously cultivated areas. - Manage habitat to promote native forage species 	<ul style="list-style-type: none"> - Maintain and improve pronghorn habitat in suitable areas in the Monument. - Maintain and improve elk habitat in the Caliente Foothills North and Carrizo Plain North subregions. - Maintain adequate acreage of tall grassland elk habitat in the Carrizo Plain North subregion. - If necessary to meet elk herd objectives and compatible with other resource objectives, restore native grassland in other subregions. 	
<p>Eliminate livestock grazing from pastures identified as key pronghorn or elk habitat.</p>	<ul style="list-style-type: none"> - Allow livestock grazing in key pronghorn habitat and key elk calving and foraging habitat only as identified in the Conservation Target Table. - Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide mosaic of pronghorn and elk forage resources, habitat structure, and adequate fawning cover. - Promote forb production bythrough vegetation treatments. 		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Allow natural water systems to vary with the climate.</p> <p>Do not provide artificial water or supplemental feed.</p>	<p>Maintain critical natural and man-made water sources year-round.</p> <p>Provide supplemental feed only if necessary to maintain a viable population.</p>	<ul style="list-style-type: none"> – Maintain critical natural and man-made water sources year round. – Establish pronghorn water sources within two miles of key forage and fawning areas in the Caliente Foothills North and Carrizo Plain North subregions. – Provide at least one water source for elk per square mile and construct water sources large enough to support 250 elk, at a maximum of 5 miles apart, in important elk habitat in the Caliente Foothills North and Caliente Mountain South subregions. – Provide supplemental feed for pronghorn if necessary. 	
<p>Promote herd travel across the landscape by removing all livestock fences not required to protect sensitive resources such as cultural sites.</p>	<ul style="list-style-type: none"> – Promote herd travel across the landscape by modifying all fences to allow animal passage underneath. – Realign or remove fencing as identified in the Conservation Target Table. 	<ul style="list-style-type: none"> – Promote herd travel across the landscape by modifying all fences to allow animal passage underneath. – Realign or remove unnecessary fencing. – Reduce number of pastures to reduce number of fences. 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Avian Species</i>			
<ul style="list-style-type: none"> • Provide suitable habitat for wintering mountain plover in Panorama Hills/Elkhorn Plain, Carrizo Plain Central, and Soda Lake subregions. • Maintain unobstructed condor habitat in the Caliente Mountain North, Caliente Mountain South, and Temblor Range subregions. Maintain suitable foraging habitat for condors in the Panorama Hills/Elkhorn Plain, Carrizo Plain Central, and Caliente Foothills South subregions. • Maintain roosting habitat for shorebirds, cranes, long-billed curlews, and waterfowl in the Soda Lake subregion. 			<p>See No Action Alternative above for objectives specific to Rare Plants, Plant Communities, Viable Populations of Plants and Animals, Native Perennial Grasses and Wildflowers, Habitat Structure Diversity, Avian Species, and Soda Lake.</p> <p>Follow SOPs listed in the 1996 CPNA Management Plan</p>
<ul style="list-style-type: none"> • Allow natural conditions to determine availability of suitable nesting, roosting, and foraging habitat for raptors, ground-nesting birds, such as grasshopper sparrow and short-eared owl, and migratory birds as indicated by subregion in Chapter 2. • Allow natural conditions to determine availability of suitable habitat for upland game birds, with an emphasis on natural water sources. 	<ul style="list-style-type: none"> • Maintain or improve nesting, roosting, and foraging habitat for raptors (Caliente Mountain South, Caliente Mountain North subregions) and ground-nesting birds such as grasshopper sparrow and short-eared owl (Caliente Foothills North, Carrizo Plain North, Soda Lake subregions), and migratory birds (Caliente Foothills South, Caliente Foothills North, Carrizo Plain North, Soda Lake subregions). Maintain or improve wintering habitat for raptors. • Maintain suitable habitat for upland game birds and allow for continuation of existing artificial water sources. 		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Conduct annual surveys for mountain plovers. – Identify and map core areas for mountain plover based on historical use patterns. Focus habitat management for mountain plover to core areas. Manage core areas so that a minimum of one area of suitable habitat is provided within the Monument boundary. Update core area locations based on mountain plover use patterns. – For mountain plover, apply fall vegetation management when necessary. When possible, overlap mountain plover treatment areas with blunt-nosed leopard lizard treatment areas <u>to provide low structure for both species.</u> – Restrict or prohibit the placement of new transmission lines, towers, or other potentially disruptive constructs in California condor habitat. – <u>Work with existing right-of-way holders to make existing structures condor safe.</u> – Support USFWS in implementing condor recovery actions, such as establishing supplemental feeding stations or condor monitoring. – Conduct annual surveys for long-billed curlews or other species. – For roosting shorebirds, cranes, curlews, and waterfowl, support research to determine factors affecting roosting and foraging habitat quality and take appropriate management actions if habitat deteriorates. – Protect roosting habitat at Soda Lake from human disturbance. Design facilities and manage public access to minimize detrimental interaction between roosting birds and the public. 	<ul style="list-style-type: none"> – Decrease human-caused hazards to listed species. – Design potentially disturbing activities to allow continued expansion of listed species into new areas or their return to historically occupied areas. – Compile, centralize, and make available historic distribution and abundance data. – Monitor changes in abundance and distribution. – Develop field observation forms for use by all cooperators. – Determine habitat requirements for listed species. 		
<p>Conduct annual surveys for wintering raptors and occasional surveys for additional species.</p>	<ul style="list-style-type: none"> – Conduct annual surveys for wintering raptors and occasional surveys for additional species. – Conduct inventories to determine raptor nesting sites. 		
<p>Protect nesting raptors at Selby Rocks and Painted Rock from human disturbance.</p>	<p>Protect nesting raptors from human disturbance at Selby Rocks, Painted Rock, and other nesting locations, but allow actions to protect rock art from bird excrement.</p>		
<p>Allow nonnative trees and human structures used by birds to be removed.</p>	<p>Allow certain nonnative trees and human structures to remain in place as habitat for birds. Construct new structures or plant additional trees in places such as facilities or campgrounds.</p>		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
	Select tree species native to the area or are non-invasive and historically appropriate.	Support the planting of food crops for sandhill cranes on lands outside the Monument on adjacent lands or within the Monument on previously cultivated areas near Soda Lake, when compatible with other biological and cultural objectives.	
	Support research to understand regional importance as a nesting and wintering site for raptors and ground-nesting birds.		
Allow vegetation to respond only to natural forces with no vegetation management.	Apply a variety of treatments to create a mosaic of habitat types and structures to provide for a variety of species as warranted.		
Do not apply livestock grazing and fire to manage bird habitats.	Livestock grazing within the Carrizo Plain North subregion will be done in a manner that promotes <u>minimizes impacts to</u> shrubs, tall forbs, and perennial native grasses as identified in the Conservation Target Table.		
	<ul style="list-style-type: none"> – Discourage use of polypropylene twine at gates and other facilities in the Monument to prevent its use as a nesting material and potential entanglement of birds. Remove and replace existing polypropylene twine at gates and facilities. – Take measures to minimize bird mortalities caused by electrocution along power lines. 		
Remove artificial water developments used by upland game birds (such as guzzlers) as they become non-functional.	Allow maintenance, and replacement, <u>and removal</u> of existing artificial water developments used by upland game birds, such as guzzlers. New water developments may be allowed if proposed by CDFG and compatible with biological, cultural, and wilderness objectives.		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Nonnative Animals and Captive-Held Native Animals</i>			
Control the spread of nonnative animals. Minimize disease transmission, harassment, and competition from nonnative animals and native animals that have been held in captivity.			
Control and eliminate, when possible, nonnative animals such as feral pigs and honey bees.	Control and eliminate, when possible, nonnative animals such as feral pigs and honey bees using a variety of methods such as hunting, fencing, and trapping of pigs or hive removal, entombment, traps, insecticides, and poison bait stations for bees.	Control and eliminate, when possible, nonnative animals such as feral pigs and honey bees.	Evaluate the need to control exotic animal species such as red fox, wild pig, and cowbirds.
Prohibit the release of nonnative animals.	Prohibit the release of nonnative animals except for the use of approved biocontrol agents or the authorized use of livestock.	Prohibit the release of nonnative animals except for the use of approved biocontrol agents, the authorized use of livestock, or in accordance with a CDFG-approved permit(s).	
Prohibit the release of native animals that have been held in captivity unless the release is required to meet the Monument’s objectives, such as augmentation or reestablishment of an endangered or threatened species like the Kern primrose sphinx moth or the giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox or San Joaquin antelope squirrel in core areas.	Prohibit the release of native animals that have been held in captivity unless the release is required to meet Monument objectives, such as augmentation or reestablishment of an endangered or threatened species like the Kern primrose sphinx moth or the giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox or San Joaquin antelope squirrel in core areas, or the release of pronghorn or elk if necessary to meet herd objectives.		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Take protective measures if pets from visitors or private lands are causing wildlife depredation or other ecological damage such as requiring pets to be leashed and under control at all times, removal of fecal material from pets or contacting owners if pets are free-roaming on the Monument. <u>Pets shall remain leashed at all developed sites including visitor centers, interpretive overlooks, and camping areas.</u></p>			
<p><i>Habitat Structure Diversity</i></p>			
<p>Maintain or increase the diversity of habitat in terms of structure, composition, and patchiness.</p>			<p>Follow SOPs listed in the 1996 CPNA Management Plan</p>
<p>Monitor and map the distribution, amount, and structure of shrub, and woodland, <u>and</u> crust communities; the structure of the herbaceous understory; and the general species composition of the plant communities.</p> <p>Provide a variety and mosaic of vegetative assemblages, successional stages, habitats, and structure. Use tools from Vegetation Management Toolbox. Initially focus on lands previously degraded by dryland farming or overgrazing.</p>			<ul style="list-style-type: none"> – Investigation past vegetative community species composition. – Encourage further pollen analysis to determine this technique's efficacy in describing current vegetative community species composition. – Initiate long-term studies of the factors influencing community composition, structure, and function. – Identify shrub-scrub stands to be maintained or enhanced – Manage livestock grazing to maintain high priority shrub-scrub stands and enhance all other stands as appropriate.
<p><i>Linkage</i></p>			
<ul style="list-style-type: none"> • Maintain the linkage of natural lands in the CPNM to the San Joaquin Valley by preserving the intact nature of the Temblor Range to maintain genetic and population linkages for San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, and other species. 			
<ul style="list-style-type: none"> – Maintain suitable habitat in the Temblor Range subregion. Manage public use to prevent habitat degradation and fragmentation. – Identify and protect important linking habitat through acquisition or other methods. 			

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Riparian Areas			
Restore all riparian areas, seeps, and springs to proper functioning condition (PFC) or better (Caliente Mountain South/ Caliente Mountain North, Temblor Range, Caliente Foothills South/ Caliente Foothills North subregions).		Maintain riparian zones in proper functioning condition to allow for the maintenance and development of natural riparian plant communities and basic riparian ecological functions.	
<ul style="list-style-type: none"> – Inventory/monitor wetland, riparian, and spring sites. – Continue to monitor and remove tamarisk, bull thistle, and other noxious weeds from wetland areas. – Restore degraded riparian areas using a variety of methods. – Identify and protect riparian areas that may appear only in very wet years. – Fence/protect wetland, riparian, and spring areas as necessary – Take measures to limit the deleterious actions of wild pigs, such as monitoring, fencing, and hunting, 		<ul style="list-style-type: none"> – Complete spring and water source inventory. – Monitor springs, seeps, and intermittent stream riparian zones to evaluate management effectiveness. – Maintain, protect, improve, and/or restore riparian zones and drainages. – Fence water sources, wetlands, and riparian areas affected by livestock and wild pigs. 	
Soda Lake			
Maintain the ecological processes and hydrologic vitality (quality, quantity, and flow patterns) of Soda Lake, its playas, and associated swale system.		Maintain hydrologic processes and function of Soda Lake	
<ul style="list-style-type: none"> – Monitor water flow patterns, potential threats to water quality, and general ecosystem health. – Identify adjacent lands important in maintaining water quality. Coordinate with adjacent landowners to eliminate or minimize contamination. – Eliminate salt cedar and all other problematic nonnative species. – Design any new trails, pull-outs, parking areas, and other facilities to minimize disruption of ecological processes and hydrologic vitality. 		<ul style="list-style-type: none"> – Protect Soda Lake. – Maintain and enhance water quality and quantity, hydrologic processes, ecosystem health, and plant and wildlife communities – Develop a model of the CPNM groundwater system and interaction with surface waters, watershed, and Soda Lake. 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Vernal Pools and Sag Ponds</i>			
Maintain the ecological processes and hydrologic vitality of the Monument’s vernal pools and sag ponds (primarily Caliente Foothills South and Soda Lake subregions).		Sustain vernal pool communities.	
<ul style="list-style-type: none"> – Identify and map vernal pool sites – Monitor water chemistry, species composition, and other important ecological factors important in maintaining pool ecosystems and take action to remedy negative changes. – Maintain the ecological processes and hydrologic vitality of vernal pools. – Protect vernal pools and sag ponds. Maintain current conditions while improving knowledge base and modify management to reflect new information. – Determine effects of livestock grazing on vernal pool habitats and in maintaining characteristics necessary for the health and viability of fairy shrimp and other vernal pool species. – Eliminate nonnative species from vernal pools and surrounding areas. – <u>Ensure that BLM actions and authorizations are designed to avoid impacts to vernal pools. Manage vernal pools that provide longhorn fairy shrimp, vernal pool fairy shrimp, and spadefoot toad habitat within the North Carrizo and South Carrizo Vernal Pool Core Areas consistent with the Vernal Pool Recovery Plan.</u> 		<ul style="list-style-type: none"> – Monitor vernal pools. – Sustain the integrity of natural vernal pool communities. – Implement livestock grazing management (or exclusion) that will sustain vernal pool communities. – Develop an understanding of the effects of livestock grazing on current biotic communities and plant and animal species. 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Research and Inventory</i>			
<ul style="list-style-type: none"> • Improve knowledge of the species present on the Monument and understanding of the natural and ecological processes that influence local ecosystems. 			
<p>Inventory taxa that are not well studied or understood, such as insects, other invertebrates, fungi, lichens, and bryophytes. Continue updating existing inventories (plants, mammals, birds, other species).</p> <p>Support inventories, monitoring, and research on factors that influence species population trends. Support other research within the Monument on the biology of CPNM species.</p> <p>Establish and maintain non-managed areas to compare the effects of unmanipulated natural processes with changes influenced by agency management actions.</p>			<ul style="list-style-type: none"> – Inventory all species in CPNM. – Inventory exotic species and determine most efficient controls. – Design studies to assess the effects of the proposed livestock grazing program on plants and animals. – Monitor changes in abundance and distribution patterns at known locations of non-listed native species. – Map all major perturbations of vegetative communities. – Determine the function of extraordinary events in plant and animal community dynamics. – Pursue stable funding source to address questions regarding the effectiveness of livestock grazing in meeting goals.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Fire</i>			
Maintain the natural role of fire in the landscape where feasible.	Maintain the natural role of fire in the landscape where feasible.	<ul style="list-style-type: none"> • Mimic the range of natural processes and disturbances. • Develop a fire history, and understanding of the effects of fire and suppression on current biotic communities and species of plants and animals. • Pre-suppression and suppression activities will be implemented to reduce the adverse impacts of fire management, and coordinate wildfire suppression and prescribed burning activities. 	
Manage prescribed fire and wildfire in the Caliente Mountain North subregion to mimic the natural return interval.		<ul style="list-style-type: none"> – Conduct prescribed burns to study fire's effects on plants and animals (on about 30,000 acres with fireline construction on 10 acres). – Allow wildfires to burn in designated areas to re-establish natural fire intervals and minimize negative impacts of fire suppression. 	
	Use fire as a habitat management tool to promote native species.	Implement the livestock grazing, fire management, and research actions described in the Habitat Management section of the CPNA plan.	
Increase understanding of native people's use of fire to aid in current management applications.	Increase understanding of native people's historic use of fire and historic fire return intervals to aid in current management applications.	Determine the extent of fire use by Native Americans.	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
			<ul style="list-style-type: none"> - Develop a comprehensive fire management plan. - Determine the historical extent, intensity, interval season, and duration of fires. - Study the effects of various suppression and prescribed burn pretreatment methods (fire line construction) on plants and animals. - Minimize negative impacts of pre-suppression activities on resources. - Establish post-fire monitoring sites on areas burned by wildfires and adjacent unburned areas.
<i>Protected Land</i>			
Increase the amount of protected land for rare species and important ecological habitats.	Direct acquisition efforts to acquire lands with important biological resources, especially those that are poorly represented in public ownership.	Acquire, from willing sellers, all remaining private lands within the boundaries of the CPNM.	
Acquire lands or interest as parcels become available.	<p>Identify target inholdings and encourage sale or transfer of target properties:</p> <ul style="list-style-type: none"> - Primary focus would be to acquire property that supports species that are poorly represented on public lands. - Secondary focus would include properties with important ecological characteristics that are potential core areas for the San Joaquin suite of rare species or that support other important CPNM species. 	<ul style="list-style-type: none"> - Acquire lands based on availability, biological or cultural values, and management needs. - Retain all acquired lands and original public land within the CPNM, but allow exchange of parcels between BLM, TNC, and CDFG. - Retain all original mineral rights on split estate lands. 	
	<p>Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.</p> <p>Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.</p>		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
	<p>Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, and management needs. Target other inholdings that may have management needs or risk of development or occupancy.</p>		<p>Establish agreements or acquire easements to protect resources with owners of parcels that cannot be acquired in fee.</p>
			<p>Cooperate with San Luis Obispo County to address private land development issues within the CPNM.</p>
<p>2.5 Fire and Fuels Management</p>			
<p>Determine the <u>AMR response</u> to fire based on the likely consequences to firefighter and public safety and welfare, natural and cultural resources, and values to be protected. Determine post-fire effects of all wildland fires and determine needed actions.</p>			<p>Current direction for fire management is included in the CPNM Plan.</p>
<p>Utilize a hands-off / natural processes approach to fire management in the CPNM. Manage naturally occurring fires for resource benefit, where appropriate.</p> <ul style="list-style-type: none"> • Fire control objectives: Target wildfire acres burned per decade: 15,000 acres. • Target individual wildland fire size: 1,000 acres or less 90 percent of the time. 	<p>Follow current wildland fire objectives in the fire management plan:</p> <ul style="list-style-type: none"> • Target wildfire acres burned per decade: <u>approximately 10,000</u> acres. • Target individual wildland fire size: 100 acres or less 80 percent of the time. • Fires on the valley floor burning in grassland areas away from sensitive cultural sites and fire-intolerant shrub areas may be managed using a confine strategy, burning to the nearest roads. 	<p>Actively suppress wildfires and rely on prescribed fire to return fire to the ecosystem:</p> <ul style="list-style-type: none"> • Target wildfire acres burned per decade: <u>approximately 5,000</u> acres. • Target individual wildland fire size: 100 acres 90 percent of the time. 	<ul style="list-style-type: none"> • Develop a fire history for the CPNM, and an understanding of the effects of fire and suppression on current biotic communities and species of plants and animals. Coordinate wildfire suppression and prescribed burning activities. • Pre-suppression and suppression activities will be implemented to reduce the adverse impacts of fire management. • Increase the availability and dependability of water sources needed for wildfire suppression and prescribed burning.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - Use a decision support process to guide and document wildfire management decisions. - Fight fire safely by following Interagency Standards for Fire and Fire Aviation Operations. - Coordinate closely with interagency fire suppression partners to ensure that resource protection strategies are understood and implemented. Continue to include a modified suppression plan in the Central Coast Operating Plan to outline fire suppression guidelines to fire suppression partners. - Utilize existing natural and human-made barriers where feasible during wildland fire suppression. - Utilize MIST in the Caliente Mountain WSA, and also within the remainder of the primitive recreation management zones to the extent possible. - Limit Avoid fire retardant drops on rock outcrops. - Avoid aerial or ground application of fire chemicals within 300 feet of waterways. - Minimize the loss of fire-intolerant saltbush vegetation. - Request a resource advisor familiar with area management objectives and sensitive resource values. Ensure BLM fire suppression personnel are also aware of special resource concerns in CPNM. - Park vehicles and set up suppression support facilities in areas that have already been disturbed or locate outside the CPNM. - Increase understanding of native people’s historic use of fire and historic fire return intervals. - Assess all wildland fires for emergency stabilization and rehabilitation needs. - Complete emergency stabilization and rehabilitation in a timely and cost-efficient manner. 	<p>No areas identified for <u>managing fire to meet resource objectives</u> within the CPNM.</p>	<p>No areas identified for <u>managing fire to meet resource objectives</u> within the CPNM.</p>	<ul style="list-style-type: none"> - Develop a comprehensive fire management plan. - Determine fire use by Native Americans and historical fire extent, intensity, interval season, and duration. - Minimize impacts from pre-suppression activities. - Select appropriate water holding tanks and fit valves compatible with firefighting equipment. - Monitor burned areas and adjacent unburned areas for ecological effects. - Assess wildlife and vegetation effects of various suppression and prescribed burn pre-treatment methods.
<p>Allow wildland fire use for the <u>option of managing fire to meet resource objectives</u> within the Caliente Mountain WSA.</p>	<p>No areas identified for <u>managing fire to meet resource objectives</u> within the CPNM.</p>	<p>No areas identified for <u>managing fire to meet resource objectives</u> within the CPNM.</p>	<p>Allow wildfires to burn in designated areas.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Actively suppress fires that threaten life or private property. – Consider managing natural ignitions within the Caliente Mountain WSA as <u>use of wildland fire-use to meet resource objectives</u>. – In other areas, apply a confine strategy. 	<ul style="list-style-type: none"> – Actively suppress fires that threaten life, facilities, or private property. – Actively suppress fires that threaten fire sensitive natural or cultural resources, such as saltbush or other vulnerable shrub communities, Alvord and blue oak stands, and National Register properties. – In other areas, apply a confine strategy. 	<p>Actively suppress all fires within the CPNM.</p>	
<p>Utilize MIST, to the extent possible, in the remaining primitive recreation management zones (65,218 acres).</p>	<p>Utilize MIST to the extent possible, <u>considering other values at risk to be protected</u>, in the remaining primitive recreation management zones (36,480 acres).</p>		
<p>Incident commander retains the authority during initial attack to undertake appropriate actions, while considering restrictions to protect sensitive natural and cultural resources.</p>			
<p>Limit mechanical fuel reduction to meeting state requirements (currently 30 feet of cleared fuel directly adjacent to structure and reduced fuel within 100 feet).</p>	<ul style="list-style-type: none"> – Reduce fuels adjacent to structures and other improvements, as well as along major travel corridors. – Treat up to 4,000 acres per decade with non-fire fuels treatment. 		<ul style="list-style-type: none"> – Post fire prevention signs. – Remove dry vegetation for at least 30 feet around structures. – Mow vegetation from the roadway and shoulders. – Prepare an activity fire plan for any procedure that could lead to fire ignition, such as metal cutting and welding, mowing, and scraping.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Utilize mechanical equipment, such as dozers, only when necessary to protect human life or property.	<ul style="list-style-type: none"> – Active suppression could include aerial attack, mobile attack, handline construction, or dozerline construction (outside of sensitive cultural site areas). – Utilize mobile attack in preference to more disturbing methods such as dozerline construction. 	Utilize aerial attack, mobile attack, handline construction, or dozerline construction.	
Do not conduct any prescribed burning in the CPNM.	Utilize prescribed fire on up to 10,000 acres per decade to contribute to native species restoration goals and noxious weed control, return fire to its place in the ecosystem, and meet fuel reduction needs.	Utilize prescribed fire on up to 15,000 acres per decade to contribute to native species restoration goals and noxious weed control, return fire to its place in the ecosystem, and meet fuel reduction needs.	Conduct prescribed burns, to study fire’s effects on plant and animal communities, on 30,000 acres with fire line construction of 10 acres during the life of this plan.
2.6 Air Quality			
Improve overall air quality by reducing fugitive dust emissions on roads throughout the Monument.	Improve overall air quality by reducing fugitive dust and particulate matter emissions throughout the Monument.	Improve overall air quality by reducing fugitive dust emissions on roads throughout the Monument.	Comply with local, state, and federal air quality and visibility requirements and encourage the reduction of emissions while conducting prescribed fires.
<ul style="list-style-type: none"> – Maintain and/or improve air quality to meet all local, state, and federal air quality standards. – <u>Utilize the Monument adaptive management program to implement techniques, BMPs, and SOPs to increase beneficial effects and minimize the contribution to global climate change.</u> 			Minimize dust generated from roads and other land management activities.
<ul style="list-style-type: none"> – Comply with all local, state, and federal air quality regulations. – <u>Consider impacts of climate change on Monument resources and evaluate impacts of management actions and program activities on climate change.</u> – Use alternative energy sources where feasible. – Minimize dust emissions on roads and while implementing earth-disturbing activities. – Use accepted best management practices to minimize the exposure of employees, visitors, and area residents to the spores that may result in valley fever. 			<ul style="list-style-type: none"> – Comply with local, state, and federal PM₁₀ dust control rules. – Use alternative energy when feasible and practice energy conservation. – Use best available methods to reduce emissions and protect human health and safety.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Use an aggregate, gravel base, or chemical binder/dust suppressant to cover main access roads throughout the Monument.	<ul style="list-style-type: none"> – Use an aggregate, gravel base, or chemical binder/dust suppressant to cover main BLM roads, focusing on those accessing or passing high-use recreation sites, other areas with high public or resident exposure, and near rock art sites. – Coordinate with <u>the county</u> to reduce dust emissions on county roads. 	<ul style="list-style-type: none"> – Pave major travel routes into and out of the CPNM. – Gravel key secondary routes and roads. 	Use the best available methods to reduce dust from existing roads, construction sites, and land management practices. Consult with specialists and experts as appropriate.
<ul style="list-style-type: none"> – Close and reclaim redundant and unnecessary roads. – Seasonally close to public roads without dust suppression additives. 	Close/reclaim all unnecessary routes and roads that are not needed for administrative/public use(s).		
	Install solar panels where feasible to replace generators, or use windmills at wells. Rehabilitate existing windmills.		
	Avoid prescribed fire when weather conditions are likely to result in smoke entering adjacent areas that exceed current air pollution standards.		
	Avoid burning during high-visitor-use periods.		
2.7 Soils			
Maintain soil resources in proper functioning condition (including biological function). Conserve and restore areas of biological soil crusts. Manage land uses such that erosion and sedimentation rates are appropriate to natural processes, landscapes returning to natural processes, or landscapes under active restoration.			Evaluate erosion problems, identify corrective actions needed, and monitor soil resources throughout the CPNM.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - Identify and evaluate erosion problems and implement corrective actions. - Limit fugitive dust pollution by reducing disturbance to soils. - Incorporate best management practices to minimize erosion/sedimentation and conserve biological soil crusts. - Develop and implement best management practices to reduce the threat of exposure of area residents, visitors, and employees to valley fever. - Assess/inventory soils in Monument for proper functioning condition (Rangeland Health Standards). 			
<p>Gain a better understanding of the processes that may be affecting area soils to allow for improved management and conservation.</p>	<p>Gain a better understanding of the processes that may be affecting Monument soils. Take an aggressive approach to help the soils achieve proper functioning condition and educate the users about soil resources and sensitivity.</p>	<p>Gain a better understanding of the processes that may be affecting area soils and implement intensive management to manage/restore soils to perform at proper functioning condition.</p>	<ul style="list-style-type: none"> - Develop strategies to improve conditions on soils that are eroding. - Acquire a digitized version of the Carrizo Plain Soil Survey. - Manage livestock grazing in a manner that does not create excessive water or wind erosion.
	<p>Develop strategies to improve conditions on soils that are eroding. Priority will be given to human-caused problems that impact natural community processes or areas inhabited by sensitive species.</p>		
	<p>Consider seasonal closures to areas of sensitive soils.</p> <p>Consider seasonal closures on roads where excessive ruts occur.</p>	<ul style="list-style-type: none"> - Implement seasonal closures to areas of sensitive soils. - Implement seasonal closures on all roads when ruts are two inches or 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
		<p>greater, or conditions otherwise will result in road damage or erosion/sedimentation issues.</p> <ul style="list-style-type: none"> – Remediate erosion problems through eliminating causes and complete restoration. – Provide educational materials to the Goodwin Education Center and/or kiosks on proper use etiquette to protection soils. 	
2.8 Water Resources			
<ul style="list-style-type: none"> • Maintain and enhance water quality: hydrologic processes, ecosystem, and plant and wildlife communities (see Biological Resources – Goals, Objectives, and Management Actions Common to All Action Alternatives, Section 2.4.2.2 Objective and Management Actions, Soda Lake). • Coordinate with appropriate state and federal water quality agencies to ensure that the quality of water entering the Monument is not compromised. • Ensure riparian zones, streams, and floodplains are in proper functioning condition (see see Biological Resources – Goals, Objectives, and Management Actions Common to All Action Alternatives, Section 2.4.2.2 Objective and Management Actions, Riparian Areas). • Coordinate with state and federal agencies to achieve compliance with the <i>Clean Water Act</i> or other applicable regulatory guidance. • Manage upland areas to maintain or improve hydrologic function and minimize adverse downslope impacts. • Establish a baseline database of existing water wells, groundwater level trends, and groundwater quality for the Carrizo Plain Groundwater Basin within the National Monument. • Develop model of CPNM groundwater system and interaction with surface waters, watershed, and Soda Lake. 			<p>Protect or enhance habitat condition, water quality, plant community composition, and wildlife use for all springs, water sources, and drainages.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Inventory/monitor wetland, riparian, and spring sites. – Fence/protect wetland, riparian, and spring areas as necessary. – <u>Any spring improvements and/or new water developments will undergo evaluation and an approval process that would include an appropriate level of environmental analysis (NEPA) by BLM.</u> – Provide water for livestock, wildlife, and administrative use from wells rather than from natural springs and/or surface waters if these uses are detrimental to the spring(s) and/or surface waters. – Continue to monitor and remove tamarisk, bull thistle, and other noxious weeds from wetland areas. – Use native plants in wetland areas to restore degraded springs or streams. – Inventory, characterize, and map all existing water wells within the CPNM – Determine if any existing wells in the CPNM are suitable for water level and water quality monitoring. – Drill one or two new groundwater monitoring wells at selected locations within the Carrizo Plain Groundwater Basin in the CPNM, focusing in areas that may be potentially impacted by proposed and future offsite land uses. – Monitor the water levels and water quality in new monitoring wells and/or existing wells on a quarterly basis for first 2 years, and annually thereafter. – Coordinate with other public agencies on monitoring and research relative to groundwater in the CPNM. – Use groundwater and surface water data to develop a hydrologic model for the CPNM. 			<ul style="list-style-type: none"> – Complete spring and water source inventory by plan year three. – Monitor springs and seeps for trends of plant community composition, water flows, and water quality. – Evaluate water source inventory and monitoring information to determine needs for habitat protection or habitat improvement. Protect sensitive areas through fencing, water distribution to adjacent uplands, and seeding or transplants. – Design spring improvements to maintain or improve wetland conditions. – File for appropriate water rights. – Design/maintain roads and facilities to allow sheet and channel runoff. – Protect active washes and alluvial fans from channelization.
2.9 Wild and Scenic Rivers			
Evaluate and provide interim protection for all eligible and suitable wild and scenic river segments until Congress makes a final determination regarding their designation under the <i>Wild and Scenic Rivers Act</i> .			
<ul style="list-style-type: none"> – Carry forward the non-eligible recommendation for Soda Lake from the Caliente RMP. – Abbot Canyon, Wallace Creek, and the Cuyama River were found to be not eligible for designation under the <i>Wild and Scenic Rivers Act</i>. 			<ul style="list-style-type: none"> – Carry forward the non-eligible recommendation for Soda Lake from the Caliente RMP. – No analysis of the eligibility and suitability for other watersheds within the monument.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2.10 Geology and Paleontology			
<p>Protect and preserve significant vertebrate or invertebrate fossils and geological landforms. Encourage educational interpretation and research project opportunities with the scientific community and educational partnerships. Establish baseline inventory of paleontological resources in the Monument.</p>			Continue research into the geology and paleontology of the CPNM.
<ul style="list-style-type: none"> – Identify sensitive paleontological zones and fossil locations. – Protect sensitive paleontological and geological formations through law enforcement patrol. – Identify baseline data and monitor for disturbances of geological landforms such as the San Andreas Fault, Soda Lake, and the clay dunes at Soda Lake, and implement corrective action. – Where resource integrity would not be compromised, interpret fossils, geological landforms, features, and formations as compatible with appropriate <u>the associated</u> recreation management zone. – Encourage valid research and volunteer partnership opportunities associated with the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and other areas of geological interest. – Encourage valid research and volunteer partnership opportunities to locate fossil, collect specimens, interpret finds, evaluate their significance, and preserve representative fossil formations and localities. – Identify and compile existing geological and paleontological research maps and professional reports pertinent to the Monument. Maintain baseline data in hard copy and electronic (GIS) format. – Create geological maps depicting sites of geological and paleontological significance. 			
Public Education and Interpretation			
Enhance indoor displays and minimize field visitation to geologic and fossil formations to ensure long-term preservation.	Focus public education and interpretation of geological and paleontological resources at field locations.		
There would be no additional on-site public interpretive displays. Sensitive location information on paleontological resources would be protected.	Focus interpretative information pertinent to geologic and paleontologic resources at existing and additional field locations in the Monument where compatible with specific recreation management zones and VRM class.		Display resource information at on-site or adjacent locations. Provide brochures for guided and self-guided trips.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Public visitation would be allowed but not encouraged at geological and fossil field locations other than those already identified.	Continue existing guided and self-guided public tours to points of geological interest such as Wallace Creek. Make interpretive information available.		
Maintain and enhance the Goodwin Education Center or some other public facility with displays pertinent to paleontological and geological formations. The center would continue to provide public displays and hands-on educational exhibits.			
Potentially develop interpretive program at other facilities and limited field locations.	Assess the feasibility of expanding the Wallace Creek interpretive program by providing geological walk-through-time displays adjacent to the trail.		
<i>Paleontological Resource Scientific Research</i>			
Pursue research of paleontological resources locations using minimal field tools.	Pursue field research of paleontological resources using a combination of hand tools and mechanized equipment that would balance protection of resources and research.		Compile existing geologic research.
Encourage research meeting BLM permit standards and allow only minimal tools to limit ground disturbance.	<ul style="list-style-type: none"> - Hand tools and mechanized equipment may be authorized. Stabilize exposed fossil formations or localities where feasible. Research methods would have to meet paleontological permit standards. - Field research would be compatible with VRM class and not compromise the overall physical integrity of the fossil bed or locality. 		<ul style="list-style-type: none"> - Require BLM authorization for field research. - Limited field monitoring and patrol would continue at the current levels.
	Recover fossils at risk of loss and place significant finds in a repository meeting federal standards, with selected specimens on exhibit in the Monument and for public education.		
Pursue field research of paleontological resources through cooperative agreements and contracts or permits to identify fossil formations and localities, and assess condition of paleontological resources threatened by soil erosion or human-caused disturbances.			Field research would be available under a use permit and contract or cooperative agreement.
Identify sensitive paleontological zones in the Monument and expand baseline inventory in GIS files or hard copy format.			Compile and archive baseline fossil formation maps.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>San Andreas Fault / Soda Lake / Geological Formation Research</i>			
Limit field research disturbance of significant geological resources by using minimal tools.	Pursue field research of geological resources using a combination of hand tools and mechanized equipment.		Follow specific objectives listed in the 1996 CPNA Management Plan.
<ul style="list-style-type: none"> – Encourage research meeting BLM permit standards and allow only minimal tools to limit ground disturbance. – Field research would be compatible with VRM class objectives and not compromise the overall physical integrity of the fossil bed or locality. 	Consider more intensive research to advance public education and scientific understanding. Allow a reasonable amount of ground disturbance that would not compromise the physical integrity of the formation and would be compatible with the appropriate VRM class.		
Formal field research would continue in areas such as the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations.			
Research data collection methods could include surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies at the fault zone using hand tools.	Research data collection methods could include surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies at the fault zone using a combination of hand tools and mechanized equipment.		Research data collection methods could include surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies using mechanized equipment on the fault zone.
Document findings from geological research in a professional report and provide to BLM and its partners. Sensitive or unique geological information identified through research would be archived in GIS or hard copy format for reference.			Baseline data from research would be maintained by the researcher and may be available in web links or professional papers. Copies of proposals and research findings would be shared with the partners and incorporated into the BLM library.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2.11 Cultural Resources			
<ul style="list-style-type: none"> • Protect and preserve significant cultural resources from natural and human-caused disturbances. • Maintain and enhance open dialogue with Native Americans to participate in planning and consultation. • Ensure opportunities for Native American traditional plant gathering, cultural activities, and ceremonial rites. • Provide for the removal of invasive nonnative plants while retaining the integrity of historic property landscapes. • Encourage partnerships, valid research, interpretation, and educational opportunities. • Place priority on acquisition of significant cultural resources in the CPNM as non-federal land become available. 		<p>Cultural Resources Management Objectives:</p> <ul style="list-style-type: none"> • Monitor impacts to cultural resources and the effectiveness of protections strategies. • Stabilize, reconstruct, maintain, and protect significant cultural properties. • Solicit and encourage 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - Revise / update fire maps of sensitive cultural resource zones <u>or fire maps as well as cultural baseline maps.</u> - Eighty-nine properties are allocated to the Conservation for Future Use category (NRHP-listed properties in Rock Art Historic District and nominated properties in National Historic Landmark). Painted Rock is allocated to Traditional and Public Use categories. Traver Ranch and KCL Ranch are allocated to the Public Use category. El Saucito Ranch, Washburn Ranch, and Selby Cow Camp are allocated to the Public Use and Scientific Use categories. - Evaluate sites for NRHP eligibility and assign the appropriate management use categories. - <u>Develop and implement a cultural resource management plan for cultural resources on the CPNM. This plan will include specific strategies for survey, monitoring, rock art and prehistoric and historical archaeological site management. This plan will also include treatment plans for restoring or stabilizing NRHP-eligible and selected non-eligible historical sites such as ranch buildings.</u> - Develop plan to restore, stabilize, or reconstruct NRHP-eligible and selected non-eligible historic sites. - Monitor, identify, and record cultural resource sites potentially threatened by human activity and natural forces. Implement corrective actions. - Develop procedural agreements with Native Americans regarding consultation and management. - Continue to work with the Native American Advisory Committee. under existing Carrizo Native American Advisory Committee Charter Agreement <u>charter agreement.</u> - Develop a protocol agreement with Native Americans on traditional practices, implement this agreement, and consider opportunities to improve vigor and distribution of native plants used in traditional practices. - As wildlife herds increase, work with Native Americans & CDFG to allow for the use of native animals. - Implement intensive and mixed sample inventory strategies to establish a predictive model revealing the low-, moderate-, or high-probability zones for prehistoric and historic resources in the CPNM. - Compile and transcribe oral histories from willing ranchers, ethnic groups, Native Americans, & others. - Conduct research related to historic, ethnographic, and prehistoric resources. - Pursue acquisition or cooperative management partnership with the state property located atop Caliente Mountain Peak, including the Caliente Mountain World War II lookout tower. - Pursue acquisition of NRHP-eligible cultural properties in the Monument on private land should the landowner be willing to transfer the parcel to federal ownership. - Consider eradication of invasive nonnative plants at specific prehistoric site such as Painted Rock and replace with a native plant. - Eradicate invasive nonnative plants on historic properties and replace with appropriate native plants. 			<p>partnerships, valid research, interpretation, and education efforts associated with cultural resources.</p> <p>Native American Uses Objectives:</p> <ul style="list-style-type: none"> • Identify and establish communication with Native American groups and individuals traditional and cultural ties to the Carrizo. • Preserve the opportunity for Native Americas to pursue traditional beliefs.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Painted Rock</i>			
Enhance conservation efforts for long-term preservation.	Protect Painted Rock while allowing guided groups and self-guided visitor access.	Protect Painted Rock while allowing guided group visitor access.	
Painted Rock would be closed to public access.	<ul style="list-style-type: none"> – Open to guided tours from March 1 through July 15, not to exceed 25 visitors at a time (as a target) in the rock alcove. – Permit required for self-guided visitor access from July 16 to end of February. – Special Recreation Use Permit is required for groups of 20 or more individuals. – Use monitoring / law enforcement to ensure permit compliance; program could be modified or discontinued. – Night public access closure year round from dusk to dawn. <u>The area would be closed from dusk to dawn year-round.</u> 	<ul style="list-style-type: none"> – Open to guided tours only. Tours would be conducted on a routine schedule and increased above current levels. Target not more than 25 visitors at a time in the rock alcove. – Night public access closure would be extended year-round from dusk to dawn. 	<ul style="list-style-type: none"> – Open to guided tours only from March 1 through July 15, not to exceed 25 visitors at a time in the rock alcove. – Open to self-guided access from July 16 to the end of February. – A Special Recreation Use Permit would be required for self-guided groups of 20 or more visitors. – Night access closure is effective from March 1 through July 15.
Manage as point of public interest to a level that does not compromise National Register & traditional values.			
Native Americans would be allowed access to the site for traditional uses through advance coordination with BLM.			
The road to the Painted Rock parking area and trail to Painted Rock site subject to temporary or emergency closure to Native American access due to muddy road conditions and during sensitive periods of bird nesting.	The road to the parking area and archaeological site would be subject to temporary or emergency closure without <u>prior</u> public notice for reasons such as muddy road conditions, during sensitive periods of bird nesting, and to protect resources and cultural values.		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Closure would continue in the Painted Rock pasture to livestock grazing, horses, dogs, non-motorized bikes, cache-type activities, and discharge of firearms.</p>	<p>The Rock Art Historic District component from Painted Rock to Selby Rocks and the adjacent area would be closed to livestock grazing, horses, dogs, non-motorized bikes (excluding Painted Rock parking area), and cache-type activities, excluding the Selby Road and Caliente Mountain Road. The discharge of firearms would be prohibited for the entire exclusion area.</p>	<p>Closure would continue in the Painted Rock Pasture to livestock grazing, horses, dogs, non-motorized bikes, cache-type activities, and the discharge of firearms.</p>	
	<p>Prohibit campfires within the Painted Rock exclusion zone but allow approved Native American ceremonial fire use.</p>	<p>No climbing on the rock, direct contact (touching) or defacement of rock art, and collecting or displacing of artifacts, ecofacts, or features <u>would be allowed without authorization from BLM</u>. Researchers could be excluded from some of these conditions with BLM permit or approval, pursuant to federal regulations, <u>and would require close coordination with the agency archaeologist and Native Americans</u>.</p>	
<p>Prioritize patrol, monitoring, and surveillance actions.</p>			
<p>Conduct archaeological condition assessment and conservation treatment as necessary to preserve rock art paintings and other components of Painted Rock.</p>	<p>Maintain and realign Painted Rock Exclusion Zone fences to encompass the National Register District component between Painted Rock and Selby Cow Camp. Remove fences in a state of poor repair if no longer needed, subsequent to NHPA Section 106 compliance assessment.</p>	<p>Maintain and realign Painted Rock Pasture fence to encompass the National Register District component between Painted Rock and Selby Cow Camp. Remove fences in a state of poor repair if no longer needed, subsequent to recordation and NHPA Section 106 compliance assessment.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>At-Risk Archaeological Resources</i>			
Enhance conservation efforts for long term preservation.	Restrict access and protect sites that are at high risk from human-caused impacts.		
Monitor/identify/record cultural sites at risk from human activity & natural forces. Implement corrective actions.			
NRHP-eligible property at risk would be subject to emergency closure or access restrictions.			
The archaeological site C06-1 located on the basalt hill on KCL Ranch would be closed to public access. Native American pedestrian access would be allowed. Install low profile closure signs	A BLM permit would be required for self-guided pedestrian access to archaeological site C06-1. A Special Recreation Use Permit would be required for groups of 20 or more individuals. Native American pedestrian access would be allowed.		Archaeological site C06-1 would remain open to public access.
Prehistoric rock art site CA-SLO-100 located on the Washburn Ranch would remain closed to public access.			
All public lands within ¼ mile of Sulphur Springs will remain closed to public access.			
Patrol and monitor sites C06-1 and CA-SLO-100 for protection and to ensure compliance. Take corrective action such as fencing site C06-1 to deter access if public continues to access site.			Patrol and monitor sites C06-1 and CA-SLO-100 for protection and compliance.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Rock Art Protection</i>			
Allow rock art to deteriorate as long as it is a natural process.	Enhance conservation efforts for long term preservation of rock art sites affected by natural agents and inadvertent human impacts to preserve cultural values and provide public enrichment for future generations.		
<ul style="list-style-type: none"> – Repair, maintain, and realign the fences encircling the Rock Art Historic District in the vicinity of Painted Rock and Selby Rocks. Remove unneeded fences in a state of poor repair, subsequent to NHPA Section 106 recordation and assessment. – Prohibit still and video photography for commercial purposes of the pictograph images at Painted Rock and other rock art sites. Issue <u>Require cultural resource use permits and field work authorizations</u> for photography related to activities of accredited scientific, academic, or research institutions. – Assess, conserve, document, or otherwise preserve rock art sites threatened by natural conditions and human-caused impacts. – Assess grazing impacts to the Saucito Rocks, Sulphur Springs, and Abbott Canyon components of the Rock Art Historic District. As needed, exclude livestock from all or parts of the surrounding pastures. – Identify and assess impacts to NRHP properties located within or contiguous to existing public or administrative roads to Saucito Rocks, Sulphur Spring, and Abbott Canyon components of the Rock Art Historic District. Employ realignment, closure of road segments, road capping, or other form of preservation. – Conduct law enforcement patrols to deter unauthorized OHV use and enforce speed limits. 			
<ul style="list-style-type: none"> – Stabilize sites where feasible without treatment intervention to rock art elements. – No intervention to reduce or eliminate natural deterioration of rock art. 	<ul style="list-style-type: none"> – Develop and implement a rock art preservation plan <u>as part of a cultural resource management plan</u> including protection, conservation, and treatment measures to address natural deterioration. – Implement measures such as dust abatement on roads and trails; installing physical barriers, boardwalks, and interpretive panels; or other preservation measures to manage public access to sites. 		No conservation by intervention has been or likely would be implemented to reduce the rate of natural deterioration.
Prioritize law enforcement patrol and monitoring of all site components and document in written and visual media for management purposes.			
Rock art condition assessments and cause of deterioration would be fully documented over time in written and visual media format.			Condition assessment would continue and conservation methods would be considered.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Implement detailed site recordation of archaeological features and rock art elements to preserve site information from potential loss of site constituents.			
Provide interpretive and educational awareness to the public and Native Americans about the preservation of heritage resources.			
<i>Public Education, Interpretation, and Archiving</i>			
Focus cultural and natural history interpretive and education awareness information at on-site field locations or at an appropriate viewing distance with less emphasis on multiple indoor public facilities.	Focus cultural interpretative and educational opportunities at multiple indoor public facilities as well as at field locations.		
El Saucito Ranch interpretive and educational trail program would continue with restricted access, allowing only pedestrian guided tours. Compile and archive historic documents and photographs.			
Locate public education and interpretation at indoor public facilities and field locations that are compatible with the specific recreation management zone and VRM class.			
Select additional field locations of public interest for interpretive and educational uses pertinent to cultural and natural history values.	Limit number of field locations for interpretive and educational uses.		
Display cultural resource and natural history information via materials and interpretive signs at on-site locations, by roadsides, or near pedestrian trails at Painted Rock, Wallace Creek, El Saucito and Selby ranches, and potentially other locations.	<ul style="list-style-type: none"> - Display cultural resource and natural history interpretive information via signs at on-site locations, roadsides, or near pedestrian trails at established locations such as Painted Rock, Wallace Creek, and El Saucito and Selby ranches. - Develop new information as part of a comprehensive interpretive plan. 		Continue to display cultural resource information via signs, kiosks, and brochures at Painted Rock, Wallace Creek, and El Saucito and Selby ranches.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Maintain and enhance public education and interpretative information about the Monument’s cultural and natural history values at the Goodwin Education Center, or replace it by some other public facility.</p>			<ul style="list-style-type: none"> – Public education and interpretation at indoor facilities would be limited to Goodwin Education Center, which would continue as the only public building providing contact for visitors. – The facility would be open only during the peak visitor season; staff at the Center would continue to schedule public tours and events.
	<p>Analyze the feasibility of developing a new or expanded public interpretive/educational center. Considerations would include expanding the floor space at the Goodwin Education Center, reconstruction of the 1890s barn at El Saucito Ranch, or construction at some other viable location in the Monument. Public use, scientific research, interpretive/educational programs, and archival storage needs would be considered.</p>		
<i>Ranching / Farming Machinery and Equipment</i>			
<p>Enhance the natural landscape by removing historic machinery and equipment scattered in the CPNM.</p>	<p>Retain selected representative examples of historic machinery and equipment <i>in situ</i> in the Monument as part of the historic landscape.</p>		
<p>Selected historic machinery and equipment would remain in place in field. Continue to relocate selected examples of machinery and equipment scattered in the CPNM to centralized locations such as El Saucito/Traver ranches.</p>	<p>Selected historic machinery and equipment would remain in place in the field. Less emphasis on relocating additional items to centralized locations such as the Traver Ranch and the Goodwin Education Center.</p>		<p>Selected historic machinery and equipment would remain in place in field. Continue to relocate selected examples of machinery and equipment scattered in the CPNM to centralized locations such as El Saucito/Traver ranches.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Emphasize removing historic machinery and equipment from the landscape. Removing or relocating items would be documented and assessed in situ prior to removal pursuant to compliance NHPA Section 106. Priority for removal would be placed on NRHP-ineligible sites, objects that are hazardous to public safety and those located in the Primitive recreation management zone. Avoid adverse effects to eligible properties.</p>	<p>Assess the condition and safety of leaving machinery and equipment scattered across the Monument. If items pose a safety hazard, such items would be slated for removal from the Monument. Removing or relocating items would be documented and assessed in situ prior to removal pursuant to compliance NHPA Section 106.</p>	<p>Some farming and ranching machinery and equipment would continue to be removed from the CPNM where these objects are a safety hazard or are in such poor condition that they have lost their physical integrity. Removing or relocating items would be documented and assessed in situ prior to removal pursuant to compliance NHPA Section 106.</p>	
	<p>Provide educational information about the historic machinery/equipment through field-specific interpretive signs, kiosks, or brochures as compatible with recreation management zone objectives.</p>		
<i>Historic Ranching and Farming Buildings and Structures</i>			
<p>Enhancement of the natural landscape by the removal of historic ranching and farming built facilities.</p>	<p>Emphasize the <u>Recognize the importance of</u> preservation of historic ranching and farming buildings and structures in the Monument.</p>	<p>Historic ranching and farming buildings and structures would be managed in a state of arrested decay (stabilized).</p>	
<p>Stabilize, rehabilitate, restore, or reconstruct facilities previously identified for preservation such as El Saucito, Washburn, and Selby ranches.</p>	<p>Emphasis to restore, rehabilitate, stabilize, or reconstruct historic ranching and farming buildings and structures eligible for the NRHP and provide public enrichment.</p>	<p>Only stabilize historic ranching and farming facilities such as El Saucito, Washburn, KCL, and Selby ranches. NRHP-eligible properties would have priority over ineligible buildings and structures.</p>	<p>Continue to stabilize and rehabilitate buildings and structures at the El Saucito, Washburn, KCL, and Selby ranches.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Provide educational information such as interpretive signs, kiosks, and brochures at locations such as El Saucito and Selby ranches, or other selected facilities.	Provide public educational interpretive information about historic facilities at selected NRHP sites.	Provide educational information such as interpretive signs, kiosks, and brochures when compatible with the recreation management zone objectives.	Educational information such as interpretive signs, kiosks, would be available to the public at the El Saucito, KCL, Washburn, and Selby ranches.
Priority to enhance natural landscape. Target removal of sites ineligible for the NRHP that have lost their physical integrity and pose a public safety hazard and sites in the Primitive Recreation Management Zone. Facility removal would be subject to site recordation, assessment, and adequate mitigation for NRHP properties	Remove sites ineligible for the NRHP that have lost their physical integrity and pose a public safety hazard. Buildings such as the Traver Ranch may be stabilized for its values associated with wildlife resources <u>bird and bat habitat</u> and dry-land farming interpretive uses.	Remove sites ineligible for the NRHP that have lost their physical integrity and pose a public safety hazard.	
2.12 Visual Resources			
<ul style="list-style-type: none"> • Conduct management activities and complete developments in a manner sensitive to visual qualities of the area. • Minimize light pollution to retain the area’s night sky qualities. 			
VRM zone boundaries correspond to recreation management zones: <ul style="list-style-type: none"> • Primitive (Class I): 83,202 acres • Backcountry (Class II): 158,080 acres. • Frontcountry (Class III): 17,040 acres 	VRM zone boundaries correspond to recreation management zones: <ul style="list-style-type: none"> • Primitive (Class I): 54,464 <u>62,353</u> acres • Backcountry (Class II): 186,819 <u>165,319</u> acres • Frontcountry (Class III): 20,839 <u>19,144</u> acres 	VRM zone boundaries correspond to recreation management zones: <ul style="list-style-type: none"> • Primitive (Class I): 17,984 acres • Backcountry (Class II): 223,299 acres. • Frontcountry (Class III): 24,944 acres 	Most of the CPNM would be managed as VRM Class II except for a majority of the Temblor Mountain Range, which is classified as VRM Class III. Some areas along the border of the Monument area would be managed as VRM Class IV.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Complete visual contrast ratings for all proposed surface or visually impacting projects to ensure they meet VRM class objectives. – Complete visual contrast ratings for existing roads and facilities and identify opportunities to reduce existing visual impacts through modifications such as painting water tanks, removing unneeded facilities. – Complete an inventory of existing and potential key scenic vista points along roads and trail corridors within the CPNM and identify opportunities to develop and improve these locations as overlooks and interpretive sites. – Limit exterior lighting of BLM administrative facilities to the minimum necessary for safety and security. Use lighting types and shields that minimize light pollution. – Work with adjoining communities to minimize light sources that impact the Monument. 			
<p>In Backcountry and Frontcountry zones, encourage retrofitting of existing facilities to comply with VRM Class II and III objectives. Incorporate mitigation measures to minimize contrast with the characteristic landscape.</p>	<p>In Backcountry and Frontcountry zones, encourage retrofitting of existing facilities to comply with VRM Class II and III objectives. Incorporate mitigation measures to minimize contrast with the characteristic landscape.</p>	<p>In Backcountry and Frontcountry zones, encourage retrofitting of existing facilities to comply with VRM Class II and III objectives. Incorporate mitigation measures to minimize contrast with the characteristic landscape.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2. 13 Wilderness Study Areas and Other Lands with Wilderness Characteristics			
Manage the Caliente Mountain WSA so as not to impair the area’s suitability for wilderness development.			
Manage all lands inventoried and identified as having potential wilderness characteristics (approximately 65,218 acres) so as not to impair their natural character.	<p><u>Manage the Caliente Mountain WSA (17,984), Caliente Mountain adjoining lands (18,343) and the Temblor unit (12,772), and Soda Lake units (13,255 acres) for wilderness characteristics (approximately 62,354 acres total)</u></p> <p>Manage the Caliente Mountain WSA and the Temblor unit for wilderness characteristics (approximately 36,480 acres) so as not to impair their natural character.</p>	<p>Continue to manage the 17,984-acre Caliente Mountain WSA so as not to impair the area’s suitability for preservation as wilderness.</p> <p>See Map 2-5, Lands Having Wilderness Character.</p>	
<ul style="list-style-type: none"> – All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM’s <i>Interim Management Policy for Lands under Wilderness Review</i>. – If released from further consideration by Congress for wilderness designation, the Caliente Mountain WSA would continue to be managed to protect wilderness character unless the Congressional release language explicitly states otherwise. 			All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM’s <i>Interim Management Policy for Lands under Wilderness Review</i> .
Manage all lands inventoried and identified as having potential wilderness characteristics (approximately 65,218 acres) so as not to impair their natural character.	Manage the Caliente Mountain WSA and the Temblor unit (approximately 36,480 acres) for wilderness characteristics so as not to impair their natural character.	Manage the Caliente Mountain WSA (17,984 acres) so as not to impair the area’s suitability for preservation as wilderness.	
All activities in areas managed for wilderness characteristics will follow the guidelines contained in Appendix H, Management of Lands with Wilderness Character.	All activities in areas managed for wilderness characteristics will follow the guidelines contained in Appendix H, Management of Lands with Wilderness Character.	All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM’s <i>Interim Management Policy for Lands under Wilderness Review</i> .	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Conduct active restoration activities to remove unnatural features.			
Limited use roads in areas to be managed for wilderness character will be used for administrative purposes only when non-motorized access is not feasible for specific projects. Closed routes will be rehabilitated or converted into non-mechanized trails.			
Appropriate public use would include non-motorized and non-mechanized activities.			
2.14 Areas of Critical Environmental Concern			
The Carrizo ACEC designation would be dropped for all lands within the National Monument boundary.			The Carrizo Plain would continue to be designated as an ACEC under the Caliente RMP.
2.15 Livestock Grazing			
Manage livestock grazing to meet or exceed the Secretary-approved Central California Standards for Rangeland Health as shown in Appendix E.			
Manage livestock grazing to meet, and to not be in conflict with, the management objectives for all other resources and programs in the Monument.			
Remove all livestock grazing as both an allowable use that utilizes livestock forage, and also as a vegetation management tool that meets objectives other than the production of livestock forage.	<u>Continue existing livestock authorizations as required by law, regulation and policy, but strive to utilize livestock grazing in the Monument only as a vegetation management tool, which meets objectives other than the production of livestock forage, as any voluntary relinquishments are offered. Utilize livestock grazing only as a vegetation management tool, which meets objectives other than the production of livestock forage.</u>	Improve opportunities for livestock grazing only in areas where it is an allowable use that utilizes livestock forage, and continue livestock grazing as a vegetation management tool that meets objectives other than the production of livestock forage.	Continue the existing livestock grazing as both an allowable use that utilizes livestock forage, and also as a vegetation management tool that meets objectives other than the production of livestock forage.
<ul style="list-style-type: none"> - Assess all grazing allotments to determine if they are meeting the Standards for Rangeland Health and, <u>where livestock are determined to be the cause</u>, adjust those that are not. - Monitor compliance with relevant grazing management guidelines and adjust grazing authorizations as necessary. 			

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Monitor or study to determine resource impacts from livestock grazing, including within Section 15 allotments, and adjust grazing authorizations as necessary. – Move the boundary fence to the official Monument boundary when resource benefits outweigh resource damage associated with fence construction or removal. 			
<p>Authorize livestock grazing on the approximately 4,200<u>4,600</u> acres of lands remaining between the fences and the boundary and allocated as "available for livestock grazing" at levels up to those shown on the Grazing Implementation Table.</p>	<ul style="list-style-type: none"> – Allocate 52,200<u>55,900</u> acres as "available for livestock grazing" pending any future voluntary relinquishments. – Allocate 128,200<u>117,500</u> acres as "available for livestock grazing, but only for the purpose of vegetation management." 	<ul style="list-style-type: none"> – Allocate 52,200<u>55,900</u> acres as "available for livestock grazing." – Allocate 128,200<u>117,500</u> acres as "available for livestock grazing, but only for the purpose of vegetation management." 	<p>173,200<u>170,100</u> acres would remain allocated as "available for livestock grazing."</p>
<ul style="list-style-type: none"> – Allocate all lands, except for those between the existing fence line and the Monument boundary (approximately 202,300<u>201,900</u> acres), as "unavailable for any livestock grazing." – Should the fences be re-aligned to match the monument boundary, re-allocate the lands as "unavailable for any livestock grazing." 	<p>Allocate 26,100<u>33,100</u> acres as "unavailable for any livestock grazing."</p>	<p>Allocate 26,100<u>33,100</u> acres as "unavailable for any livestock grazing."</p>	<p>33,300<u>36,400</u> acres would remain allocated as "unavailable for any livestock grazing."</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p><u>No Section 15 Grazing Allotments wholly within the CPNM to relinquish.</u></p>	<p>Upon voluntary relinquishment of grazing permitted use from a Section 15 lease, re-evaluate livestock grazing vs. land use plan goals and re-allocate all or part of the relinquished permitted use as either "available for livestock grazing, but only for the purpose of vegetation management" or "unavailable for any livestock grazing."</p>	<p><u>Upon voluntary relinquishment of grazing permitted use from a Section 15 lease, re-evaluate livestock grazing vs. land use plan goals and re-allocate all or part of the relinquished permitted use as "available for livestock grazing", "available for livestock grazing, but only for the purpose of vegetation management" or "unavailable for any livestock grazing."</u></p>	
<p>Allocate any acquired lands as either "available for livestock grazing;" <u>(if land falls between fence and boundary)</u> or "unavailable for any livestock grazing."</p>	<p>Allocate any acquired lands as either "available for livestock grazing," "available for livestock grazing, but only for the purpose of vegetation management," or "unavailable for any livestock grazing."</p>	<p>Allocate any acquired lands as either "available for livestock grazing" or "unavailable for any livestock grazing."</p>	
<p>Apply the relevant Central California Rangeland Health Guidelines for Grazing Management to grazing authorizations on all areas.</p>			
<p>To the approximately <u>4,2004,600</u> acres of lands remaining under a grazing authorization, apply the relevant Specific Livestock Management Guidelines.</p>	<p>Apply the relevant Grazing Management Guidelines for the Carrizo Plain National Monument to grazing authorizations on all areas.</p>	<ul style="list-style-type: none"> - Apply the relevant Specific Livestock Management Guidelines to grazing authorizations on Section 15 allotments. - Apply the relevant Grazing Management Guidelines for Vegetation Management Areas within the CPNM to grazing authorizations on vegetation management areas. 	<ul style="list-style-type: none"> - Apply the relevant Specific Livestock Management Guidelines to grazing authorizations on Section 15 allotments. - Apply the relevant Grazing Management Guidelines for the Carrizo Plain as detailed in the annually derived Pasture/Guideline Matrix to grazing authorizations on vegetation management areas.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Evaluate livestock management facilities for other uses and remove those that were only used to support livestock grazing. – Maintain perimeter fences to exclude livestock use from outside the monument. 	<p>Create, modify, maintain, or remove livestock management facilities to support livestock grazing or to meet other resource objective.</p>	<p><u>Create, modify, maintain, or remove livestock management facilities to support livestock grazing as a use or as a management tool, or to meet other resource objectives.</u> Create, modify, maintain, or remove livestock management facilities to support increased livestock grazing.</p>	<p>Create, modify, maintain, or remove livestock management facilities to support livestock grazing or to meet other resource objectives.</p>
<p>2.16 Recreation and Interpretation</p>			
<ul style="list-style-type: none"> • Provide recreation opportunities and interpretative programs that enhance the public’s appreciation of the objects of the Monument Proclamation and other Monument resources. • Manage Monument lands to provide quality recreation while protecting natural and cultural resources, promoting safety and minimizing conflicts between users and wildlife. • Identify specific management zones that will each offer distinct types of recreation settings and opportunities to monument visitors. 		<ul style="list-style-type: none"> • Facilities – develop facilities that would enhance public enjoyment and educational experiences while minimizing impact on resources and existing uses. • Camping – provide designated 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Objectives listed by zone and setting (physical, social, and managerial) are contained in Chapter 2. Section 2.16 Recreation and Interpretation, and not detailed below.</p> <ul style="list-style-type: none"> • Provide limited visitor facilities within the Monument as necessary for visitor access to provide interpretive opportunities, and for the protection of natural and cultural resources. • Allow recreation activities and group uses that are compatible with cultural and biological resource objectives and provide opportunities to appreciate the natural and cultural resources. • Provide universal access to new facilities and retrofit existing facilities to comply with the <i>Americans with Disabilities Act</i> and the recreation program objectives for each management zone. Retrofitting will also incorporate other applicable requirements such as those for historic structures. • Seek out new and maintain existing partnerships with communities and user groups to further the mission of the Monument and complementary community goals. • New types of recreation uses may be allowed if they are compatible with the goals and objectives of this plan. • Target marketing of Monument recreation opportunities to visitors seeking experiences that are compatible with area resource protection objectives and the rustic setting. • Provide a comprehensive natural and cultural resource interpretive program that tells the story of the Monument and its significance (note: This program is discussed in more detail in the Cultural Resources section). <p>[Note: Zone objectives do not vary by alternative; it is the acreage allocated to each zone that varies, see Chapter 2, Section 2.16.2.2.]</p>			<p>camping areas and related facilities compatible with the goals of the CPNM.</p> <ul style="list-style-type: none"> • Hunting – provide opportunities for hunting consistent with the mission and manage for compatibility with the goals of the Proclamation. • Other Recreation – Permit other types of recreation if compatible with sensitive resources. Allow Special Recreation Use Permits compatible with the goals and objectives of this plan. • Interpretation – increase the understanding and awareness of the resource values of the CPNM and foster an interest in their protection. Operate the Guy L. Goodwin Education Center to enhance the educational and recreational enjoyment of visitors.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - Determine whether recreation sites and programs meet criteria for charging standard or extended amenity fees under the Federal Lands Recreation Enhancement Act and, if so, follow appropriate process. - Assess/improve (and develop, as appropriate, new) overlooks, interpretive facilities and programs. - Develop comprehensive sign plan for all directional, informational, educational, and interpretive signage. - Develop and maintain public potable water sources where feasible at developed recreation facilities. - Provide adequate and timely maintenance of all facilities and signs. - Develop a comprehensive communication program on monument recreation opportunities: - Develop a driving/riding interpretive tour through the Monument. - Monitor recreational use impacts on natural and cultural resources and on social settings and take corrective actions, as necessary. - Permit low-impact, commercial, and organized group recreation activities and events that are compatible with cultural and biological resource objectives and that relate to Monument resources. - Establish supplementary rules and regulations where required and/or carry forward existing rules and regulations to protect resources and provide for visitor safety. - Develop an education and outreach program that targets motorized recreational visitors. - <u>Coordinate with the FAA and other agencies with management authority over the CPNM airspace to establish parameters for commercial touring flights over the Monument and to discourage commercial low flying aircraft.</u> - <u>In coordination with the FAA set the minimum acceptable altitude for aircraft to 2,000ft without specific authorization from the BLM for the purposes of scientific research, education or special event. All aircraft are prohibited from landing within the monument without specific authorization from the BLM. These limitations and restrictions do not affect emergency flights and landings.</u> - <u>Aerial sports, including but not limited to, hanging gliding, skydiving, paragliding, parachuting gliders and hobby aircraft, shall be managed as a discretionary action through the Special Recreation Permit process. Any person wishing to partake in an aerial sport within the CPNM will need specific authorization from BLM.</u> - Ensure that recreation, interpretive, and other public facilities meet accessibility standards. - Develop and maintain partnerships with organized user groups. - Develop and maintain partnerships with gateway communities to provide visitor services and/or facilities outside the Monument. - Above-ground cache activities such as geocaching, earthcaching, and letter boxing may be allowed in non-sensitive areas. - Develop a targeted marketing plan to ensure that visitor information and outreach messages are compatible with the Monument’s recreation niche and the protection of Monument objectives. - Develop a comprehensive natural and cultural interpretive plan for the Monument. 			<ul style="list-style-type: none"> - Allow only recreational activities that are compatible with sensitive resources and Monument Proclamation. - Consider activities that focus on CPNM special resources, benefit the CPNM, or provide public education opportunities without negative impacts. - Require a Special Recreation Use Permit or Letter of Authorization agreement for activities consistent with the RMP for organized groups of 20 or more. - Use existing Interpretive Prospectus, and continue developing outreach programs, establish a docent program, and enforce state hunting code and regulations. - Develop hunter information guide and monitor for conflicts between hunting and sensitive resources. - Monitor visitor use and direct visitors to established facilities outside the CPNM for target shooting. - Establish a ¼ mile radius closure for firearm discharge around Selby and KCL campgrounds, Goodwin Education Center, Washburn and MU Ranch headquarters, Soda Lake Overlook complex, and Wallace Creek interpretive site. - Design facilities with minimal adverse impacts and monitor.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Monument-Wide</i>			
Protect Monument resources by allowing camping with motorized vehicles only in developed campgrounds.	<ul style="list-style-type: none"> • Reduce the risk of death or injury to the kit fox and other listed animal species from accidental shootings by eliminating varmint hunting. • Continue to provide a wide variety of distinct recreation opportunities through zoning. Emphasize vast open spaces, opportunities for solitude, and provide for compatible dispersed recreation activities. 	Continue to provide a wide variety of distinct recreation opportunities through zoning. Emphasize visitor orientation and recreation in an expanded Frontcountry zone, provide for compatible dispersed recreation activities, and continue to provide opportunities for solitude within the Wilderness Study Area.	
Allow camping with vehicles in developed campgrounds only. Dispersed camping would not be permitted. Allow overnight parking in designated locations for backpacking.	<ul style="list-style-type: none"> – Allow dispersed camping, <u>considered to be low impact car camping and backpacking, would be allowed</u> in designated areas, with corrective action up to possible area closure if monitoring shows resource impacts. – <u>In coordination with CDFG, eliminate varmint (non-game species) hunting on the Monument.</u> 	<ul style="list-style-type: none"> – Evaluate potential sites for additional camping areas, as required. – Maintain and improve Selby and KCL campgrounds. – Monitor designated camping areas for impacts and survey visitor use for present and future demands. – Limit overnight camping to 14 days in any 30-day period and 28 days in one year, and to designated camping areas, except as specified in writing by the CPNM Manager. 	
<i>Primitive Zone</i>			
Manage existing 17,984-acre Caliente Mountain WSA plus 65,218 acres as Primitive.	Manage existing 17,984-acre Caliente Mountain WSA plus 36,480 44,369 acres as Primitive.	Manage the existing 17,984-acre Caliente Mountain WSA as Primitive.	No zones identified.
Provide only facilities necessary for resource protection and visitor safety. Typical facilities may include trail signing, trails, and horse hitching rails.			

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - No interpretive and directional information would be provided within the zone, but would be available before entering area. - Provide minimal signing only for resource protection or visitor safety. 	<ul style="list-style-type: none"> - Interpretive and directional information not provided within the zone. - Provide minimal signing only for resource protection or visitor safety. 	<ul style="list-style-type: none"> - Interpretive and directional information not provided within the zone, but available off-site (brochures, internet, and audio tours). - Provide minimal signing only for resource protection or visitor safety. 	
<p>A variety of non-motorized and non-mechanized recreational activities such as hiking, equestrian use, camping, wildlife viewing, nature photography, and other activities consistent with the goal of providing a primitive experience would be allowed.</p>			<p>Allow low impact and horse camping along the Caliente Ridge and in Caliente Mountain WSA. No facilities will be located within this designated camping area.</p>
<p><i>Backcountry Zone</i></p>			
<p>Manage 158,080 acres as Backcountry.</p>	<p>Manage 186,819165,319 acres as Backcountry.</p>	<p>Manage 223,299 acres as Backcountry</p>	<p>No zones identified.</p>
<p>Facilities would be limited to such items as small interpretive sites and trailheads.</p>	<p>Provide amenities at designated dispersed camping areas for resource protection and to encourage use in areas that are already impacted. Facilities would retain a rustic character.</p>		
<ul style="list-style-type: none"> - Provide rustic informational signage on roads, trails, at trailheads, and at other facilities. - Minor overlooks would be limited to pull-outs or small areas with no amenities (Alternative 1) or few amenities (Alternatives 2 and 3). Most interpretive information would be obtained by the visitor in facilities located in the Frontcountry zone. 			
<p>Allow a variety of non-motorized and motorized recreational activities with uses compatible with goals for the Backcountry zone.</p>	<ul style="list-style-type: none"> - Allow a variety of non-motorized and motorized recreational activities with uses compatible with goals for the Backcountry zone. - Low-impact, non-motorized competitive activities and events consistent with Monument Proclamation and resource objectives may be authorized. Support facilities would be located at existing or approved BLM sites, or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species. 		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Frontcountry Zone			
Manage 11,585 acres as Frontcountry.	Manage 15,384 19,144 acres as Frontcountry.	Manage 24,944 acres as Frontcountry.	No zones identified.
<ul style="list-style-type: none"> - Provide recreational and interpretive facilities with amenities that provide for visitor orientation, safety, comfort, and resource protection at overlooks, trailheads, and at interpretive kiosks. When possible, utilize construction standards that portray a rustic character. - Provide trailheads, parking areas, campgrounds, the Goodwin Education Center, roads, and other facilities that support the recreational and interpretation goals of the Monument. 		<ul style="list-style-type: none"> - Maintain a parking area along Elkhorn Road near Wallace Creek. - Maintain the Soda Lake Boardwalk. 	
<ul style="list-style-type: none"> - Improve and expand existing interpretive programs at existing kiosks, the Goodwin Education Center, Soda Lake Boardwalk, Soda Lake Overlook, Wallace Creek, Painted Rock (Alternatives 2 and 3 only), El Saucito, and other sites. Additional interpretive areas along primary access roads may be developed. - Provide guided tours of Painted Rock (Alternatives 2 and 3 only) and El Saucito Ranch. - Expand the Goodwin Educational/Visitor's Center. - Provide directional and informational signage along roads and at facilities. 		<ul style="list-style-type: none"> - Relocate plaques top of hill Soda Lake Overlook to a lower elevation. - Develop a roadside pullout with kiosk at southern end of Soda Lake Road. 	
Allow a wide variety of motorized and non-motorized uses.	<ul style="list-style-type: none"> - Allow a wide variety of motorized and non-motorized uses. - Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and resource objectives may be authorized. Support facilities would be located at existing or approved BLM sites or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species. 		<ul style="list-style-type: none"> - Use traffic counters, trail registers, and visitor questionnaires to monitor visitor use/requirements. - Establish Goodwin Education Center as primary location for visitor information and educational materials.
A 1,204-acre area from Painted Rock to Selby Rocks will would be closed to horses, livestock, dogs, and the discharge of firearms. The closed area would not include Selby Road or Caliente Mountain Road.			Close the area from Painted Rock to the Goodwin Education Center to the discharge of firearms.
Painted Rock and a 500- to 1,000-foot buffer around it would be closed to public access.	An access permit (maximum 20 visitors per permit) would be required for all self-guided tours to Painted Rock. Painted Rock would be closed from dusk to dawn.		<ul style="list-style-type: none"> - Develop an operational strategy for the Goodwin Education Center.
	Prohibit campfires within the Painted Rock Exclusion Zone while allowing for approved Native American ceremonial use of fire.		<ul style="list-style-type: none"> - Provide facilities at the Painted Rock Parking Area and interpretation on a portion of the Painted Rock Trail.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2.17 Administrative Facilities			
<ul style="list-style-type: none"> • Provide administrative and maintenance facilities to support the management of the Monument. • Use “green” building techniques that minimize use of natural resources and energy and minimize the need for commercial power and utility corridors related to Monument administrative sites. 		<p>No explicit objectives or actions are included in existing management plans regarding administrative facilities.</p>	
<ul style="list-style-type: none"> – Maintain existing administrative sites including Washburn Ranch and the MU Ranch. <u>Consider development of an administrative headquarters to improve the efficiency of CPNM management, either on-monument or in an adjacent area.</u> – Determine the need to accommodate future employees, seasonal workforce, and researchers at the Washburn Ranch and increase housing capabilities as needed. – Provide location(s) for researchers to link to the internet and other communication mediums. – Maintain the facilities at the MU Ranch for employees and research housing. – Expand the Visitor Center to better accommodate employees and enhance educational opportunities. – Work with PG&E and CDFG to install solar power at the Visitor Center and the Painted Rock Ranch. – Incorporate green design elements and alternative sources of power when developing or retrofitting any administrative sites. 			
2.18 Travel Management			
<ul style="list-style-type: none"> • Provide a safe and effective travel network (including roads and trails) that supports administration and public recreation use of the Monument commensurate with the respective recreation management zone objectives. • Ensure that the Monument road network is designed and managed to minimize impacts to natural and cultural resource values. • Provide reasonable access to private surface land inholders and mineral estate owners as required by law. 		<p>Provide access for recreation and to facilities, where compatible with sensitive resources.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> - Backcountry and the Frontcountry zones are designated as limited areas. The Primitive zone is designated as a closed area. No areas are designated as open areas based on the Monument Proclamation, which <u>also only allows travel on existing roads</u>.states “the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.” - Develop a comprehensive travel information program. - Roads would be subject to temporary closure during wet periods and after washouts. - Provide reasonable access to private surface land inholders and mineral estate owners. - Develop a road maintenance plan. - Identify and close unneeded or redundant travelways. - Upon acquisition of private land inholdings, evaluate inclusion in network (and designation) or closure of access roads. - Minimize impacts to water quality and other resources through proper design, maintenance, or minor rerouting of roads. - Reduce illegal off-road travel such as education, enforcement, and placement of physical barriers. - <u>Improve public safety and reduce the number of animal road-strikes by establishing reduced speed limits on BLM roads in high public use areas -or areas with a high frequency of wildlife road strikes. Recommend speed limit reductions on county road segments with same issues.</u> - All existing roads within the Primitive zone would be designated as closed to public use, and would be converted into trails or rehabilitated back to their natural state. Certain specific routes that are necessary for administrative access would be available for this use based. 			<ul style="list-style-type: none"> - No off-road motorized or mechanized travel. - Temporary road closures during wet periods and after washouts. - Monitor areas annually to determine if routes should be closed permanently or seasonally to reduce safety hazards, impacts to sensitive resources, and unnecessary damage to roads. - Provide access to Painted Rock. Upgrade the portion from Soda Lake Road to the Goodwin Education Center to an all-weather surface. Maintain access from Selby Road for administrative use and for permitted groups.
<p>Open roads to the public: 269 miles Limited roads: 97 miles Closed roads: 81 miles Trails: 7 miles</p>	<p>Open roads to the public: 278<u>267.1</u> miles Limited roads: 124<u>137.1</u> miles Closed roads: 45<u>42.5</u> miles Trails: 76<u>6</u> miles</p>	<p>Open roads to the public: 322 miles Limited roads: 115 miles Closed roads: 10 miles Trails: 7 miles</p>	<p>Open roads to the public: 322 miles Limited roads: 115 miles Closed roads: 10 miles Trails: 7 miles</p>
<p>Open area: 0 acres Limited: 175,120 acres Closed: 83,200 acres</p>	<p>Open area: 0 acres Limited: 207,658 <u>184,463</u> acres Closed: 54,464 <u>62,353</u> acres</p>	<p>Open area: 0 acres Limited: 248,243 acres Closed: 17,984 acres</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Backcountry Zone			
<p>Only street-licensed vehicles allowed in the Backcountry zone. No green or red sticker vehicles registered under the state OHV program would be allowed.</p>	<p><u>Only street-licensed vehicles would be allowed in the Backcountry Zone. No green or red sticker vehicles registered under the state OHV program would be allowed. Non-street licenced vehicles (ATVs, motorcycles) would be permitted on a portion of the Temblor Ridge Road from T31S, R21E Sec. 23 to T11N, R24W Sec. 7 allowing connectivity to the eastern slopes of the Temblors. Staging for activities and trailing of non-street-licensed vehicles would be prohibited along Temblor Ridge Road.</u>Only licensed vehicles and other vehicles registered through the green or red sticker state OHV program such as off road motoreycles, four wheelers, and other OHVs would be allowed on designated roads.</p>	<p><u>Only licensed vehicles and other vehicles registered with state OHV programs (green or red sticker vehicles) such as off highway motorcycles, four wheelers, and other OHVs would be allowed on designated roads within the Monument. See Appendix I, Supplemental Rules for Public Use, for details.</u></p>	
Frontcountry Zone			
<p>Work with San Luis Obispo County to maintain Soda Lake Road comparable to a maintenance level 3 gravel road.</p>	<ul style="list-style-type: none"> - <u>Only street-licensed vehicles would be allowed in the Frontcountry Zone. No green or red sticker vehicles registered under the state OHV program would be allowed.</u> - Work with San Luis Obispo County to maintain Soda Lake Road comparable to a level 4 BLM maintenance standard. 		
<p>Only street-licensed vehicles allowed in the Frontcountry zone. No green or red sticker vehicles would be allowed.</p>			
2.19 Minerals			
Existing Oil and Gas Leases			
<p>Establish SOPs and implementation guidelines, including best management practices, for all projects to ensure that monument resources are protected while allowing reasonable access for valid existing rights for mineral development. <u>SOPs and BMPs will also incorporate requirements to minimizing noise impacts.</u></p>			

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Review all projects and apply the Biological SOPs and the SOPS for Oil and Gas Minerals. – Inspect <u>all</u> facilities for environmental compliance. Shut-in or abandoned wells will be inventoried and evaluated for final plugging and restoration prioritization. <u>This inventory and evaluation will be completed within six months of the effective date of this RMP.</u> – As leases stop producing, process termination or expiration in a timely manner. – Conduct annual surface inspection on all leases to identify and remediate any hazards or impacts. – Conduct training for operators on management goals, sensitive resources, and best management practices. <u>Review, revise, and/or develop additional additional CPNM-specific BMPs every five years, or more frequently if necessary, to protect these management goals and sensitive resource value. Additional CPNM-specific best management practices may be developed.</u> – Manage the existing oil producing acreage on the southern side of the Caliente Range to maintain ecological processes and to assure <u>prompt</u> lease restoration upon final abandonment of the last well. – Review existing disturbed areas and require reclamation of those areas determined to be redundant <u>or no longer needed. Conduct this review within one year of the effective date of this RMP.</u> – Design roads, well pads, and facilities to impact and fragment the least acreage practicable. <u>Encourage operators to modify existing facilities when necessary to achieve the above objectives, and consider providing BLM funds to assist if requiring modifications is beyond BLM’s authority on existing leases.</u> – Ensure best management practices are followed. – Wells that are not commercially developed would <u>must</u> be reclaimed to natural contours and revegetated as soon as appropriate. – Review applications for Permit to Drill, Sundry Notices, and Final Abandonment Notices using the existing NEPA approval process. – Require timely plugging and appropriately designed abandonment of depleted wells. 			
<p>Provide extra resources to operators for existing and new operations.</p>			
<p>Inspect annually.</p>	<p>Conduct detailed lease inspections more often than once every three years, with a goal of at least every other year <u>on a yearly basis</u> and would occur more often when problems are found.</p>		<p>Conduct detailed lease inspections at least every three years, more often when problems are found.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
Encourage operators plug or return to production federal idle wells first, then fee wells.	Encourage operators to return to production or plug 4 percent of all 5-year idle wells (federal or private) per year. Encourage operators to focus on federal wells within the Monument.	Require operators to return to production of plug 4 percent of all 5-year idle wells (federal or private) per year.	
Pursue termination of all idle leases.		Pursue termination of idle leases (keep two existing idle leases at their current place on the priority list for termination).	
Maximize intermediate reclamation of redundant or unnecessary disturbed areas.	Encourage operators to conduct intermediate reclamation of redundant or unnecessary disturbed areas.	Reclaim disturbed areas only upon final abandonment or lease termination.	Encourage operators to conduct intermediate reclamation of redundant and unnecessary disturbed areas.
For all new lease actions, require protection based on lease stipulations, conditions of approval, and BLM regulations, consistent with other BLM leases within threatened and endangered habitat.			
Encourage operator actions to lessen the visual impacts of existing developments.			Attempt to acquire private minerals from willing sellers only in conjunction with purchase of surface estate.
Allow access for geophysical exploration with conditions that ensure resources protection of Monument objects.			Allow access for geophysical exploration with conditions that ensure resource protection.
<i>Solid Minerals</i>			
Identify potential site for emergency/administrative sand and gravel extraction (for example, to facilitate limited Monument maintenance, road, or other).			
All materials would will be imported from outside the Monument.	Develop a materials site in the CPNM for limited administrative/emergency Monument use.		

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)</i>			
<ul style="list-style-type: none"> • Non-Geophysical: Allow for reasonable exploration and development of private mineral estate consistent with protection of Monument resources. • Geophysical Exploration: Authorize geophysical activities within the Monument for exploration of mineral resources inside or outside the boundary of the Monument in a manner that protects the objects of the Monument Proclamation. 		No Monument-specific direction provided. Management would be based on existing federal and state policy.	
<ul style="list-style-type: none"> – For all private oilfield actions that require use of BLM surface, including cross-country travel on BLM lands to reach private minerals, require authorization and <u>implementation of avoidance / mitigation measures.</u> – <u>BLM will meet with operators to determine what sort of limitations should be placed on exploration and development activities to protect Monument objects while still meeting the legal requirements to provide “reasonable access.”</u> 		No explicit direction provided. Management would be based on existing federal and state policy.	
<ul style="list-style-type: none"> – To the extent practical, minimize disturbance by purchasing split estate mineral estate and by emphasizing resource protection. – Attempt to acquire private minerals from willing sellers in conjunction with purchase of surface estate, or for split estate minerals (where BLM already owns the surface) whenever specifically designated funds are made available by outside sources. 	<p>Attempt to first acquire private minerals from willing sellers whenever surface estate is purchased.</p> <p>Secondary focus is to acquire (from willing sellers) split estate private minerals (where BLM already owns the surface).</p>	Attempt to acquire private minerals from willing sellers only in conjunction with purchase of surface estate.	No explicit direction provided. Management would be based on existing federal and state policy.
Only authorize geophysical activities that do not result in damage to the objects of the Monument Proclamation.			No explicit direction provided. Management would be based on existing federal and state policy.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2.20 Lands and Realty			
<i>Land Tenure</i>			
<ul style="list-style-type: none"> • Retain all lands within the CPNM currently in federal ownership, except for certain specific situations that would further the purposes of the Monument Proclamation per the management actions below. • Consolidate and/or acquire land and/or mineral estate from willing sellers. 		<ul style="list-style-type: none"> • Acquire, from willing sellers, all remaining private lands within the boundaries of the CPNM. • Evaluate new land use applications for consistency with the long-term goals and objectives. 	
<ul style="list-style-type: none"> – Acquire all non-federal land and/or mineral estate within the boundaries of the Monument if it may further the protective purposes of the Monument, from willing sellers by purchase, exchange, or donation, as opportunities arise. – Work with partners to pool resources and avoid duplication of effort. – Where land cannot be acquired, pursue conservation easements or other forms of protection. – The only form of land exchange within the Monument boundary, as stated in the Monument Proclamation, would be an “exchange that furthers the protective purposes of the Monument.” Exchanges would be evaluated on a case-by-case basis. Lands acquired with Land, Water, and Conservation Funds are not available for disposal or exchange. All lands acquired through a compensation program would only be exchanged after consultation with appropriate agencies. – Federal lands within the Monument are not open to application for land sales, state grants, Recreation and Public Purposes Act leases or sales, desert land entries, native allotments, or agricultural leases. – Use so-called friendly condemnation authority to acquire parcels within the Monument where the landowners are willing sellers, but are unable to complete a sale to BLM due to title problems. 		<ul style="list-style-type: none"> – Retain all acquired lands and original public land. – To protect resources in parcels that cannot be acquired in fee, establish agreements or acquire easements . – Allow partners to exchange parcels if mutually beneficial for management. Retain all original mineral rights on split estate lands. – Cooperate with San Luis Obispo County to address private land development issues. – The managing partners may authorize actions that are consistent with the Monument Proclamation. – New applications that are inconsistent with the goals and objectives will not be authorized, including Recreation and Public Purposes Act patent applications, desert land entry applications, and Indian allotment applications. 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Increase the amount of protected land for objects identified under the Monument Proclamation, with particular emphasis on rare species, important ecological habitats, and significant cultural resources.</p>	<p><u>Pursue acquisition of all lands within the monument boundary. Where opportunities exist, prioritize Direct-acquisition efforts to those lands with important biological and cultural resources, especially those <u>habitat types or cultural sites</u> that currently have limited acreage in public ownership.</u></p>		<p>– Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, <u>development threats</u>, and management needs.</p> <p>– Identify target inholdings. Encourage sale or transfer.</p> <p>– Primary focus would be to acquire property that supports important resources or habitat.</p> <p>– Secondary focus would include properties with important ecological characteristics that are potential core areas for the San Joaquin suite of rare species or that support other important CPNM species.</p> <p>– Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.</p> <p>– Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.</p>
<p>Acquire lands or interest as parcels become available (such as when willing seller contacts BLM, county tax parcel, conservation organization such as Packard Foundation contacts BLM).</p>			
<p><i>Realty Actions and Utility Corridors</i></p>			
<ul style="list-style-type: none"> • Ensure that all real estate actions initiated by BLM protect or enhance the values identified within the Monument Proclamation. • Ensure that all real estate actions initiated by parties other than BLM are compatible with the values identified within the Monument Proclamation. • Manage all existing authorizations within the Monument in keeping with overall purposes of the Monument Proclamation while respecting valid existing rights. 			<p>See above objectives</p>
<p>Eliminate all existing communication rights-of-way on the Monument upon expiration of current authorization.</p>	<p>Minimize communication rights-of-way authorizations on the Monument.</p>	<p>Allow new communications facilities and maintain existing facilities consistent with the Monument Proclamation.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – The Monument would be a right-of-way avoidance area. – Right-of-way applications would be evaluated on a case-by-case basis and, if granted, would contain terms and conditions to protect resources. – No new withdrawals would be pursued or anticipated within the Monument boundary. – Applications for land use permits, such as filming permits, would be evaluated on a case-by-case basis. No apiary permits would be issued. Still and video photography of the pictograph images at Painted Rock and other rock art sites in the Monument would be prohibited for commercial purposes. Applications would be evaluated on a case-by-case basis. – Pursue extinguishing overlapping withdrawals, such as the “National Cooperative Land and Wildlife Management Areas” and the “Classification and Multiple Use” classifications. – Pursue relinquishing unneeded, existing rights-of-way. – Survey and monument (place survey markers) the exterior boundary of the Monument and any other boundaries within the Monument needed for administrative purposes. – The Caliente Mountain WSA and all areas to be managed for wilderness character would be right-of-way exclusion areas (with the exception of required administrative and private inholder access). – Extinguish <u>Remove</u> the two current utility corridor designations. Existing rights-of-way currently within the designated utility corridors would continue as long as the holders maintain the authorizations. 			<p>The CPNM will be a right-of-way avoidance area.</p> <p>Land use authorizations will include measures that result in an environmentally superior alternative.</p>

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<p>Communication rights-of-way will not be renewed.</p> <p>No new communication rights-of-way will be authorized.</p>	<ul style="list-style-type: none"> - No new or renewed communication right-of-way would be authorized unless they could meet the objectives of the Monument Proclamation and the VRM classifications in this plan. - Applicants must clearly demonstrate that no feasible off-Monument alternatives exist for placement of facilities. - Work with existing communication right-of-way holders to find alternative off-Monument locations once their current leases expire. 	<p>Issue authorizations for new and existing facilities.</p> <p>Renew existing authorizations that may include expansion of existing facilities.</p>	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
2.21 Research Management			
<i>Research Priority</i>			
<ul style="list-style-type: none"> • Authorize and encourage on-Monument research in the following order of priority: • Research that has direct implications for improving management and protection of objects of the Monument Proclamation as identified as objectives in the RMP and the Conservation Target Table (Appendix C). • Research that furthers scientific understanding of Monument resources. • Research that has scientific value, but may have only indirect benefits for understanding or management of Monument resources. 		<ul style="list-style-type: none"> • Establish a Research RAC • Develop an understanding: 1) the sustainability of the CPNM natural communities and 2) the role of extraordinary events as an ecological processes. • Determine if management activities cause large population fluctuations or seriously impair community function. • Encourage interest, develop programs, maintain research facilities, update maps, and make information available. • Assess the effectiveness of management in achieving stated project goals. 	

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<ul style="list-style-type: none"> – Identify research priorities and update or revise annually or as needed. – Allow outside review from a team of scientific experts, as needed, to provide recommendations on study design or effectiveness in meeting management goals. – Focus research efforts on topics that are useful in formulating management actions and promote conservation, with special emphasis on listed or sensitive species and their habitats and significant cultural resources. – Develop a strategy for prioritizing multiple research proposals. – <u>Create and adopt a research code of ethics in cooperation with the managing partners and other professionals.</u> – Maintain the Conservation Target Table to determine management prescriptions of biological resources. Encourage and assist researchers in developing studies to answer questions relating to the resource targets and how management actions affect them. Update the table as knowledge is gained. 			<ul style="list-style-type: none"> – Maintain an updated prioritized file of necessary research needs. – Initiate and commit to long-term studies of the factors influencing community composition, structure, and function. – Map all major perturbations of vegetative communities. – Determine the function of extraordinary events in plant and animal communities. – Conduct field observation at least seasonally of each biotic community.
<i>Research Outreach and Support</i>			
Provide a framework that encourages and facilitates quality research in areas of biologic, paleontologic, geologic, and cultural resources.			See above objectives
<ul style="list-style-type: none"> – Provide support, such as housing, within the Monument for researchers when available. Investigate other housing opportunities. – Provide existing GIS, weather, and vegetation mapping data or other data to researchers. – Work with species experts, members of academia, and other professionals to encourage research involvement. Encourage research projects that will aid in maintaining stable and increasing populations of threatened and endangered species, investigating topics identified in recovery plans. – Consider other outreach methods including sponsoring research symposia. – Coordinate with partners and the scientific community to assess opportunities for establishing an on-Monument research facility. – <u>Work with local schools, organizations and groups, and local communities to enlist citizen-scientists or other volunteers to assist with monitoring and research or field activities.</u> 			<ul style="list-style-type: none"> – Develop a database of former and current researchers and interested professionals. – Coordinate a research outreach program. – Make the Painted Rock Ranch and Washburn Ranch available to house researchers and meetings. – Secure agreements from external specialists to serve on a Research Advisory Council and convene annually. – Provide a list of SOPs required for all projects. – Designate a primary Research Coordinator.

Alternative 1	Alternative 2 (Proposed Plan)	Alternative 3	No Action Alternative
<i>Research Data</i>			
Data gathered through research, inventories, and monitoring will be made available to the scientific community and the public to the greatest extent possible. This will exclude proprietary information such as cultural and paleontological resource data.		See above objectives	
<ul style="list-style-type: none"> – Use state-of-the-art equipment and technology for accurate data collection, retrieval, storage, and information-sharing. – Create a local information archive system. – Manage data consistent with CPNM, BLM, and NLCS policies. – Maintain a list of past and current research, inventory, and survey data on the CPNM public website. – Maintain current aerial photography imagery, digital GIS layers of resources and infrastructure, and utilize other technologies as changes occur and staffing and funding is available. – Develop an educational component to data sharing in conjunction with the Goodwin Education Center and the Friends of the Carrizo to provide outreach to schools and the public. – Increase the Monument’s capacity to collect relevant weather data across the landscape in varying habitats. 		<ul style="list-style-type: none"> – Create an information archive system at a central location. – Encourage researchers and staff to disseminate information in a timely manner. – Adopt a standard vegetation classification scheme. Acquire aerial photo coverage every five years. – Develop and maintain an inventory of all species inhabiting the CPNM. 	
<i>Research Proposal Evaluation / Authorization</i>			
Evaluate and process proposals in a timely manner while ensuring that projects meet Monument research objectives and protect sensitive resource values. The application process/form is included in Appendix D, Research.		See above objectives	
<ul style="list-style-type: none"> – All research projects will undergo an evaluation and approval process which will include an assessment of its priority level, an appropriate level of NEPA analysis by BLM staff, project-specific stipulations, and a final written determination in the form of an authorization, a request for changes to the proposal for resubmission, or denial of the project. – Proposals determined to require further evaluation will be submitted to knowledgeable members of the scientific community for review. – BLM will coordinate with the Monument’s Native American Advisory Committee and tribal and other Native Americans before approving research for cultural resources. 		<ul style="list-style-type: none"> – Require proposals for all research prior to initiation. – If research is approved by the managing partners, confirm with a letter of authorization to the principle investigator stating that field work may begin. 	

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The Impacts Summary Table below lists by alternative the impacts on the resources of the CPNM, as assessed in the detailed analysis in Chapter 4. See Chapter 4 for more specific details. The black shaded boxes with white lettering are the resource areas as listed in Chapter 4, with the resource subtopics below it shaded in dark gray, also with white letters. The boxes containing text without shading are the estimated impacts.

No or negligible impacts are predicted from any of the alternatives to prime and unique farmlands, hazardous materials and solid waste, wild and scenic rivers, and public safety. The designation of the Carrizo Plain as a National Monument made the area's administrative designation as an ACEC duplicative, as the same resources identified for protection as an ACEC are also identified in the Monument Proclamation. However, under the no action alternative, the ACEC designation would be carried forward. Since the analysis of impacts for all of the resources within the Monument is done in the context of impacts on the objects of the Monument Proclamation, an analysis covering impacts to the ACEC values would also be duplicative. Therefore, a separate analysis was not conducted for ACEC impacts. The impacts to the objects protected under the Monument Proclamation should be consulted to determine ACEC impacts under the no action alternative.

Changes from the Draft RMP/EIS are shown with strikeouts (deletions) and underline (additions).

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.2 Wildlife			
<i>General Wildlife</i>			
Moderate to major beneficial impacts from managing core areas. Major beneficial impacts from implementing wildlife management objectives. Minor to moderate benefit from minimizing fire in shrubs. Negligible to major benefit from implementing Standards for Rangeland Health. Negligible impacts from fencing, recreation facilities & activities, and from rights-of-way and permits.			Major benefits from goal to maintain sustainable populations. Minor to moderate benefit from reintroducing or augmenting native animal populations.
Moderate to major impacts from eliminating artificial water. Negligible effects from weed control.	Major benefits from protecting raptor nesting sites. Minor benefit from planting trees. Minor impacts from restoration activities to reintroduce native plants. Minor beneficial impacts from oak restoration. Negligible impacts from restoring soil crusts and weed control.		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Major detrimental or beneficial impacts from eliminating livestock	<p>The livestock grazing program would likely continue to maintain suitable habitat structure for native wildlife.</p> <p>Negligible impacts to shrub-dependent species.</p> <p><u>Grazing practices that do not protect the objects of the Proclamation would be modified to remove the impact, or would be eliminated.</u></p> <p><u>With the wide variety of plant and animals species to be protected, there will likely be some species benefitted at the expense of others in meeting the land health standards. Overall, there would be negligible to major beneficial impacts.</u></p>		
Minor positive effect from closing approximately 71-80 miles of roads.	Moderate positive effect from restricted vehicle access.	Minor impacts from travel management program.	
Negligible to moderate impacts from energy mineral exploration and development.			
Same impacts from lands and realty as no action alternative, except that rights-of-way would be reduced.	Moderate to major positive effect from acquisition of lands with important biological resources.		Minor to major beneficial impacts from acquisition of private inholdings. Negligible to minor impacts from authorization of rights-of-way, permits, or other realty actions.
Beneficial impacts from fire suppression.	Fire and fire suppression effects would vary by species. Moderate to major benefits from prescribed fire. Negligible impacts from pile burns.		
<i>Giant Kangaroo Rat</i>			
<p>Major benefit from managing core areas, placing priority on listed species management, maintaining viable populations within core areas, and applying habitat management when needed</p> <p>Moderate to major benefits from conducting research on ecology and monitoring habitat.</p> <p>Moderate to major benefit from managing for a mosaic of habitats.</p> <p>Negligible impacts from managing pronghorn and elk habitat</p>			<p>Major benefit from contributing to conservation and recovery.</p> <p>Major benefits from managing for native species and plant communities</p>
Moderate to major detrimental impact from not employing vegetation management.	Moderate to major benefit to apply vegetation management in core areas and supplementary areas.		Moderate to major detrimental impact from not employing vegetation management.
The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to giant kangaroo rats.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Negligible impacts from vegetation program.	Minor impacts from vegetation management. Minor to moderate benefits from restoring native plant communities.		Minor impact from restoration activities. Minor to moderate benefit from restoring native plant communities.
Negligible impacts from fire suppression Negligible impacts from mowing and pile burns			Moderate to major benefit from using prescribed fire.
Major detrimental impact from eliminating prescribed fire	Moderate to major benefit from use of prescribed fire		
Negligible to major benefit from managing to meet Rangeland Health Standards.			Major benefit from livestock grazing in years of high biomass. Minor to moderate detrimental impact in years of other than high biomass. Moderate to major benefit in high biomass years in Section 15 allotments. Minor to moderate detrimental impact in other than high biomass years in Section 15 allotments.
Minor to moderate benefit from eliminating livestock grazing in average to dry years (most years). Moderate to major detrimental impact from eliminating livestock grazing in years of high vegetation biomass (wetter years, less frequent).	Moderate to major benefit from grazing on 872,000 acres, when needed, to maintain beneficial conditions.	Moderate to major benefit from grazing on 115,000 acres, when needed, to maintain beneficial conditions.	
	Moderate to major benefit in years of high vegetation biomass. Minor to moderate detrimental impact in most years in Section 15 allotments.		
Minor benefit from road closures.	Minor impact from current roads		
Negligible impacts from recreation facilities and activities.		Minor detrimental impacts from new facilities in core areas in Elkhorn Plain.	Negligible impacts from recreation facilities and activities.
Minor to moderate impacts from energy exploration/development on valley floor. Negligible impacts from energy development in Russell Ranch Field. Minor to moderate impacts from geophysical exploration.			
Negligible impacts from air, soils, water, paleontological/cultural, and visual resources programs.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
San Joaquin Kit Fox			
Major beneficial impact to conservation and recovery including major benefit from managing core areas, placing priority on listed species management, maintaining viable populations within core areas, and applying habitat management when needed. Moderate to major benefits from conducting research on ecology and monitoring habitat. Moderate to major benefit from managing for a mosaic of habitats. Negligible impacts from managing pronghorn and elk habitat.			Major benefit from contributing to conservation and recovery. Major benefits from managing for native species and plant communities
Moderate to major detrimental impact from not employing vegetation management.	Moderate to major benefit from applying vegetation management in core areas and supplementary areas.		
Negligible impacts from vegetation management.	Minor beneficial impacts from vegetation management. Negligible to minor benefits from restoring previously farmed fields.		Major benefit from managing native plant communities. Negligible impact from restoration activities. Negligible to minor benefit from increasing native plants in restored areas.
Negligible impacts from fire suppression. Negligible impacts from mowing and pile burns.			Moderate to major benefit from using prescribed fire.
Major detrimental impact from eliminating prescribed fire.	Moderate to major benefit from use of prescribed fire.		
Negligible to major benefit from managing to meet Rangeland Health Standards.			Moderate to major benefit from livestock grazing in years of high biomass in vegetation management area. Minor to moderate detrimental impact in years of other than high biomass. Moderate to major benefit in high biomass years in Section 15 allotments. Minor to moderate detrimental impact in other than high biomass years in Section 15 allotments.
Minor to moderate benefit from eliminating livestock grazing in average to dry years (most years). Moderate to major detrimental impact from eliminating livestock grazing in years of high vegetation biomass (wetter years, less frequent).	Moderate to major benefit from grazing on 82,000 87,000 acres, when needed, to maintain beneficial conditions.	Moderate to major benefit from grazing on 115,000 acres, when needed, to maintain beneficial conditions.	
Minor benefits from road closure.	Negligible impact from current roads.		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Negligible impacts from recreation facilities and activities.			
Minor impacts from energy exploration/development on valley floor. Negligible impacts from energy development in Russell Ranch Field. Minor impacts from geophysical exploration.			
			Negligible beneficial impacts from protection or enhancement of springs, water sources, and drainages.
Negligible impacts from air, soils, water, paleontological/cultural, and visual resources programs.			
<i>Blunt-Nosed Leopard Lizard</i>			
Major benefit from managing core areas, placing priority on listed species management, maintaining viable populations within core areas, and applying habitat management when needed. Moderate to major benefit from enhancing habitat for a variety animals, such as mountain plover. Moderate to major benefits from conducting research on ecology and monitoring habitat. Moderate to major benefit from managing for a mosaic of shrubland and grassland habitats. Negligible impacts from wildlife facilities.			Major benefit from contributing to conservation and recovery. Major benefits from managing for native species and plant communities.
Moderate to major benefit from applying vegetation management in core areas and supplementary areas.			
	Minor impacts from restoration activities. Minor to moderate benefit from improving native species and plant communities.		Minor impact from restoration activities. Minor to moderate benefit from restoring native plant communities.
Negligible impacts from fire suppression. Negligible impacts from mowing and pile burns.			Moderate to major benefit from using prescribed fire.
Major detrimental impact from eliminating prescribed fire.	<u>Moderate to major benefit from prescribed fire for habitat improvement.</u>		
Negligible to major benefit from managing to meet Rangeland Health Standards.			Moderate to major benefit from livestock grazing in years of high biomass in vegetation management area. Moderate to major benefit in high biomass years in Section 15
Major detrimental impact from removing livestock grazing in vegetation management area. Negligible impact in most years in the Cuyama Valley Section 15	Moderate to major benefit from grazing on 872,000 acres, when needed, to maintain beneficial conditions.	Moderate to major benefit from grazing on 115,000 acres, when needed, to maintain beneficial conditions.	

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
allotments. Moderate to major detrimental impact from removing livestock grazing in years of high biomass in Section 15 allotments.	Moderate to major beneficial impact in years of high vegetation biomass in core and supplementary areas. Negligible to moderate benefit in years of less than high biomass.		allotments.
Minor to moderate benefit from closing some roads.		Negligible impact from current roads.	
Negligible impacts from recreation facilities and activities.		Moderate to major impacts from increasing facilities and activity in the Elkhorn Plain.	Negligible impacts from recreation facilities and activities.
Minor impacts from energy exploration/development on valley floor. Negligible impacts from energy development in Russell Ranch Field. Minor impacts from geophysical exploration.			
Negligible impacts from air, soils, water, geology/paleontology, cultural, and visual programs			
<i>San Joaquin Antelope Squirrel</i>			
Major benefit from managing core areas, placing priority on listed species management, maintaining viable populations within core areas, and applying habitat management when needed. Moderate to major benefits from conducting research on ecology and monitoring habitat. Moderate to major benefit from managing for a mosaic of habitats. Negligible to minor impacts from managing pronghorn and elk habitat.		Major benefit from contributing to conservation and recovery. Major benefits from managing for native species and plant communities	
Moderate to major detrimental impact from not employing vegetation management.	Moderate to major benefit from applying vegetation management in core areas and supplementary areas.		
Negligible impacts from vegetation management.	Minor to moderate benefits from restoring native plant communities.		Minor impact from restoration activities. Moderate benefit from restoring native plant communities.
Negligible impacts from fire suppression and fire line restoration activities. Negligible impacts from mowing and pile burns.		Minor effect from using prescribed fire.	
Major detrimental impact from eliminating prescribed fire.	Moderate to major benefit from use of prescribed fire.		
Negligible to major benefit from managing to meet Rangeland Health Standards.		Negligible to major benefit from livestock grazing, depending on	

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Negligible to minor detrimental impact from eliminating livestock grazing in average to dry years (most years).</p> <p>Moderate to major detrimental impact from eliminating livestock grazing in years of high vegetation biomass (wetter years, less frequent).</p>	<p>Moderate to major benefit from grazing on 827,000 acres, when needed, to maintain beneficial conditions.</p> <p>Moderate to major benefit in years of high vegetation biomass in vegetation management area.</p> <p>Moderate to major benefits in high vegetation biomass years in Section 15 allotments.</p> <p>Negligible to moderate benefit in years with less than high biomass.</p>	<p>Moderate to major benefit from grazing on 115,000 acres, when needed, to maintain beneficial conditions.</p>	
<p>Negligible impacts from recreation facilities and activities.</p>		<p>Minor detrimental impacts from new facilities in core areas in Elkhorn Plain.</p>	<p>Negligible impacts from recreation facilities and activities.</p>
<p>Minor to moderate impacts from energy exploration/development on valley floor.</p> <p>Negligible impacts from energy development in Russell Ranch Field.</p> <p>Minor impacts from geophysical exploration.</p>			
<p>Minor benefit from road closures.</p>		<p>Minor to moderate impact from current roads.</p>	
<p>Negligible impacts from air, soils, water, geology/paleontology, cultural, and visual programs</p>			
<p><i>Pallid Bat, Western Mastiff Bat, and Other Bats</i></p>			
<p>Major positive impact from actions to maintain a viable population.</p>			
<p>Minor negative effect from cultural resource monitoring, research, or restoration at rock art sites.</p>			
<p>Moderate negative effect from cultural resources structure removal and restoration.</p>	<p>Minor to moderate negative effect from structure removal and restoration; less impact than Alternative 1 or No Action due to retention of non-eligible structures.</p>	<p>Moderate to major negative effect from cultural resource structure removal and restoration.</p>	<p>Minor to moderate negative effect from cultural resource structure removal and restoration.</p>
<p>Minor to moderate effect from VRM and WSA removal of structures.</p>		<p>Minor effect from VRM and WSA removal of structures.</p>	
<p>Moderate negative effect from discontinuation of <u>livestock</u> grazing (loss of water troughs and foraging habitat quality).</p>	<p>Minor positive effect from continuation of <u>livestock</u> grazing.</p>		
<p>Minor to moderate negative effect from Recreation Management Zones.</p>			<p>No Recreation Management Zones.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Moderate to major negative effect from vandalism and roost disturbance associated with recreation.		Moderate to major effects from recreation but slightly greater than Alternatives 1, 2, or No Action.	Same as Alternatives 1 and 2.
Minor to major positive effects from environmental education.			
<i>California Condor</i>			
Moderate positive effect from unobstructed flight paths and support to condor recovery program.			
Minor negative effect if elk and pronghorn disappear.	Minor positive effect from elk and pronghorn management.		
<p>Minor negative effects from discontinuation of grazing on vegetation structure of condor foraging habitat, and from reduced availability of livestock carcasses.</p> <p><u>Minor positive impact on establishing adequate numbers of native ungulates to provide a long-term food source and habitat management tool.</u></p>	<p>Minor positive effect from continuation of grazing on maintaining vegetation structure of condor foraging habitat.</p> <p><u>Minor positive effect from continuation of grazing on the suitability of historical foraging habitat (due to continued availability of livestock carcasses) until adequate numbers of native ungulates are established.</u></p> <p><u>Short-term minor negative impact from continuation of grazing on establishing adequate numbers of native ungulates to provide a long-term food source and habitat management tool.</u></p>		
Minor negative effect from recreational hunters and exposure to lead shot.			
Minor negative effects from exposure to oilfield hazards, collisions with power lines and poles, electrocution, ingestion of trash, disruption of nesting behavior, and habituation to human activity.			
Minor negative effects from realty actions such as power lines and towers.			
<i>Greater Sandhill Crane and Lesser Sandhill Crane</i>			
Minor positive impact from maintaining roosting and foraging habitat.			Moderate to major positive impact on wintering cranes.
Minor positive impact from restricting the release of native animals that have previously been held in captivity to prevent the spread of disease.	Moderate to major positive impact on sandhill cranes in close proximity to Soda Lake.		
			Minor positive impact from eradication of noxious weeds.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Negligible to minor negative impact from fire and fuels management program.	Minor to major positive impacts from fire management actions that protect sensitive habitat.		
Negligible or no impacts from lack of grazing.	Negligible impacts from livestock grazing.		
Negligible impacts from concentrating visitor use to prevent impacts to cranes.	Negligible (if no disturbance to cranes) to moderate impacts from increased visitors and interpretive sites.		Minor positive impacts from goals, education, and signage.
<i>Mountain Plover</i>			
Major benefit from managing core areas, placing priority on listed species management, maintaining viable populations within core areas, and applying habitat management when needed. Benefits from conducting research on ecology and monitoring habitat Moderate benefit from managing for a mosaic of habitats.			Major beneficial impacts from objective to achieve long-term, viable populations of all extant listed species. Major beneficial impacts, increasing importance of native species in Monument communities.
Moderate detrimental impacts from the elimination of prescribed fire.	Moderate to major benefits from using prescribed fire, 1,000 acres of prescribed burns, and 5 miles of dozer lines.		Major benefits from prescribed fire reducing extent of thick grass cover.
Moderate detrimental impact from elimination of livestock grazing as a vegetation management tool; could pose risks to providing suitable winter habitat during prolonged periods of extensive rainfall and high grass production.	Moderate to major benefits from maintaining winter habitat in high biomass years in vegetation management area. Moderate to major benefit from maintaining habitat in high biomass years in Section 15 allotments.		Minor to moderate benefit from livestock grazing vegetation management tool to reduce standing biomass.
	Moderate to major benefit from grazing on 827,000 acres, when needed, to maintain beneficial conditions.	Moderate to major benefit from grazing on 115,000 acres, when needed, to maintain beneficial conditions.	
Negligible effects from mineral development of 22.5 acres on valley floor. Negligible effect from geophysical exploration.			
<i>Western Burrowing Owl</i>			
Moderate to major positive effects from actions to maintain viable populations.			
Moderate negative effect from lack of fire.	Minor to moderate short term negative effect from fire activities; moderate positive effect from fire results.		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Moderate negative effect from discontinuation of grazing.	Moderate positive effect from continuation of grazing.		
Minor negative effect from recreation (harassment by pets, human disturbance accidental shooting).		Minor to moderate negative effects from recreation.	Same as Alternative 1 and 2.
Minor to moderate negative effects from vehicle strikes.		Minor to moderate negative effects from vehicle strikes.	Same as Alternative 1 and 2.
<i>Western Spadefoot Toad</i>			
Minor to major positive impacts from actions to maintain populations and habitat.			Management actions that protect vernal pools and fairy shrimp also provide protection of spadefoot toads.
Positive impacts from eliminating noxious weeds and improving upland habitat for adult toads.			
	Negligible to no impacts from use of herbicides or prescribed fire by avoidance or timing of use.		
Effects of fire may range from no impact to minor impact, depending on whether the fire is in toad habitat. Minor impacts are expected to be short-term but could range to long-term if fire is followed by drought. No impacts from prescribed fire if pools and habitat avoided.			
Minor to moderate, but localized, impacts from 1 mile of dozer line that could be long-term if followed by drought in upland areas; no impacts to vernal pools if avoided. Negligible to minor impacts from fire vehicles.			
No grazing may result in negligible impacts – use other means to reduce evapotranspiration. Major impacts if water chemistry from livestock is needed.	Positive impacts from reducing evapotranspiration. Negligible to minor impacts by damaging eggs, tadpoles, and toads.		Positive impacts from reducing evapotranspiration. Negligible to minor impacts from reducing water levels and damaging eggs, tadpoles, and toads.
Negligible to no impacts from recreation on all zones if visitor use is directed away from toad pools and upland habitat.			Negligible impact from recreation on migrating adults and dispersing juveniles.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Minor to moderate positive impacts from prohibiting OHV use in the Backcountry. Alternative 1 offers the most protection for toads.	Negligible to minor impacts to toad population overall with expected minor to moderate localized impacts to toads in pools in roads and habitat adjacent to roads. Minor to moderate positive impacts if additional protection measures are taken.	Negligible to minor impacts to toad population overall with expected minor to moderate localized impacts to toads in pools in roads and habitat adjacent to roads. Minor to moderate positive impacts if additional protection measures are taken.	Negligible to minor impacts from travel management.
<i>Kern Primrose Sphinx Moth</i>			
Moderate to major positive effects from actions to maintain viable populations.			
No impacts from discontinuation of grazing.	Minor to moderate negative effects from continuation of grazing.		
Minor to moderate negative effects from recreation (walking, horseback riding, and pet travel down washes).	Moderate negative effect from recreation.	Same as Alternative 1 and 2.	
Minor to moderate negative effects from travel management on Soda Lake Road and Calf Shed road; minor positive effect from closure of Elkhorn Scarp Road.	Minor to moderate negative effects from travel management.		
Moderate to major positive effect from land acquisition, but slow rate.	Moderate to major positive effect and increased rate of habitat acquisition.	Same as Alternative 1.	
<i>Longhorn, Vernal Pool, and other Fairy Shrimp</i>			
Moderate to major positive effects from actions to maintain viable populations.			
Populations in currently ungrazed areas should be maintained. Populations in currently grazed areas may or may not be maintained.	Continuation of existing grazed and ungrazed patterns should maintain shrimp populations.		
Moderate positive effect from acquisition of shrimp habitat.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<i>Pronghorn</i>			
Moderate to major beneficial impact from general wildlife program.			
<p>Major benefits from removing livestock fences. Major detrimental impact from not providing artificial water sources. Major detrimental impact from not allowing herd augmentation. Herd may decline without active management.</p>	<p>Major beneficial impact from restoring native plant communities (shrubs, tall grasses and forbs, and perennial grasses); managing for a mosaic of forage resources; and maintaining adequate habitat structure and adequate fawning cover.</p>		<p>Major benefits from managing for native species and plant communities, sustainable populations of native species, and reintroduction of native animals. Major benefit from maintenance of existing water sources and construction of new water sources. Moderate to major benefit from fence modification, previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species.</p>
			<p><u>Minor to moderate impacts from oil development construction activities (localized impact), vehicle travel to well locations, and geophysical exploration (short-term impact). Negligible impact to habitat from Minerals program.</u></p>
	<p>Major benefit from maintaining water sources.</p>	<p>Moderate benefit from constructing new water sources.</p>	<p>Moderate to major beneficial impacts from fire suppression activities that protect the loss of shrub communities.</p>
<p>Eliminating prescribed fire would remove an important tool to improve forage quality and alter habitat structure and would have major detrimental impacts to pronghorn in the Monument.</p>	<p>Moderate to major beneficial impacts from prescribed fire by improving forage species composition during the following winter and spring growing seasons.</p>		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Major detrimental impact from eliminating native plant restoration.	Major benefit from vegetation restoration.		Major benefit from mosaic of habitats. Moderate to major benefit from native vegetation restoration.
Major detrimental impact from eliminating use of prescribed fire.	Major benefit from use of prescribed fire to improve forage.		Moderate to major benefit from use of prescribed fire to improve forage.
Moderate to major benefits from removing livestock grazing in wet years Negligible effect in normal and low rainfall years.	Moderate benefit from using prescribed grazing in Conservation Target Table. <u>Minor to moderate negative impacts from fencing.</u>		Moderate detrimental effect of livestock grazing. Moderate to major benefit from modifying livestock fences.
<i>Tule Elk</i>			
Negligible to minor benefit from general wildlife program.			Moderate benefits from managing for native species and plant communities, sustainable populations of native species, and reintroduction of native animals. Moderate benefit from maintaining existing water sources and constructing new water sources. Moderate benefit from managing habitat with livestock grazing, prescribed fire and other vegetation management prescriptions to reach population objective.
Moderate detrimental impact from not providing artificial waters, prescribed fire, and restoring habitat. Minor to moderate benefits from removal of fences.	Moderate benefit from implementing livestock grazing prescriptions, prescribed fire, habitat restoration, and supplemental waters. Moderate benefit from herd augmentation.		
	Moderate benefit from maintaining water sources.	Moderate benefit from constructing new water sources.	
Minor detrimental impact from eliminating native plant restoration.	Moderate benefit from vegetation restoration		Moderate benefit from mosaic of habitats. Moderate benefit from native vegetation restoration.
Moderate detrimental impact from eliminating use of prescribed fire.	Moderate benefit from use of prescribed fire to improve forage.		Moderate benefit from use of prescribed fire to improve forage.
Negligible to moderate benefit from managing to meet Rangeland Health Standards.			Moderate benefit from reducing

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Moderate benefits from removing livestock grazing in calving season and from avoiding conflicts for access to waters.	Moderate benefit of livestock grazing as applied in the Conservation Target Table. Moderate benefit from modifying livestock fences.		livestock grazing in pastures used by elk.
			<u>Minor to moderate impacts from oil development construction activities (localized impact), vehicle travel to well locations, and geophysical exploration (short-term impact). Negligible impact to habitat from Minerals program.</u>
<i>Long-Billed Curlew</i>			
Moderate to major positive impacts from actions to maintain viable populations, with a focus on inland, non-breeding populations and on foraging and roosting habitat.			
Moderate to major, positive, and indirect impact from actions to increase and maintain native plant species and communities, including grasslands and shrubs at different seral stages, using a variety of restoration methods to increase diversity and species richness, and working toward eliminating noxious weeds in foraging and roosting areas.			Moderate to major positive impact from actions to increase and maintain native plants, communities and habitat types, and use a variety of restoration methods.
Negligible impact from fire and fuels management.	Actions for prescribed fire are expected to have a localized, short-term beneficial impact.		
Negligible or no impacts expected from livestock grazing.			
<i>Raptors</i>			
Moderate to major positive impact from actions to maintain viable populations of raptors with efforts focused on breeding, wintering, and/or year-round species.			
Minor to moderate positive impacts from actions to protect nesting sites and prevent disease introduction.	Minor to major positive impacts from annual surveys of wintering raptors, inventories of nesting sites, protecting sites from humans, addressing electrocution problems, and actions to prevent introduction of diseases.		
	Moderate to major positive impact from actions that maintain or improve habitat through a variety of restoration methods.		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Negligible effects from fuel reduction practices if timed correctly. The effects on raptors of prescribed fire unavailability as a tool are unknown. Negligible impacts from wildland fire suppression if retardant drops avoid rock outcroppings.</p>	<p>Potential mortality to ground-nesting birds from backburns as a fire suppression tactic. Negligible to minor and localized impacts from wildfires during ground nesting season. Negligible impacts from prescribed fires designed to minimize or avoid ground-nesting birds or timed to occur post fledging.</p>		<p>Negligible effects from fuel reduction practices if timed correctly. Actions to protect facilities from fire and rock outcroppings from retardant drops will benefit raptors. Prescribed fire may provide indirect benefits to raptors.</p>
<p>Negligible to no impacts tours at Painted Rock. Alternative 1 would have the least impacts to raptors.</p>	<p>Negligible impacts by reduced visitation to Painted Rock but negligible to minor at other sites.</p>		<p>Negligible to minor localized effects from tours at or near nesting sites.</p>
<p>Negligible impacts from lack of livestock grazing.</p>	<p>Overall, negligible to minor impacts from livestock grazing and its effects on prey species.</p>		
<p>4.3 Vegetation</p>			
<p><i>General Vegetation</i></p>			
<p>Benefits from fencing to protect up to 500 acres of vulnerable rare plant populations from livestock, lessen foot travel and equestrian use, and minimize OHV trespass; restricting grazing within specific pastures (such as those with California jewelflower); restoring and augmenting 10 to 100 acres of rare plant habitat; and the multiplication of rare plant seed by growing off site.</p>	<p>Same as Alternative 1. See <u>conclusions from revised and reorganized Alternative 2 impact analysis organization throughout this section of the table.</u></p>	<p>Same as Alternative 1.</p>	

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Benefits from hand and mechanical treatment of 10 to 100 acres of weeds over the life of the plan to remove nonnative competitors and invasive weedy exotics.</p>	<p><u>Anticipated restoration of</u> Restoring 200 to 500 acres of native habitat per year would <u>increase the amount of native plants</u> have moderate to major positive impacts.</p> <p>Prescribed fires to promote native vegetation should result in an average of 200 to 1,000 acres per year of improved habitat <u>(positive impact)</u>.</p> <p>The alteration of 1 to 100 acres of roadside terrain to restore natural landscape water flow patterns would improve and expand saltbush populations, <u>with temporary negative impacts and long-term positive impacts</u>.</p> <p><u>Positive impacts from installing 1 to 5 miles of fencing to protect oaks</u>.</p> <p>Restoring 10 to 100 acres of crust habitat would involve some initial negative effects to native species in target sites, but overall, native plant species should benefit.</p> <p>Treating 10 to 100 acres of weeds (average per year) should benefit native plants by removing nonnative competitors and invasive weedy exotics.</p>		<p>Benefits from restoration of 600 to 1,200 acres of native vegetation; burning 5,000 to 10,000 acres to improve habitat; restoring 10 acres and protecting riparian habitats; provision of source of restoration materials. Initial damage but overall benefit from burning 500 to 2,000 acres to pretreat restoration sites, and from weed control.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Wildlife program would have minor negative to moderate positive impacts to vegetation. Restoration of about 1,000 acres of wildlife habitat, and 5 acres of riparian habitat under Alternative 2, would have positive impacts. Grazing in vernal pool areas <u>to benefit fairy shrimp, may</u>would have negative impacts to vegetation; <u>however, SOPs would ensure impacts are minimized.</u> <u>Livestock grazing as a tool to modify vegetation for the benefit of animal species is expected to have negative impacts to vegetation mitigation measures are included to minimize impacts.</u> Control of exotic animals would have positive impacts</p>			<p>Vegetation management to benefit native animals would have varying impacts. Management by grazing would have minor to major negative impacts with approximately 115,000 acres grazed for vegetation management. Management by prescribed burns, restoration, would benefit vegetation. Actions to maintain habitat would benefit vegetation. Actions for native ungulates would have general positive impacts, possible localized negative impacts. Water diverted from natural sources would have negative impacts to riparian vegetation. Actions to control exotic animals would benefit vegetation. Grazing would have negative to positive impacts to rare plants, depending on the species.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Wildlife program would have minor to moderate positive or negative impacts.</p> <p>Eliminating livestock grazing and controlled burns as management tools would have a variety of impacts to vegetation (see under grazing and fire) and make habitat management and restoration more difficult.</p> <p>Removing artificial water sources would focus native ungulate impacts on springs and seeps, which could have negative impacts on riparian vegetation.</p> <p>Removing the diversion of water for artificial water sources would be of minor to major benefit to currently impacted springs.</p>	<p>Wildlife program would have minor to moderate negative impacts to vegetation, depending on the location and intensity of grazing.</p> <p>Approximately 60,000 acres would be grazed (2 years out of 10) for San Joaquin Valley core habitat. The highest impact to plants would be under a green season grazing regime.</p> <p>Occasional prescribed fires on 1,000 acres in pronghorn habitat would benefit vegetation.</p> <p><u>See conclusions from revised and reorganized Alternative 2 impact analysis organization throughout this section of the table.</u></p>	<p>Impacts under Alternative 3 would be similar to, but greater than, under Alternative 2 since much more acreage would be targeted for active vegetation management, primarily grazing.</p>	<p>Water diverted from natural springs and seeps to maintain livestock or wildlife surface water would impact riparian plants and may shrink the size of the natural riparian habitat, but would also benefit riparian plants by relocating livestock and large native ungulate watering sites away from sensitive riparian habitat.</p>
<p>Fire and fuels management program would have positive impacts, but with localized minor to major temporary negative effects due to burning.</p> <p>Firebreaks and control activities would have localized minor to major temporary negative effects.</p> <p>Little to no impacts to rare plants.</p>			<p>Wildfire fire management program would have minor to major positive impacts.</p>
<p>Wildfire management, overall, would have positive impacts to vegetation.</p> <p>Approximately 2 acres of temporary disturbance and 25 acres mowed.</p> <p>No prescribed fires would make restoration and vegetation management efforts more difficult.</p>	<p>Impacts to vegetation from fire and fuels management under Alternative 2 would be the same as under Alternative 1, except more acreage would be affected: 4 acres of habitat disturbance per year <u>from wildfire suppression</u>; 350 acres per year would be mowed and 10 roadside acres <u>would be trimmed</u>; 500 acres per year of prescribed fires targeting biological resource objectives.</p>	<p>Impacts to vegetation from wildland fire under Alternative 3 would be the same as under Alternative 2, except slightly more acreage would be affected: 5.5 acres of habitat disturbance per year for wildland fire suppression, and 750 acres per year prescribed fires.</p>	<p>Suppression actions (primarily fire lines) would result in 25 acres of temporary disturbance.</p> <p>Wildfire impacts to native vegetation and other vegetation would depend on the location, intensity, and timing of the fire. For shrub and woodland communities, fire would have the potential to be much more damaging.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Lowering dust production would benefit vegetation by minimizing the negative impacts associated with dust.			
	Roads would not be closed during the dry season to reduce dust, so less benefit. <u>Major localized positive impacts from closing roads during dry periods to reduce dust.</u>	Lowering dust production by surfacing roads would benefit vegetation.	
Conserving areas of sensitive soils and actions to limit erosion would have minor to moderate positive impacts to vegetation.			Conserving soils would provide moderate to major positive impacts Other soil resource actions would have negligible or no impacts
Water program would have minor to major positive impacts to vegetation <u>from</u> :- <ul style="list-style-type: none"> - Protecting watersheds and surface and subsurface water sources - Fencing vulnerable springs and removing nonnative species 			
Geology/paleontology program would have some temporary minor to moderate localized negative impacts, but overall have positive impacts to vegetation. Protection of the Monument's geological formations and landforms would have positive impacts.			Geological/paleontological resource actions would have negligible or no impacts, but could have localized negative impacts.
Nonnative plants may be introduced and spread by research equipment, vehicles, and personnel. Temporary disturbance from geology/paleontology research activities.			
Positive impact from closing or restricting public access in areas of sensitive cultural resources. The one-half to one mile of proposed road re-alignments needed to protect cultural resources would result in a small loss of habitat, balanced by the restoration of the closed sections.			Positive impact from closing or restricting public access in areas of sensitive cultural resources.
A small amount of vegetation would be impacted during fence construction, restoration and relocation of farming equipment and structures, and razing and removal of structures. Education activities would be expected to disturb vegetation at eight sites for a total of ½ acre.	<u>Minor to major localized negative effects, but overall, would have positive impacts to vegetation.</u> A small amount of vegetation would be impacted during fence construction, restoration and relocation of farming equipment and structures, and razing and removal of structures. Slight disturbance from tours and regulated self-guided visits. Education activities would be expected to disturb vegetation for a total of ½ acre.		Small impacts/slight disturbance from fence construction, tours and/or regulated self-guided visits, restoration and relocation of historical farming equipment and structure, and razing and removal of unwanted structures. Weeds may be introduced by cultural activities.
The wilderness resource actions are expected to be beneficial to vegetation by protecting habitat in the Caliente Mountain WSA.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>An additional 65,218 acres of habitat would be protected as lands with wilderness characteristics (in addition to the existing WSA). Due to restrictions associated with wilderness designation, some vegetation management actions may be more difficult to accomplish.</p>	<p>Beneficial impacts to vegetation by protecting 36,480<u>44,370</u> acres of habitat as lands with wilderness characteristics. Due to restrictions associated with wilderness designation, some vegetation management <u>restoration</u> actions may be more difficult to accomplish.</p>	<p>The wilderness resource actions would continue management of the existing Caliente Mountain WSA (17,984 acres) to protect wilderness values. This would continue protection of vegetation at current levels.</p>	
<p>Adjustments to grazing authorizations to meet specific target objectives are expected to benefit native vegetation by lessening the negative impacts of livestock on native plants. Use of the Conservation Target Table, monitoring studies, and other adaptive management tools are expected to result in better and more precise application of vegetation management tools and thus, minimize the negative impacts to vegetation. Overall minor to moderate negative impacts to vegetation from grazing, including compaction, effects on composition and diversity of plants in a pasture, effects of forage removal on native seed bank, loss of or damage to crust communities, perpetuation of fire-prone nonnative annual grasses vs. native vegetation, soil disturbance, several factors that favor nonnative weedy species, diversion of water from native vegetation, effects of roads and salt licks, mechanical effects on shrubs and oak trees, and damage to riparian areas and vernal pool vegetation from trampling and grazing. Positive effects on shrub and woodland plant communities from limiting the spread or lowering the intensity of wildland fire by reducing fine fuels, especially nonnative grasses.</p>			<p>The grazing program would generally have minor to moderate negative impacts. In some areas, there would be localized major negative impacts. Under some situations, grazing would have minor to moderate beneficial impacts to vegetation. About 58,000 acres would be available for grazing (8 out of 10 years) within Section 15 allotments. No grazing on 35,000 acres. Green season grazing would have negative impacts to native annual species, bunchgrass, shrubs, oak trees, and soil crusts. Grazing that reduces fine fuels may reduce negative impacts by fire.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>The grazing program would have minor to major positive impacts by eliminating grazing's negative impacts on vegetation.</p> <p>Relative to wildfires, removing grazing might have minor to moderate negative impacts to vegetation.</p>	<p>The grazing program would have minor to moderatemajor negative impacts, depending on the location and intensity of grazing:</p> <ul style="list-style-type: none"> - 55,00055,900 acres under within Section 15 allotments (average 5 years out of 10); - 128,000117,500 acres available to meet specific biological objectives (average 2 out of 10 on 55,00058,000 acres within core areas); - 4,000 acres To <u>maintain current habitat conditions for listed fairy shrimp</u>, the <u>current grazing regime would be applied to know locations of listed vernal pool species</u>; - 2,000 acres administrative needs600 acres could be <u>grazed by horses for managing animal habitat</u>; and - <u>approximately 1,200 acres allowing grazing in conjunction with similar grazing on adjacent private lands or under exchange-of-use agreement</u>; and - no grazing on 85,00033,100 acres. <p>Some impacts to native vegetation and other vegetation resources, but less than under the No Action Alternative, because less acreage overall would be grazed.</p>	<p>Grazing impacts to native vegetation and other vegetation resources are expected to be highest under Alternative 3: Section 15 allotment grazed 8 years out of 10 (higher than under Alternative 2).</p> <p>Areas outside the core area would be vulnerable to grazing for San Joaquin Valley core species to the possible detriment of native vegetation.</p>	<p>About 55,000 acres would be available for grazing under Section 15 leases and about 115,000 acres would be available for grazing to meet specific biological objectives within vegetation management areas.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>The recreation program would have benefits from education. Providing potable water sources would increase local impacts to vegetation, since these areas would experience an increase in visitor use. Potential for disturbance and destruction from activities that would increase public visitation. The publication and dissemination of wildflower viewing information would have some localized impacts due to trampling and picking plants, but would be expected to have an overall benefit to vegetation by supporting the public's appreciation for natural beauty and would help the public to incorporate a feeling of ownership for the Monument.</p>			<p>The recreation program would have benefits from education, but potential for disturbance and destruction.</p>
<p>The Primitive zone would encompass 83,202 acres, with public access limited to non-motorized and non-mechanized activities, affording the greatest protection to vegetation; however, it would make certain vegetation management tools more difficult to use. Restricting camping to developed facilities within the Frontcountry zone would be expected to benefit vegetation by concentrating visitor impacts to specific easily monitored locations and eliminate many of the problems associated with dispersed camping. Establishing trails should help protect vegetation by directing visitor impacts away from sensitive resources.</p>	<p>The Primitive zone would encompass 54,464<u>62,455</u> acres. Dispersed camping would be allowed in the Backcountry zone, which would be expected to impact vegetation, depending on the location of campsites and intensity of use (sites with resource damage would be modified or closed, reducing long-term impacts). Establishing trails should help protect vegetation by directing visitor impacts away from sensitive resources.</p>	<p>Impacts to vegetation from Alternative 3 are similar to those from Alternative 2 except that only 17,984 acres would be included in the Primitive zone.</p>	
<p>Dust from road maintenance and use would have a negative effect. Driving on vegetation and changes in hydrological patterns would have negative impacts. Mileage of roads varies with alternative.</p>			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>269 miles of roads would be open to the public and 80 miles closed completely. Impacts to vegetation from roads would be reduced in geographic scope.</p>	<p>78-184 miles of roads would be open to the public and 45-42 miles closed and allowed to rehabilitate, which benefit <u>vegetation if active weed management actions are employed until native vegetation is reestablished.</u> <u>The designation that only street-legal vehicles will be allowed in the Monument would help protect vegetation by lessening the chance of off-road vehicle damage.</u> Impacts to vegetation from roads would be higher than under Alternative 1, but lower than present conditions.</p>	<p>322 miles of roads would be open to the public and 10 miles closed/rehabilitated. Impacts to vegetation from roads would be similar to the No Action Alternative, although the 10 miles of closed roads would revegetated.</p>	
<p><u>No or negligible impacts from visual resources management program</u></p>			
<p><u>Minor to major localized negative effects from minerals program.</u></p>			
<p>Disturbance associated with oil and gas exploration and extraction would adversely affect native vegetation; however, mitigation measures would help protect sensitive and listed species and other important vegetation.</p>			
		<p>For actions using vibroseis equipment associated with geophysical exploration, off-road travel with this type of equipment would crush vegetation, compress and disturb soils, and create trails that may encourage illegal OHV activity. Impacts would depend on the location and duration of the geophysical exploration.</p>	

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Actions and consequences are the same as those described under the No Action Alternative except that right-of-way actions would result in a loss or degradation of 5 to 30 acres of habitat via disturbance.</p>			<p>Rights-of-way and other realty actions would eliminate a small amount of vegetation in the project footprint and damage adjacent vegetation. Little-used roads may provide nesting habitat for ground-nesting solitary bees (pollinators of native plants). Road construction and orientation could alter water flow patterns, adversely affecting vegetation. Impacts to rare plants would be avoided by mitigation measures. Filming permits may result in temporary disturbance and have the potential to introduce weed seeds. Other realty actions are expected to have negligible or no impacts to vegetation.</p>
<p>Proposed acquisitions would result in an additional 16,000 to 30,000 acres of habitat preserved under public ownership. The impact on specific vegetation resources would depend on what property is acquired. Removal of two communications sites may allow vegetation to reclaim the small areas previously occupied by communications infrastructure.</p>	<p>Proposed acquisitions would result in up to 30,000 additional acres of habitat preserved under public ownership. The benefit to specific vegetation resources would depend on what property is acquired. Modification of two communications sites would not be expected to change impacts to vegetation.</p>		<p>Proposed acquisitions would result in additional acres of habitat preserved under public ownership, with benefits depending on specific property acquired.</p>
<p>Climate change is likely to result in drier conditions for the CPNM, meaning that, overall, there would be less vegetative growth. A change in vegetation zones is also expected. Oak and juniper woodlands would tend to shift to scrublands, scrublands to grasslands, and grasslands to desert like habitat with significant portions of bare soils or, possibly, biological crusts. Please see Chapter 3.</p>			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<i>Rare Plants</i>			
	<p><u>The vegetation program would have minor to major positive impacts to rare plants from protective fencing, restricting or eliminating grazing in specific pastures, restoration and augmentation of 10 to 100 acres of rare plant habitat, multiplication of rare plant seed by growing off site, mapping and monitoring of rare plant populations, protective measures for the general benefit of vegetation, protection of the shrub communities, restoration of native vegetation, and removal of nonnative competitors and invasive weedy exotics.</u></p>		
	<p><u>The wildlife program would have minor positive to major negative impacts to rare plants, depending on the location, frequency, and type of management action.</u></p>		
	<p><u>For most of the 23 rare plants, the Conservation Target Table will provide for specific implementation direction for their management and protection to meet RMP objectives. Grazing populations of rare plants would be detrimental.</u></p>		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
	<u>Impacts to rare plants from other programs would be basically the same as for general vegetation.</u>		
4.4 Fire and Fuels Management			
Potential major beneficial impact from wildland fire suppression and approximately 1,000 acres burned annually.	Potential major beneficial impact from wildland fire suppression and approximately 500 acres burned annually.		
Minor beneficial impacts to fire ignition hazard from treating up to 25 acres in the immediate vicinity of recreation sites and other facilities.	Moderate beneficial impacts to fire ignition hazard by annual mowing of up to 350 acres along major roadways, in recreation sites, and adjacent to buildings and other facilities.		
There would be no prescribed burning or associated impacts.	Moderate beneficial impact from prescribed burning an average of 1,000 acres every other year.	Moderate beneficial impact from prescribed burning an average of 1,500 acres every other year.	Moderate beneficial impact from prescribed burning an average of 1,000 acres every other year.
Minimal beneficial impacts to hazard fuel reduction from livestock grazing on 4,600 acres.	Moderate beneficial impacts to hazard fuel reduction from livestock grazing on approximately 173,400 acres.	Moderate beneficial to hazard fuel reduction from livestock grazing on up to 170,100 acres.	
Authorizes the least amount of dispersed vehicle camping areas, fewest miles of road open to the public and the least amount of recreational facilities development, which reduces the risk of human caused ignitions.	Minimal increased risk of human caused ignitions from retention of dispersed vehicle camping, miles of road open to public use, and development of recreation facilities.		
No new commercial power lines would be constructed, which is a beneficial impact on fire ignition risk.			Minimal negative impact to fire ignition hazard from construction of a power line by a commercial utility.
Acquisition of private land may provide more flexibility during suppression and may facilitate prescribed burning.			
The main impacts from the minerals program are risks of human-caused ignitions from work conducted at oil and gas production facilities.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.5 Air Quality			
Actions to reduce fugitive dust on main roads would improve air quality.	Actions to reduce fugitive dust on main roads and install solar panels where feasible would improve air quality.	Actions to reduce fugitive dust on main roads, install solar panels where feasible, and pave main roads and gravel secondary roads would improve air quality.	No specific actions proposed. All management would conform to regulations.
Minor emissions from pile burning.			Fire and fuels management would have negligible effects on air quality in the region.
Less aggressive fire suppression could result in greater emissions that may even travel outside of the CPNM from more acres burned by wildfires compared to other alternatives.	Minor effects to air quality from prescribed burning. Fire suppression approach could result in fewer emissions from wildfires compared to Alternative 1.	Minor effects to air quality from prescribed burning. Fewer emissions from wildfires than Alternatives 1 or 2 due to most aggressive approach to fire suppression.	
Decreased ground disturbance from suppression would minimize potential for releasing spores that cause valley fever.	Greater potential for ground disturbance that could release spores that cause valley fever.		
Effects to air quality from oil and gas development will be limited in amount and intensity and will have minor impacts.			
Likely to have least amount of vehicular travel within the CPNM and therefore the lowest contribution of emissions from fugitive dust and fuel combustion.	Increased amount of vehicular travel within the CPNM and therefore a greater amount of potential emissions from fugitive dust and fuel combustion relative to Alternative 1.	Increased amount of vehicular travel within the CPNM and therefore a greater amount of potential emissions from fuel combustion. However, paving main roads would decrease fugitive dust.	

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Least dust due to least amount of authorized grazing, leading to the least amount of travel on dirt roads by permittees and BLM personnel to administer grazing permits.	More dust due to more land available for grazing than under Alternative 1, leading to continued use of dirt roads by permittees and BLM personnel to administer grazing permits.		
4.6 Soils			
The proactive, specific management measures common to all action alternatives will benefit soils.			Less beneficial impact from soils management than action alternatives.
	Somewhat more aggressive approach to soils management promotes greater beneficial effects to soils than Alternative 1.		
Overall beneficial effects from vegetation management actions, but with moderate short-term, localized effects involving some soil loss or loss of soil productivity. Management for core wildlife could expose more soil to wind and water erosion, but species will also have beneficial impacts such as soil mixing and aeration.			Beneficial impacts from biological resources management.
Negative impacts of vegetation management actions on soils would be lowest under Alternative 1, where vegetation management actions would be much more limited. Reduction of short-term impacts associated with treatments, but long-term benefits associated with restoration of native species could also be the lowest of the alternatives.	Potential impact from vegetation management to physical, chemical, hydrological, and microbial properties of soil, as well as from exposing soil to accelerated erosion in the short term from prescribed fire. Minor to moderate and short-term to long-term impacts to soil properties from localized spraying of herbicides. Proactive, protective measures would have long-term, localized to widespread, positive impacts to soils.		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Wildfire suppression would be conducted with care to minimize damages to resources, with some protective measures specifically relevant to soil resources.			With estimated acreage burned by wildfires likely larger than under any of the action alternatives, offers less control over the potentially negative impacts of fire on soils.
Positive impacts from fire to soils would be the result of chance, whereas large-scale moderate to major, short- to long-term negative impacts of wildfire could occur.	Between Alternatives 1 and 3 in both number of acres of wildfire targeted to burn and number of acres targeted for prescribed fire. Therefore, impacts would also be intermediate.	Highest degree of control over the potentially negative impacts of fire on soils. Minor to moderate, short- to long-term impacts from active fire suppression methods. Impacts would be highly localized in contrast to the widespread wildfires they would prevent.	
Closure and reclamation of unnecessary roads will minimize erosion and exposure to spores that may result in valley fever, with a beneficial effect on soils.			
Impacts from air quality actions to minimize dust would be minor and limited to the roads and immediately adjoining areas.	Localized moderate long-term impacts as a result of altering the natural soils of main high-use roadways with aggregate, gravel base, or chemical binder/dust suppressant, potentially resulting in less impact than either Alternative 1 or 3.	Greater and more widespread moderate long-term alteration of the natural soils of roadways and immediately adjoining locations than in Alternatives 1 and 2. The impact is still considered to be minor.	Actions from air quality program to minimize fugitive dust would be beneficial.
Objectives and actions to maintain and improve water quality have positive effects on soils.			Less beneficial impact from water resources management than action alternatives.
Geology/paleontology program is expected to have beneficial effects to soils overall.			Negligible to minor impacts from geology/paleontology based on the small acreage associated with paleontological excavations.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>All potential impacts of grazing would be eliminated except on less than 2% of CPNM where fences do not correlate with the Monument boundary. While this would prevent negative impacts of grazing, it would also preclude the positive impacts on soils that could result from using grazing as a vegetation management tool. Removing livestock facilities such as fences and pipelines would potentially involve localized minor short-term impacts.</p>	<p>Livestock grazing impacts would be widespread but negligible to minor and short-term. Livestock grazing could result in localized soil compaction and destruction of biological soil crusts.</p>	<p>Somewhat greater negative impacts from grazing, but still negligible to minor widespread short-term impacts allowable under the Standards for Rangeland Health. Localized, negligible to moderate, short- to long-term impacts to soils could also result from creating, modifying, maintaining, or removing livestock facilities.</p>	<p>Impacts from livestock grazing would be somewhat higher than the action alternatives, but they would still be limited to the minor widespread short-term impacts allowable under the Standards for Rangeland Health.</p>
<p>Recreational uses have the potential to create negligible to moderate localized disturbance and compaction impacts to soils and biological soil crusts. Periodic monitoring and adaptive corrective actions will have a beneficial effect. Some potentially soil-disturbing recreation activities are only allowed in certain Recreation Management Zones, with the size of the zones varying by alternative.</p>			<p>Minor impacts from recreation.</p>
<p>A total of 83,202 acres (33% of the CPNM) would be designated as Primitive zone, providing maximum protection against any impacts from activities allowed in the Backcountry and Frontcountry zones.</p>	<p>A total of 54,464<u>62,353</u> acres (22<u>25</u>% of the CPNM) would be designated as Primitive zone and thus protected from any impacts from activities allowed in the Backcountry and Frontcountry zones.</p>	<p>Same as Alternative 2 except only 17,984 acres (7% of the CPNM) would be designated as Primitive zone, and a higher number of trailheads and interpretive sites would be provided, resulting in slightly higher impacts.</p>	
<p>Travel management actions common to all alternatives are designed to reduce potential impacts and to offer beneficial effects to soils. Actions to reduce illegal off-road travel will also benefit soils.</p>			<p>Continued illegal vehicle use off of existing roads could cause moderate to major localized impacts from rutting and compaction, although law enforcement actions and education programs may reduce these impacts.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Provides the greatest long-term protection from potential soil disturbance, devegetation, compaction, and erosion by vehicles.</p>	<p>Long-term beneficial effects to soils by closing and rehabilitating roads, with less protection from potential soil disturbance, devegetation, compaction, and erosion by vehicles than Alternative 1, and more than Alternative 3.</p>	<p>Least protection from potential soil disturbance, devegetation, compaction, and erosion by vehicles, but still offers beneficial effects as compared to the No Action Alternative.</p>	
<p>Same as impacts from mineral program as the No Action Alternative, except this alternative increases the potential for implementing actions with positive impacts on soils.</p>	<p>Like Alternative 1, but to a somewhat lesser extent, the minerals program in Alternative 2 promotes the implementation of actions with positive effects on soils. <u>Minor localized impacts from minerals program in flat to gently sloping topography, and minor to moderate localized impacts within the steep slopes of the existing Russell Ranch oilfield.</u></p>	<p>Includes fewer, and less stringent, protective measures compared to Alternatives 1 and 2.</p>	<p>Overall minor impacts from the minerals program in flat to gentle sloping topography. The impacts may be minor to moderate within the steep slopes of the existing Russell Ranch oilfield.</p>
<p>Opportunistic approach to lands acquisition would bring more land under protective management, and prohibit new communication rights-of-way, preventing any potential localized short-term impacts.</p>	<p>Targeted approach to lands acquisition would potentially bring less land under protective management as compared to Alternative 1, but would still have positive impacts.</p>		<p>Continued acquisition of inholdings would benefit soil management by bringing additional acreage under protective management. Authorizations for rights-of-way would include soil protection stipulations and result in minor localized impacts from surface disturbance for road construction/site expansion.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.7 Water Resources			
All water resources actions will be beneficial, with effects ranging from short- to long-term, and will be localized, by nature of the resource.			Based on the declaration of a Federal Reserve Water Right in the Monument Proclamation, actions would be implemented under this and all other alternatives to protect water resources.
Measures for protecting biological resources closely associated with surface water are expected to have positive effects on water resources.	Beneficial impacts from protection and restoration of vernal pool vegetation, maintaining natural critical water sources for pronghorn and tule elk, and active efforts to acquire privately held Soda Lake lands. Negligible to minor effects from new water developments for upland game birds, maintaining existing man-made water sources for pronghorn and tule elk, and vegetation management tools.	Same as under Alternative 2 except that Alternative 3 calls for establishing new water sources for pronghorn and tule elk, with potential negligible to minor, localized, long-term effects on water quality and/or quantity depending on the water source used.	Similar impacts from biological resources program as Alternatives 2 and 3.
Fire, especially wildfire, has the potential to create generally short-term but major negative impacts to water quality when ash, eroded soil from newly exposed lands, and other materials enter surface water. Wildfire suppression actions are beneficial to water quality by limiting such sedimentation and water chemistry impacts, if the suppression actions themselves do not negatively impact water quality.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
The “hands-off” / “natural processes” approach of this alternative allows for the most wildfire of all the action alternatives, at a predicted 40,000 acres per decade.	Localized, moderate to major, short-term negative impacts of wildfire would be less likely than under Alternative 1, somewhat more likely than under Alternative 3, but rare under all three alternatives due to the scarcity of surface water and the unlikelihood of fire during the wet season when ephemeral streams flow.	Offers the greatest protection from the rare event of negative impacts of fire on water quality.	Less protection from the negative impacts of fire on water quality due to greater acreages potentially burned by wildfire and prescribed fire.
Objectives and actions that benefit soils have positive effects on water quality whenever and wherever they help protect hydrologic function of soils and prevent erosion of soils into water.	The more active approach to soils management than Alternative 1 would have greater beneficial effects to water quality.	The more active, assertive approach to soils management than both Alternatives 1 and 2 may be expected to have greater beneficial effects to water quality.	Soils objectives are similar to those in the action alternatives but with fewer specific actions than Alternatives 2 and 3, so positive effects on water resources may be slightly less.
Livestock grazing will be assessed and adjusted according to these standards and the associated Guidelines, such that any impacts to water resources would be localized, negligible to minor, and short-term.			
Negligible effects from livestock grazing, and the lowest of all the alternatives.	Localized, negligible to minor, and short-term impacts, with the Central California Standards and Guidelines for Rangeland Health providing overarching protection.		
Visitor education and interpretation actions under this program would be expected to have positive effects. Monitoring recreation impacts to natural resources and measures to correct them would reduce impacts from public use. As visitation numbers are low and not expected to rise steeply, developing potable water sources at facilities such as campgrounds and the education center would have a negligible effect on groundwater quantity.			Under the recreation program, building an understanding among visitors of water resource protection needs would reduce impacts over present levels.
Travel management actions are expected to have positive effects on water resources overall and these effects do not differ appreciably among the action alternatives.			The travel management program would have less beneficial effect on water resources as compared to the action alternatives.
Some minerals extraction activities that may be proposed by lessees in the Monument may use water and would need to be evaluated for their potential to affect quantity and/or quality of groundwater resources. Negligible impacts from minerals program.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Any new rights-of-way granted and developed would have the potential to affect surface water, although this is highly unlikely, both because of the scarcity of surface water in the Monument and provisions for protecting these sensitive resources.			
Approach to lands acquisition and could result in bringing more surface water and surrounding lands into public ownership, with beneficial effects of increasing water quantity in public ownership, and protecting water quality.	Active approach to acquiring lands with important ecological characteristics would potentially bring more surface water and surrounding lands under protective management as compared to Alternative 1 and the No Action Alternative.		Similar to the action alternatives in its approach to lands acquisition and could result in bringing more surface water and surrounding lands into public ownership, with beneficial effects of increasing water quantity in public ownership, and protecting water quality.
4.8 Global Climate Change			
<u>Quantities of greenhouse gas emissions generated by use, protection and maintenance of the CPNM under the proposed alternative are anticipated to be equal to or less than those generated under the existing plan.</u>			
Oil and gas development and exploration would continue to occur under all alternatives. However, this development is limited to existing leases and private mineral estate, so management of production levels is outside of the discretionary authority of BLM and the RMP.			
Recreational access would result in continued greenhouse gas emissions as Monument visitation increases. However, visitor use levels are based on multiple factors, including travel cost, opportunities for substitute activities and locations, demand for specific settings and benefits, and other factors. As an example, increases could be attributable to Southern California visitors accessing the Monument as a substitute for more distant destinations to reduce fuel consumption.			
Livestock grazing includes the production of greenhouse gas (methane) and would continue at present or reduced levels from present management under each alternative. Alternative 1 would result in the lowest levels of livestock use within the Monument. However, it is assumed that livestock grazing reductions on the Monument would be offset by increases elsewhere in the region, since production is based primarily on public demand.			
Prescribed burns and wildfire would result in the release of greenhouse gases. However, the regrowth of vegetation would result in renewed carbon storage, and a net balance of zero emissions.			
BLM would continue to convert remaining administrative facilities to alternative renewable energy sources, and the improving mileage of vehicles based on national fleet management policies (outside scope of RMP) resulting in a net reduction of greenhouse gas emissions.			
Continued restoration of native plant communities would improve the carbon storage capability of Monument ecosystems in all alternatives.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.9 Geology/Paleontology			
Information gained from paleontological inventory would be beneficial with no negative impact to fossil formations; however, research strategies would be limited under this alternative.	Same benefits as Alternative 1 with negligible to no impact to fossil formations; however, research strategies would be enhanced under this alternative.		Same as Alternative 1 and 2, except there would be less field inventory under this alternative.
Research associated with the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and other areas of geological interest would be beneficial with no negative impact to the integrity of geological features; however, research strategies would be limited under this alternative.	Same benefits as Alternative 1 with negligible to no impact to the integrity of geological features; however, research strategies would be enhanced under this alternative.		
Prescribed fire and fuels management would have negligible to no impact to geological and paleontological features.			
With less dozer and hand line construction, the potential for minor to major impacts from fire suppression would be slightly lower than the other alternatives.	Higher potential for minor to major impacts than Alternative 1 but less potential for impact than Alternative 3 regarding fire suppression.	Slightly higher potential of minor to major impacts relative to Alternatives 1 and 2 fire suppression.	Emergency fire suppression would result in minor to major impacts.
The action to interpret fossils formations/localities, unique geological landforms, and features in the Caliente and Temblor ranges would be beneficial for public enrichment and would result in negligible or no impact to the resources.			Public tours and self-guided tours to points of seismic/geological interest would have negligible to no impact to these resources.
Negligible to no impacts from recreation developments.			
Closure of archaeological site C06-1 would eliminate inadvertent impacts to the archaeological site associated with the geological formation.			
Negligible to no impact from the minerals program.			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.10 Cultural Resources			
Actions implemented under the cultural resources program would range from no negative to beneficial impacts to NRHP-listed or eligible properties.			
El Saucito Ranch interpretive trail would provide public and site preservation benefits.			
<p>Benefit to long-term preservation from stabilizing eight to ten rock art sites being affected by soil/water erosion and shrub abrasion, and three to four NRHP-eligible ranching and farming facilities.</p> <p>Impacts of no intervention of conservation measures to preserve rock art would potentially lead to the partial loss of 17 of the 21 NRHP rock art sites in the Monument.</p> <p>Potential impacts from removing scattered historic machinery and equipment scattered that would require mitigation to resolve.</p>	<p>Beneficial impacts from additional preservation measures.</p>	<p>Similar impacts to Alternative 2. Loss of opportunities to use ineligible removed structures for public education.</p>	
<p>No impact from wildlife management actions.</p> <p>Negligible to moderate impact to Painted Rock and Selby Rock archaeological sites from raptor bird excretions on rock art paintings.</p> <p>Seeding activities requiring earth disturbance on prehistoric resources previously cultivated would result in negligible to minor impact to an already disturbed site from past years of disking.</p> <p>Other vegetation management actions would have no impacts.</p> <p><u>Under Alternative 2, prescribed burns under the Pronghorn Objective and Nesting Site Habitat Objective would result in the standard inventory/protocol procedures to minimize potential impacts resulting in minor impacts.</u></p>			<p>Negligible to no impact from introduction of pronghorn and elk.</p> <p>No impact from prescribed burns, grass mowing, and use of herbicides.</p> <p>Potential negligible to moderate impact from livestock grazing to promote the expansion of listed species.</p> <p>No impact from construction of fence enclosures and other infrastructure.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Removal of all artificial water features, livestock fences, trees, human-built structures, or historic guzzlers would potentially impact historic resources that are NRHP-eligible or are listed.</p> <p>Negligible to moderate impacts from continued raptor nesting at archaeological sites.</p> <p>No impact from controlling nonnative plants on 10- to 100-acre areas over the life of the plan.</p>	<p>Impacts would be avoided through cultural resource inventory and monitoring procedures.</p> <p>Negligible to minor impacts from removal and relocation of fences.</p> <p>Greater potential for seeding impacts due to more acreage.</p> <p>Temporary impacts in some instances where nonnative plants would be removed from historic and prehistoric properties.</p> <p>Short-term minor to moderate impacts from eradication of nonnative plants on prehistoric sites.</p> <p>Similar impacts as Alternative 2.</p>		
<p>The intensity of impacts to cultural properties from fire suppression would be the same for all alternatives. However, the potential for impacts to the number of cultural properties that would be affected would potentially increase under each alternative depending on miles of dozer and hand line construction, use of fire retardant, and number of acres involved.</p>			<p>The intensity of impacts to cultural properties from fire suppression would be the same as the other alternatives. However, the potential for impacts to the number of cultural properties that would be affected would be similar to Alternative 2.</p>
<p>Fire and fuels management impacts would be less under this alternative relative to Alternatives 2 and 3.</p>	<p>Fire and fuels management impacts would be more than Alternative 1 but less than Alternative 3.</p>	<p>Fire and fuels management impacts would be more than Alternatives 1 and 2 due to greater focus on suppression.</p>	
<p>There would be a range from negligible to moderate impacts to cultural resources in areas that are available to grazing. The adjustment of boundary fences, and modification of grazing authorizations and allotments boundaries are anticipated to have negligible to no impact.</p>			<p>Negligible to moderate potential for impact from livestock grazing.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Potential impacts from grazing would be eliminated, with negligible to minor impacts from continued grazing along the boundary.</p>	<p>More acres to be grazed than Alternative 1 would have greater impacts, and the intensity of impacts would be negligible to moderate. The closure of Painted Rock Exclusion Zone to livestock grazing would eliminate potential impacts to cultural properties from authorized grazing. Negligible to moderate impacts from livestock grazing to properties in the National Register District and nominated properties.</p>	<p>Grazing would be more frequent, but impacts would be similar to Alternative 2.</p>	
<p>Activities associated with inadvertent disturbance by recreational visitors, unauthorized OHV travel, vandalism, and illegal artifact collection could have minor to moderate impacts, but would be mitigated on a case-by-case basis as they are discovered. Other recreation actions common to all action alternatives would have no impact or beneficial impacts.</p>			<p>Self-guided access to Painted Rock without a permit as well as the total number of visitors to the site annually increases the potential for negligible to minor impacts to the site. Continued closure of the Painted Rock pasture to horses, dogs, non-motorized bikes, cache type activities, and discharge of firearms would minimize impacts. Negligible to moderate impacts to archaeological site (C06-1) from visitors.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Closure of archaeological site (C06-1) on KCL Ranch would eliminate inadvertent impacts.</p>	<p>The impacts to the Primitive zone would be the same as Alternative 1, except there would be less miles of trail. More Backcountry developments would have slightly more potential for impacts than Alternative 1. Frontcountry impacts same as Alternative 1, with some potential minor impacts.</p>	<p>With closure of Painted Rock pasture to many activities, the potential for impact to multiple cultural sites would be similar to Alternative 1. Otherwise, same impacts as Alternative 2, although developments and use would vary.</p>	
<p>Travel management actions would implement standard cultural procedures to inventory, identify, and avoid cultural properties, so negligible to no impact is anticipated.</p>			
<p>Procedures under the minerals program would avoid impacts.</p>			
<p>The prohibition on commercial photography of the rock art images would reduce the risk of site impact. The acquisition of private or state lands would protect cultural resources.</p>			<p>Continued acquisition of lands would have positive benefits. New rights-of-way and permit modifications to bring them in accordance with VRM classification would avoid impacts.</p>
<p>No impacts to cultural resources from lands and realty actions.</p>	<p>Potential beneficial impacts on cultural resources from lands and realty by placing them under public ownership. Fewer acres of land acquisition than Alternative 1. Efforts would be targeted toward lands with significant cultural or biological values.</p>		
<p>4.11 Visual Resources</p>			
<p>Retrofitting existing facilities to meet current VRM classifications would improve the visual quality of the planning area.</p>			<p>Minor to moderate impacts from managing most of the CPNM as VRM Class II except for the Caliente Mountain WSA, a majority of the Temblor Mountain Range, and areas along the border of the Monument.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Management of the 83,202<u>83,591</u>-acre Primitive zone as VRM Class I, the 158,080<u>150,844</u>-acre Backcountry zone as VRM Class II, and the 17,040<u>15,382</u>-acre Frontcountry zone as VRM Class III would provide the highest level of protection.</p>	<p>Managing 54,464<u>62,455</u> acres as VRM Class I, 186,819<u>165,180</u> acres as VRM Class II, and 20,839<u>19,181</u> acres as VRM Class III provides for a high level of protection of visual resources.</p>	<p>Managing 17,984 acres as VRM Class 1, 223,299<u>200,091</u> acres as VRM Class II, and 24,944<u>28,741</u> acres as VRM Class III provides for less stringent VRM classifications.</p>	<p><u>No acreage values are available as existing management plans do not include acreages for VRM classes within the Monument.</u></p>
<p>Wildlife program would have negligible or positive impacts with the following exceptions: Fencing and signing 3 miles of sphinx moth habitat would have a localized moderate impact. Fencing up to 10 miles of riparian area would result in both positive and negative visual impacts. Under the vegetation program, fencing 500 acres would cause a minor to moderate visual impact.</p>			<p>Minor impacts from proposed habitat improvements and vegetation treatments.</p>
<p>Positive effect from removing artificial watering sources and livestock fence. Removing guzzlers would have a negligible impact. Minor short-term impacts from removing nonnative plants.</p>	<p>Same impacts from biological resources program as Alternative 1 except: Major but localized short-term impacts from prescribed burning. Beneficial impact of removing 20 miles of existing fences and introducing additional pronghorn. Planting trees for nesting habitat would have minor impacts as long as they are planted in naturally appearing groups. Minor impact of five new wildlife guzzlers. Positive impact to native riparian vegetation return by fencing springs. Minor negative impact to viewshed from fencing springs. Minor impact of 10-20 miles of new fence to protect oaks.</p>		
<p>Wildfire burning on an average of 500 acres a year and the chance of a large fire of 5,000 acres would continue the present level of visual impacts from fires.</p>			<p>Use of existing natural and human made barriers for fire response will minimize the visual impacts from wildfire suppression. Short-term minor to moderate impacts from prescribed burning and wildfires.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Visual impacts from burning would be reduced in frequency from present levels due to no prescribed burns. Construction of dozer line during wildfire suppression could have moderate to major localized impacts. Mowing weeds to reduce fuels around buildings and along roadways would cause negligible impacts.</p>	<p>Same as Alt. 1 for impacts from fire and fuels management program with additional: Minor negative impacts from hand and dozer lines construction for suppression of wildfires. Minor short-term impact from mowing weeds around buildings and facilities, and on and along roads. Potential for minor short-term impacts from pile burning. Moderate to major localized short-term impacts from prescribed fire on up to 1,000 acres of grasslands in alternate years.</p>	<p>Same visual impacts as Alternative 2 except that additional hand and dozer lines could be constructed for more active suppression of wildfires. Moderate to major localized short-term impacts from prescribed fire on up to 1,500 acres of grasslands in alternate years.</p>	
<p>Placement of small interpretive displays would cause negligible visual intrusions.</p>			<p>Minor temporary impact with excavation for geology/paleontology research.</p>
<p>Minor temporary impact with excavation for geology/paleontology research.</p>	<p>Minor impacts from developing interpretive sites. Minor to moderate temporary impact with excavation for geology/paleontology research.</p>		
<p>Cultural resources management actions to realign roads, close or cap roads, and add interpretation at Native American sites could cause some minor impact to visual resources.</p>			<p>Increase in naturally appearing landscapes from removing structures.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Minor visual impact from adding interpretation and educational sites through the life of the plan. Removing farm equipment to centralized locations and demolishing non-historic ranch structures would increase the natural appearance of the Monument.</p>	<p>Moderate localized impact from installing 1.5 miles of fence to protect Painted Rock and exclude livestock. Removing or relocating certain equipment and structures, and preserving some equipment and structures on site would result in an opportunity for Monument users to view a mix of both natural landscapes and historic pastoral landscapes. Adding interpretation and educational displays at historic sites would cause a minor impact to visual resources.</p>	<p>Same cultural resources program impacts as Alternative 2, except that more emphasis would be placed on the preservation and restoration of historic farm machinery and ranch structures.</p>	
<p>Under wilderness/WSA management, converting roads to trails could cause a minor beneficial impact. The removal of unneeded structures would increase the naturalness of the characteristic landscape.</p>			
<p>Associated actions to restore wilderness character would return the visual landscape to naturally appearing conditions.</p>	<p>Managing and restoring wilderness qualities on 54,46462,455-acres would enhance visual resource values in the Class I VRM zone that corresponds to these areas.</p>	<p>Same as Alternative 2, except only the 17,984-acre Caliente WSA would be managed as Class I VRM.</p>	
<p>Realigning the fence lines so that they are along the Monument boundary could cause minor to moderate visual impacts.</p>			<p>The visual landscape on the valley floor would continue to have a pastoral characteristic landscape qualities associated with grazing and support facilities, but those who desire a landscape with natural qualities would be impacted by these same facilities.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Removing livestock would mean many areas of the Monument would change in character from their present pastoral/ranching qualities to a more naturally appearing landscape with fewer human intrusions.</p>	<p>Same impacts as Alternative 1, except that cattle would be less visible on the valley floor. Also, some fences would be realigned over the life of the plan to follow natural terrain features, reducing the visual impacts from present levels.</p>	<p>Same as Alternative 2 except some additional livestock improvements would be placed in the Section 15 allotments. This would result in negligible visual impacts.</p>	
<p>Placing additional directional, safety, and regulatory signing along roadways and other public use locations in the Monument would cause a minor impact. Retrofitting of existing facilities to meet standards for disabled access would have negligible impacts.</p>			<p>Minimal impacts from maintaining existing rustic recreation facilities.</p>
<p>Recreation program would have negligible to minor impacts in Primitive zone, and minor to moderate impacts in Backcountry and Frontcountry zones.</p>	<p>Recreation program would have negligible to minor impacts in Primitive zone, and minor to moderate impacts in Backcountry and Frontcountry zones.</p>	<p>Same as Alternative 2 except that additional interpretive signing, trails, overlooks and other public use improvements would be placed in the Frontcountry and Backcountry Zones. These would only increase the level of impact by a minor level.</p>	
<p>Closing 81<u>80</u> miles of roads and rehabilitation or natural revegetation of these routes would result in a major long-term enhancement of the natural characteristic landscape.</p>	<p>Closing 45<u>42</u> miles of roads and rehabilitation or natural revegetation of these routes would result in a major long-term enhancement of the natural characteristic landscape.</p>	<p>Closing 10 miles of roads and rehabilitation or natural revegetation of these routes would result in a minor enhancement of the natural characteristic landscape.</p>	<p>The existing road system would be maintained at current standards, resulting in no new impacts. Additional safety, directional, and regulatory signing would result in minor visual impacts.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Same as No Action alternative except that BLM would work with existing leaseholders to mitigate existing visual impacts, which would result in minor improvements to visual resources.</p> <p>Geophysical exploration would be the most limited among the alternatives, but restrictions would still need to enable private mineral estate holders to explore in a reasonable fashion.</p>		<p>Same as Alternative 1 except existing leaseholders and private mineral estate owners could cause short-term impacts from the allowed use of vibroseis for exploration, primarily on existing roads, with some off-road use.</p>	<p>The seismic lines would result in minor to moderate temporary impacts to visual resource values and would only be visible until the first growing season after the disturbance. The development of wells and associated roads/structures would result in moderate to major visual impacts within foreground and middle ground viewing distances.</p>
<p>The 5 minor rights-of-way anticipated for administrative purposes and the 10 rights-of-way anticipated for scientific monitoring could have a negligible to minor impact. Land use permits such as filming permits will have a negligible impact. The survey and documenting of the Monument boundary would cause minor impact to visual resources.</p>			<p>Additional authorization of rights-of-way for communication sites would result in moderate impacts.</p>
<p>Acquiring 16,000 – 32,000 acres of private land would enhance visual resources.</p> <p>Acquiring 0 – 40,000 acres of mineral rights would enhance visual values.</p> <p>Removing 2 communication facilities upon lease expiration would result in negligible to minor enhancement of visual qualities.</p>	<p>Land acquisition would be targeted in areas with biological and cultural resource values, resulting in less acreage acquired, and therefore less protection of visual resources than Alternative 1. There would still be a net benefit over present conditions.</p> <p>Acquiring mineral rights would provide a minor to major benefit.</p> <p>Adding facilities to 2 communication structures would have a negligible impact.</p>	<p>Land acquisition impacts would be the same as Alternative 2.</p> <p>Up to two additional communication sites could be developed, with minor to moderate visual impacts.</p>	<p>Acquiring additional lands would enhance visual values.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.12 WSA and Other Lands with Wilderness Characteristics			
No impacts from the WSA/wilderness program.			
This greatest acreage of the planning area would be managed for wilderness characteristics of all the alternatives.			
Same vegetation program impacts as No Action Alternative (except for additional acreage).			Positive long-term impact from removing nonnative or noxious weeds.
Acquisition and restoration of the historic World War II lookout tower on Caliente Peak would result in a minor impact to naturalness within the WSA by retaining/stabilizing the structure.			
Removing non-NRHP-eligible manmade structures would have a localized beneficial impact by improving naturalness.			
			Continued management of the Caliente Mountain WSA as VRM Class I would help minimize impacts.
Cache activities could have a minor impact on wilderness qualities. The placement of low-key directional signs for the safety of visitors would have a minor impact on wilderness character.			Continued public use of the Caliente Peak Trail would result in negligible impacts.
Developing 5 – 35 miles of trails within the Primitive zone could have a moderate impact.	Developing 5—25 miles of trails within the Primitive zone could have a minor to moderate impact.	Developing 5 – 15 miles of trails within the WSA could have a minor to moderate impact.	
The removal of grazing would increase naturalness.	Impacts from grazing would be negligible/minor and mainly associated with reconstruction / maintenance of range improvements.		
Limited use roads located within the WSA and areas with wilderness characteristics would have a negligible to minor localized impact.			
Closing and rehabilitating the majority of the road network within the <u>65,21862,607</u> acres to be managed for wilderness characteristics would enhance wilderness character.	Closing and rehabilitating the majority of the road network within the <u>36,48044,471</u> acres to be managed for wilderness characteristics would enhance wilderness character.		

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Acquiring lands within the Primitive zone could cause a minor to moderate impact.			
4.14 Livestock Grazing			
Moderate negative effects depending on the level of implementation for access restrictions within Primitive recreation management zones.			Minor impacts within Section 15 allotments from continuation of current management. Moderate impacts within vegetation management areas from increasing growing limitations placed upon their grazing use.
Negligible impacts from all program actions common to all alternatives <u>except for Recreation (see above) and Biology (see below).</u>			
	Major negative impacts to certain individual livestock operations from the actions to implement core area objectives.		
Major negative impact within both Section 15 and vegetation management allotments either entirely or partially within the Monument.	Major negative impacts within Section 15 allotments from actions to implement vegetation objectives. Major negative impacts within vegetation management areas from actions to implement both wildlife and vegetation objectives.	Minor negative impacts within Section 15 allotments. Major negative impacts within vegetation management areas from actions to implement both wildlife and vegetation objectives.	

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.14 Recreation and Administrative Facilities			
<p>This alternative would result in the greatest change in management of the recreation settings, with a major overall impact on recreational use, both in numbers of recreation users and allowable uses within this zone.</p> <p>Primitive zone major impacts would be felt primarily by hunters through the loss of vehicle, OHV, or bicycle access and vehicle camping.</p> <p>Prohibiting camping in the Backcountry zone would likely result in an overflowing campground occupancy in the Frontcountry during peak times of the year, which would also be minorly impacted from no competitive events.</p>	<p>Changes in Primitive zone acreages would have minor localized impacts to hunters and motorized users.</p> <p>In the Backcountry, this alternative would better reflect the current recreational uses, potentially having a minor impact on motorized recreation users. Impact on non-motorized recreation activities would likely be negligible.</p>	<p>This alternative would place the most recreational facilities within the Backcountry zone. However, the amount of change from current use would also be the lowest of the action alternatives, with a negligible impact to the recreation resource.</p> <p>In the Frontcountry, new developments and recreation opportunities could improve the overall experience, with a moderate impact on current recreation use.</p>	<p>Recreational opportunities would be similar to those currently offered. Acres and road miles and trails would be managed in a similar manner to that proposed in Alternative 3.</p> <p>Use levels are expected to grow to approximately 124,000 visitor days per year under this alternative – use levels would be higher than Alternatives 1 and 2 because management controls (such as permits for Painted Rock) would not be put into effect.</p>
<p>The acquisition of land would have a moderate impact in expanding recreation access opportunities.</p>	<p>Impacts to the recreation resource would be similar to Alternative 1, except less private land acreage may be acquired.</p>		<p>Lands would continue to be acquired from willing sellers, increasing the acreage available for public recreation.</p>
<p>Impacts of wildfire to the recreation resource during and immediately after a wildfire could be moderate to major in the short-term, depending on the amount of time of public closure of areas. In the long term, wildfire is estimated to have a negligible impact on recreation. Prescribed burning in the No Action Alternative, as well as Alternatives 2 and 3, would have short-term negligible impacts to recreation use.</p>			
<p>Climate change models indicate that the planning area will become warmer and drier over the life of the RMP. This could impact recreation use by reducing the frequency and intensity of spring wildflower blooms, and changing the use/populations of wildlife species that are major attractions for recreation visitors. The peak public use period is already primarily in the winter-spring months, but could be shortened by higher temperatures.</p>			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
Wildlife program impacts could be minor to moderate depending on the level of population fluctuations.	Wildlife and vegetation program impacts would enhance recreation opportunities.		Wildlife and vegetation program actions would have a negligible impact.
<p>Overall impact of oil and gas development on private mineral estate to the recreation resource could be moderate or major. Impacts from continued development of the Russell Ranch unit would be minor. This area is away from the main public use areas in the Monument and receives minimal visitation.</p> <p><u>Impacts from sounds related to oil and gas activities would be minimal to moderate and would mostly be noticeable during drilling and construction activities on private mineral estate (if developed). Analysis would be conducted during site specific proposals pursuant to NEPA requirements, and potential mitigation measures would be developed if required as a result of that analysis.</u></p>			
Impacts from geology/paleontology would be negligible.			Impact from geology/paleontology program would be minor.
<p>Closure of Painted Rock would have a major impact for visitors interested in it.</p> <p>Closure of site C06-1 would have a minor impact.</p> <p>Structure and facility removal actions could impact visitors, depending on their interests.</p>	<p>Negligible impact from permit requirements.</p> <p>Positive recreation benefits from rock art protection measures.</p> <p>Minor impact from removal of historic machinery and equipment.</p>	The actions proposed in this alternative are likely most similar to the existing condition when compared to the other action alternatives and should result in a negligible impact on recreation.	Allowing increased use at Painted Rock and other cultural resource sites could eventually reduce the quality of the recreation experience, potentially having a minor impact on the recreation resource.
Allowing only street-licensed vehicles and prohibiting most other OHVs, and closing roads, would potentially having a moderate to major impact on this recreational activity, which would be positive or negative depending on visitor interests.	Travel management impacts are expected to be negligible.		Negligible impact from travel management program.
The impacts associated with WSA/wilderness management actions would be similar to that identified under Recreation within the Primitive Zone.		No impact.	Negligible impact from WSA/wilderness program.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
This alternative includes the most restrictive VRM management zones. Recreation opportunities would be enhanced for those seeking settings with the highest level of naturalness.	This alternative would result in impacts similar to Alternative 1, except less acreage would be managed under VRM Class I criteria, allowing for slightly higher impacts to natural recreation settings.	This alternative would result in impacts similar to Alternatives 1 and 2, except less acreage would be managed under VRM Class I criteria, allowing for slightly higher impacts to natural recreation settings.	Recreation opportunities could be impacted at moderate levels for those seeking settings with the highest level of naturalness.
Removal of grazing and associated developments would improve the natural appearance of the area and enhance the setting for visitors who are seeking a natural experience.	Grazing would continue at reduced levels resulting with a negligible change in impacts. Those visitors who are seeking a natural experience without the presence of livestock and associated developments would continue to be impacted at present levels.		Grazing would continue at present levels resulting with no increase in impacts. Those visitors who are seeking a natural experience would continue to be impacted at present levels.
4.15 Travel Management			
Proposed management actions would reduce impacts to the transportation system. Seasonal and wet-period closures could have a negligible to minor impact on use of the travel network.			No impacts from travel management program on current travel management.
Mileage reduction of the road <u>route</u> network will have minor to moderate impacts on the transportation system.	The increase in limited mileage could have a minor to moderate impact to the travel network because there would be fewer miles open to public motorized use.	This would also have the fewest number of roads <u>routes</u> that will be closed and rehabilitated. This could cause a moderate impact to the travel network.	
	<u>Prescribed burning and wildfire suppression would have a minor impact.</u>		Prescribed burning and wildfire suppression would have a minor impact.
Minimizing dust emissions on roads <u>routes</u> would cause minor to moderate impacts to the travel management program.			Air quality program objectives to reduce dust emissions from roads <u>routes</u> could result in minor impacts to the methods/timing of road maintenance activities.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
The seasonal closure of <u>roads/routes</u> without dust suppression additives could cause a major impact.	The use of aggregate, gravel base or a chemical binder on high use <u>roads/routes</u> , especially around rock art sites, would cause a moderate impact to the transportation network.	Paving major travel routes and graveling the key secondary routes could indirectly impact transportation because of the increases in vehicle speeds on paved and graded gravel route segments.	The rerouting or capping of <u>roads/routes</u> that traverse cultural sites could cause a negligible impact.
Several limited use administrative routes with restricted access would remain open in areas managed for wilderness characteristics. This would reduce use of these <u>road/route</u> corridors.	Same as Alternative 1, except that less acreage/ <u>road/route</u> mileage would be affected.	No impacts from WSA/wilderness management.	
Implementing a sign plan would benefit the transportation network. Developing multiple driving tours within the Monument would increase use of certain <u>roads/routes</u> , resulting in a minor to moderate impact to the maintenance or the travel network.			Minor impacts from recreation program due to increased use of area <u>roads/routes</u> over the life of the plan.
Development of 5 – 35 miles of trails could have a moderate impact on the travel network. Eliminating dispersed vehicle camping could reduce use and maintenance needs of the travel network. Additional recreation / educational opportunity sites would increase the number of travelers on certain <u>roads/routes</u> .	Development of 5 – 25 miles of trails could have a moderate impact on the travel network. If modifications are made to the dispersed camping areas, there could be an increase in use of the more developed dispersed camping areas, resulting in a minor impact to the <u>roads/routes</u> that lead to them.	Same as Alternative 2 except 5 – 15 miles of new trail would be developed, resulting in a slightly smaller expansion of the trail system.	
The acquisition of lands could cause a minor to moderate impact.	Same as Alternative 1 but with less acreage acquired and fewer miles of roads to reassess.		Acquisitions could increase the <u>road/route</u> mileage in the transportation system.
Same mineral program impacts as No Action Alternative.			Under the minerals program, the development of existing leases would cause negligible to minor impacts.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
		The soils management action for seasonal closure of all roads/routes when they develop a 2-inch rut could cause a major impact on the travel network.	
4.16 Minerals			
<p>Valley floor area: Up to 16 new wells, plus roads and facilities, and 230 miles of seismic, with all development on private minerals, federal surface. Up to 18 acres of permanent (2-3+ years), 12 acres of temporary (<2 years), and 115 acres of transient disturbance (such as one or two passes of a vehicle off-road that may be visible until the following season).</p> <p>Russell Ranch Unit oil and gas lease areas: Current federal production in Monument approximately 1,200 – 1,500 barrels of oil per month from 45 wells (including 30 shut-in) Up to 7 new wells plus roads and 25 miles of seismic Up to 5.25 acres of new permanent disturbance (2-3+ years), 1.25 acres of temporary (<2 years), and 25 acres of transient disturbance Within the next 20 years, many shut-in wells will be plugged and the well pads and other disturbed areas would be reclaimed. Protective stipulations and best management practices will minimize any impacts from exploration and development. Minimal impact from a potential site for emergency/administrative sand/gravel extraction.</p>			
<p>Quickest reclamation but also most expensive for both operators and BLM, compared to the other alternatives</p>	<p>Most impacts same as Alternative 1, except: Fewer onsite inspections, but still exceed national guidelines. Faster compliance. Slower reclamation, but still faster than national guidelines.</p>	<p>Most impacts, from using only standard national guidelines and mitigation requirements. Potential minor vibroseis impacts. Longest timeframe for restoring disturbed sites of existing operations.</p>	
<p>Endangered Species Act and other wildlife laws and regulations cause frequently substantial delays Some surface-disturbing operations could be restricted or prohibited.</p>			
<p>Protection of surface and groundwater may have additional costs for operators.</p>			
<p>Potentially require moving or delaying projects to comply with BLM cultural resources protection requirements</p>			
<p>Operators would be required to comply with VRM objectives to the extent practical while still allowing for reasonable development. Oil developments would continue to occur in Class II VRM zones, potentially requiring substantial mitigating measures to future developments to meet VRM classifications consistent with valid existing rights (oil developments are typically VRM Class III and IV).</p>			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>In general, oil and gas is compatible with grazing. However, operators may be required to install fencing around pumping units or other equipment, install cattle guards, or take other protective measures.</p>			
<p>Delays in obtaining rights-of-way for certain proposed operations may result in a delay in authorization to proceed. Other impacts, such as land tenure adjustment, may affect operations. Also, any acquisition would include reimbursement at appraised values.</p>			
<p>4.17 Lands and Realty</p>			
<p>Over the life of the plan, BLM would acquire approximately 16,000 to 32,000 acres of land through purchase, exchange, donation, or friendly condemnation. 0 to 40,000 acres of privately owned mineral estate may be acquired from willing sellers.</p>	<p>These alternatives would result in the acquisition of less acreage than Alternative 1, but acquired lands would be targeted toward meeting priority habitat protection needs.</p>		<p>BLM could acquire approximately 16,000 to 32,000 acres of land through purchase, exchange, donation, or friendly condemnation. 0 to 40,000 acres of privately owned mineral estate may be acquired from willing sellers. Land tenure adjustments would focus on acquisition of non-federal lands within the Monument and generally would generally be driven by availability of lands. In addition, BLM may pursue acquisition of non-federal mineral estate underlying federal surface holdings.</p>
<p>No new communication sites would be authorized. Approximately 2 sites would be removed as authorizations expire.</p>	<p>No new communication sites would be authorized, with potential for minor impacts. Approximately 2 sites could be modified to allow for additional facilities in accordance with VRM classifications. This would allow for limited expansion/improvement of service to on-Monument locations, and reduced impacts compared to Alternative 1.</p>	<p>Up to 2 new communication sites could be authorized. The existing 2 sites could be expanded, in accordance with VRM classifications. This is the least restrictive of the alternatives and would have negligible impacts on applicants' ability to construct, expand, or modify communication facilities.</p>	<p>Up to 2 new communication sites could be authorized. The existing 2 sites could be expanded.</p>

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Most rights-of-way and permits for inholder access would be in VRM Class II areas. This may require modifications / limitations on development, therefore increasing the costs to the applicant.</p>	<p>Most rights-of-way and permits for inholder access would be in the VRM Class II areas. This could require modifications / limitations on development, increasing costs to the applicants.</p> <p>New communication facilities would need to meet Class II criteria, which could limit location, height and require other modifications to reduce visual impact.</p>	<p>The impacts are similar to Alternative 2. Most rights-of-way and permits for inholder access would be in the Class II zone. This could require modifications / limitations on development, increasing costs to the applicants.</p>	<p>Much of the Monument would be managed under VRM Class II, with areas of Class III in the Temblors and Class IV along the CPNM boundary. This would require some design modifications on right-of-way authorizations to minimize visual impacts, but would not preclude any authorizations.</p>
<p>There are 83,302<u>80,591</u> acres with wilderness characteristics and in the Primitive recreation zone. Issuing rights-of-way or permits for inholder access in this zone would require additional stipulations.</p>	<p>There are 54,464<u>62,455</u> acres with wilderness characteristics and in the Primitive recreation zone. BLM would still allow reasonable access, but applicants would need to demonstrate the need for motorized access and additional stipulations for right-of-way or permit issuance may be required. Additional stipulations may include reroute or relocating the access area. This may have minimal to moderate impact to the applicant.</p>		
<p>In the minerals program, BLM would require that diligent efforts be made to use existing roads and rights-of-way, and to minimize disturbance to Monument resources wherever possible. All pipelines, whether production or for water supply, would be required to be run in road rights-of-way, thereby creating no additional disturbance. These requirements would impact the owners of mineral resources, but would be considered reasonable to prevent unnecessary and undue degradation to the objects of the Monument Proclamation.</p>			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
4.18 Social and Economic Conditions			
Moderate to major beneficial impacts to socio-economic context and values from management of wildlife and vegetation to preserve CPNM character. Potential minor restrictions to some users. Overall benefits considered beneficial.			
Wildlife and vegetation program has greatest potential for adverse impacts to regional quality of life; overall minor to moderate impacts.	Most beneficial of all alternatives to preserve non-market values.	Similar to Alternative 2	Same or similar to current conditions.
Minor to moderate short-term impacts from fire and fuels management; overall beneficial impacts in long-term. Potential for minor access restrictions to some users during fire management activities.			
Impacts from fire and fuels management to natural resources may vary depending on fire conditions. Emphasis on natural processes may increase duration of natural fire events. Overall minor impacts.	Potential use restrictions during active fire management activities. Includes most varied range of wildland fire management practices. Reduces potential for economic losses due to fire. Potentially reduced air quality impacts to the benefit of region and communities of interest.		Similar to all action alternatives, and closest to Alternatives 2 and 3.
Air quality program would have overall beneficial impacts to social and economic context and communities from preservation of air quality and CPNM character and values.			
Potential for longer-term road closures impacting frequent CPNM travelers. May generate some, albeit minor, local/regional economic benefit to contractors.	Potential minor benefit to local contractors. Benefits visitors and sensitive resources through active protection from fugitive dust.		
Soils management would have potential indirect benefits to land values and incomes in the region from enhanced understanding of soil functions and values.	Most aggressive soils management approach and user education; potential impacts to ranchers and farmers, if they occur, greater than Alternative 1.		Same or similar to existing conditions.

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Water resources management actions would have overall beneficial impacts, moderate in the short-term to major over the long-term given the proposed removal of invasive non-natives and use of native plants in wetland areas.</p> <p>Measures that protect and preserve the overall character and resources of the Monument benefit localized and regional social and economic context.</p> <p>Impacts same or similar for all action alternatives.</p> <p>No new impacts from No Action Alternative from current conditions.</p>			
<p>Geology/paleontology program impacts would be similar to other natural resources management issues; overall moderate to major benefit to social and economic context from preservation and protection of sensitive resources, expanded educational opportunities.</p>			
<p>Geology/paleontology program would have potential access restrictions to CPNM visitors, although overall minor.</p> <p>Beneficial impacts to the resources.</p>	<p>Potential beneficial impacts to sensitive cultural resources and expanded knowledge and educational opportunities to visitors.</p>		<p>Same as or similar to existing management.</p>
<p>Cultural resources program would have overall moderate to major beneficial impacts to social and economic context; benefits Native American community of interest as well as visitors and others through preservation of sensitive resources and expanded educational opportunities.</p>			
<p>Cultural resources program prohibits visitor access to Painted rock.</p> <p>No intervention to prevent natural deterioration of rock art sites.</p> <p>Most restrictive to public access to cultural resources.</p> <p>Potential adverse impacts to local economies from decreased tourism.</p>	<p>Cultural resources program impacts are similar to geological/paleontological program impacts.</p> <p>Provides for greatest access to resources and active preservation/restoration.</p>		<p>Same as or similar to existing management.</p>
<p>Impacts of visual resources program are similar to impacts associated with air quality; preservation of scenic and visual resources intrinsic to CPNM character provides overall beneficial impacts ranging from moderate to major.</p> <p>Impacts similar for all alternatives, differing in term of percentages of land designated Class I & II.</p>			
<p>Livestock grazing would have overall minor to moderate beneficial impacts to communities of interest and non-market values; negligible impact to some communities of interest.</p>			

Alternative 1	Alternative 2 (Proposed RMP)	Alternative 3	No Action Alternative
<p>Impacts from no livestock grazing: Net decrease in grazing fees to the county in which the allotments are reduced. Section 15 lease values in the CPNM decrease to \$14,451 (compared to \$132,964 under current management). Eliminates free use grazing and associated revenues to Grazing Facility Fund.</p>	<p>Grazing would have a net beneficial impact on Monument visitorship. Section 15 lease values in the CPNM decrease to \$121,614 (compared to \$132,964 under current management). Potential minor impact to free use grazing permit contributions.</p>		<p>Potential future impacts similar to continuing existing management practices.</p>
<p>Recreation program's overall impacts would be beneficial to non-market values and communities of interest such as Monument visitors. Potentially major benefits over the long-term.</p>			
<p>Focuses camping near developed sites, potentially impacting some visitors who prefer to camp away from those sites.</p>	<p>Potential impacts to varmint hunters through elimination of that activity. Similar to other alternatives; differs in terms of allocation of acreage to various recreation management zones.</p>		<p>Same or similar to existing conditions.</p>
<p>Administrative/facilities management would have minor impacts to social and economic context for all alternatives.</p>			
<p>Minerals program would have minor to moderate impacts to mineral estates lessees and owners over the short term. Negligible to minor impacts to communities of place.</p>			
<p>Beneficial impacts to Monument resources and potential benefits to private land/mineral estates owners in CPNM through facilitation of property transfer. Potential benefits to Monument visitors through increased access to lands previously inaccessible due to ownership. Potential enhancement of non-market values through public land acquisition of lands on which resources exist, and greater protection of those resources.</p>			

Chapter 3. Affected Environment

3.1 Introduction

This chapter describes the current physical, biological, cultural, social, and economic conditions within the Carrizo Plain National Monument (CPNM) that may be affected by implementing any of the resource management plan (RMP) alternatives. These existing conditions and trends provide a baseline for analyzing expected impacts from management actions and provide the background for the no-action/present management alternative. This chapter describes the status, or present characteristics and condition, of the public land; the status of physical and biological processes that affect ecosystem function; the condition of individual components such as soil, water, vegetation, and wildlife habitat; and the relative value and scarcity of the resources. The analysis also addresses social and economic conditions that influence how people, communities, and economies interact with the planning area. Each section also includes a brief overview of relevant sections of the Monument Proclamation, laws, policies and other guidance that provide direction for area management. Where relevant, current management practices are also described to provide context for the analysis of impacts (Chapter 4) and the no action alternative (Chapter 2). This chapter is organized by the following resource topics:

- 3.2 Biological Resources (Wildlife and Vegetation)
- 3.3 Fire and Fuels Management
- 3.4 Air Quality
- 3.5 Soils
- 3.6 Water Resources
- 3.7 Wild and Scenic Rivers
- 3.8 Climate
- 3.9 Geology and Paleontology
- 3.10 Cultural Resources
- 3.11 Visual Resources
- 3.12 Wilderness Study Areas and Other Lands with Wilderness Characteristics
- 3.13 Areas of Critical Environmental Concern
- 3.14 Livestock Grazing
- 3.15 Recreation and Interpretation
- 3.16 Public Safety and Emergency Services
- 3.17 Administrative Facilities
- 3.18 Travel Management
- 3.19 Minerals
- 3.20 Lands and Realty
- 3.21 Social and Economic Conditions
- 3.22 Solid and Hazardous Waste

The CPNM is located in California's southern Coast Ranges, to the west of the San Joaquin Valley. The CPNM is primarily within San Luis Obispo County, with the easternmost portion in Kern County. The CPNM adjoins some of the most intensively managed agricultural lands and petroleum deposits in the U.S. and is less than 100 air miles from Los Angeles. However, the area remains relatively isolated and undeveloped, and retains an intact landscape character. Prominent features include the white alkali flats of Soda Lake, vast open grasslands, and a broad plain rimmed by mountains. The plain is home to diverse communities of wildlife and plant species including several listed as threatened or endangered. The area is culturally important to Native Americans. It is traversed by the San Andreas Fault, which has carved valleys and created and moved mountains. The CPNM is surrounded by several small, unincorporated communities, with larger population centers along the U.S. 101 corridor to the west and San Joaquin Valley to the east.

3.2 Biological Resources (Wildlife and Vegetation)

3.2.1 Ecological Subregion Descriptions

CPNM Subregions

The CPNM has been divided into nine subregions based on geography and general ecological characteristics to provide a context for certain management prescriptions (see Map 3-1, Carrizo Plain Subregions). The subregions separate the area of the dry lakes from the surrounding valley floor, the valley from the foothills and surrounding mountains, and the Caliente Mountains into north and south sides. Further demarcation into northern and southern foothill and plain sections follows precipitation patterns. Plant community designations on the following pages are based on the existing Carrizo Plain vegetation map, which follows the classification system developed by Holland (1988). A more precise vegetation map is in development, based on Sawyer and Keeler-Wolf (1995), but it will not be ready for inclusion in this document (T. Keeler-Wolf, personal communication, 7 November 2007). Table 3.2-1 shows acreage designations for each subregion.

Table 3.2-1. CPNM Subregions, with Acreage Designations

Subregion	Total	BLM	CDFG	Private	Core area
Carrizo Plain North	15,969	14,775	1,117	77	1,684
Carrizo Plain Central	39,794	31,217	2,378	6199	21,071
Soda Lake Sink	20,254	18,785	493	976	0
Panorama Hills – Elkhorn Plain	33,795	26,803	265	6,727	11,039
Temblor Range	28,758	22,074	160	6,524	0
Caliente Foothills North	18,938	13,845	4,425	668	0
Caliente Foothills South	21,756	15,816	0	5,940	123
Caliente Mountains North	29,887	28,553	451	883	0
Caliente Mountains South	37,493	34,543	12	2,938	0

Use of Subregions in the RMP

The ecological subregions are referenced in both the Alternatives (Chapter 2) and Environmental Impacts (Chapter 4) sections of the plan. The subregions provide a context for describing management actions and assessing their impacts.

Carrizo Plain North

The Carrizo Plain North subregion includes the area of the northern Carrizo Plain between Soda Lake and the foothills of the Caliente Range. A small portion of the California Department of Fish and Game (CDFG) American unit is within this subregion. The topography is generally flat, but dissected by shallow drainage courses. Elevations range from 1,950 to 2,300 feet and soils are generally deep, sandy, and derived by erosion from the adjacent Caliente Range. The Carrizo Plain North receives slightly more precipitation and its vegetation is generally more lush than its southern counterparts (the Carrizo Plain

Central and the Panorama Hills-Elkhorn Plain subregions). Virtually the entire area has been altered by activities associated with agriculture: over 75 percent of the subregion was previously tilled and most, if not all, grazed at one time or another. Plant communities include extensive wild oat (*Avena* spp.) dominated nonnative grassland, especially well-developed in the previously cultivated fields. In the drainage systems where slightly more water is available, interior Coast Range saltbush scrub is present.

The Carrizo Plain North subregion includes foraging and fawning habitat for pronghorn as well as generalized habitat for elk, kit foxes, various bats, ground-nesting birds, and burrowing owls. The subregion also includes a number of vernal pools that provide a home for fairy shrimp and breeding habitat for spadefoot toads.

As part of ongoing restoration efforts, about 500 acres in the Carrizo Plain North subregion have been planted with native bunchgrasses, shrubs, and wildflowers. Prescribed burns have been used as a tool to prepare sites for seeding with native species. The goal has been to replace the impoverished nonnative grasslands with a diverse native bunchgrass and herb community, with shrub elements where appropriate. Approximately 8,000 acres are managed for the benefit of elk and pronghorn. There are about 2,000 acres of giant kangaroo rat habitat; however, most of the subregion appears to be at the northern edge of their range. The subregion includes a small portion of the central core area for the San Joaquin suite of sensitive species. Much of this subregion has been grazed in the last 15 years for the purpose of vegetation management and includes plots from the Carrizo grazing study (Christian et al. in prep). All livestock grazing has been excluded from specific cultural sites.

Carrizo Plain Central

The Carrizo Plain Central subregion consists of the central Carrizo Plain and the area between Soda Lake and the Panorama Hills. Almost the entire area of the CDFG Panorama unit is within this subregion. Bounded by the foothills of the Temblor and Caliente Ranges, the topography is flat to gently rolling and intersected by drainages from the surrounding hills. Elevations range from 1,950 to 2,600 feet. Overall, the area is drier than the plains in the northern portion of the Monument. Like the Carrizo Plain North, much of this subregion was previously cultivated, was subjected to livestock grazing at one time or another, and now consists predominately of nonnative grassland. Since the area receives less precipitation, the grasslands tend to be sparser and are dominated by bromes instead of wild oats. Valley saltbush scrub is found at the northern edge of the subregion along the border with the Soda Lake Sink subregion and in patches south and east of the KCL Campground. Two other shrub communities, interior Coast Range saltbush scrub and upper Sonoran subshrub scrub, enter the grasslands along drainages from the surrounding foothills. Two federally listed endangered plants, San Joaquin woolly-threads and California jewelflower, are found in this subregion. Stands of *Ephedra* are an important shrub component within this subregion.

The sparse vegetation of the Carrizo Plain Central subregion provides important core habitat for the suite of San Joaquin Valley sensitive species (blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, and San Joaquin antelope squirrel) as well as for mountain plovers. Saltbush scrub supports the northern-most distribution of the Le Conte's thrashers on the Monument. The subregion's vernal pools are breeding habitat for spadefoot toads and support populations of fairy shrimp. Within sandy drainage bottoms are sun cups (*Camissonia* spp.), wildflowers that provide forage for the caterpillars of the endangered Kern primrose sphinx moth. The area also includes important roosting habitat for bats.

The Carrizo Plain Central subregion contains the majority of the San Joaquin Valley sensitive species core area. Much of the area has been grazed in the last 15 years to provide low structure habitat thought optimum for the San Joaquin Valley core species and for the purpose of general vegetation management. This subregion also includes plots from the Carrizo grazing study (Christian et al. in prep). Livestock

grazing is excluded from a small area on the extreme northern end of the subregion. Approximately 35 percent of the subregion was previously tilled and is targeted for restoration with native perennial grasses, shrubs, and herbs.

Soda Lake Sink

The Soda Lake Sink subregion forms the valley center in the northern half of the Monument, a predominantly flat area with minor topographic relief provided by the drainage system, which ends at the lake, and by an ancient clay dune system. Elevations range from 1,950 to 2,000 feet. The subregion is mainly alkali playa, a system of shallow basins with characteristic white salt deposits and associated surrounding saltbush communities. In years with adequate precipitation, the lake and playas fill with water, eventually drying out as the season progresses. Usually the lake dries with the cessation of rains and the onset of summer heat, but occasionally, as with the record rainfall in 1998, standing water can persist until the following rainy season. No vegetation grows within the playas, but they are edged by valley sink scrub, which itself is surrounded by valley saltbush scrub in the slightly less-saline soils. Six rare plants are found within this subregion: Jared's peppergrass, Munz's tidy tips, Lost Hills crowscale, recurved larkspur, spiny-sepaled button-celery, and Hoover's button-celery.

With sufficient rain, temporary pools fill and, depending on the salinity, support brine shrimp and/or several fairy shrimp species (longhorn fairy shrimp, vernal pool fairy shrimp, alkali fairy shrimp, and pouch-pocketed fairy shrimp). Spadefoot toads breed in the less-saline pools. Soda Lake also provides important migratory bird habitat, most notably for long billed curlews, American avocets, and black-necked stilts. Occasionally sandhill cranes, which historically fed among the surrounding grain fields, return to the lake for short periods of time. Flood-prone areas of deeply cracked brown soil provide habitat for wintering mountain plovers. The shrub areas surrounding the playas provide pronghorn fawning habitat. The area is also important habitat for a variety of shrub- and ground-nesting birds.

Current management focuses on Soda Lake, its playa system and associated shrub communities, its vernal pools, and its six rare plants. The subregion includes approximately 16,000 acres of pronghorn habitat. Most of the subregion is closed to livestock grazing; however, about 10 percent of the Soda Lake subregion was grazed for the purpose of vegetation management and includes plots from the Carrizo grazing study (Christian et al. in prep).

Panorama Hills-Elkhorn Plain

The Panorama Hills-Elkhorn Plain subregion, sandwiched between the Carrizo Plain proper and the Temblor Range, includes the Panorama and Elkhorn Hills and adjoining regions. The San Andreas Fault forms the western boundary. All of the CDFG Elkhorn unit and part of the Panorama unit are within this subregion. The topography includes several broad plains within a series of ridges and intervening drainages in a northeast to southwest orientation. Elevations range from 1,950 to 3,250 feet. The southern Elkhorn Plain tends to be among the driest habitat in the Monument. Because of the past history of cultivation and heavy livestock grazing, much of the subregion is expected to need restoration with native perennial grass, shrubs, and herbs. Control of Russian thistle is an ongoing concern.

Much of the vegetation is nonnative grassland, shifting in the drainages and higher elevations to interior Coast Range saltbush scrub. In the area where the Elkhorn and Panorama Hills join, upper Sonoran subshrub scrub occurs. The Temblor Mountain foothills, which form the southeast border of the subregion, are a mix of interior Coast Range saltbush scrub and spiny saltbush scrub. A few small patches of juniper woodland are evident in the upper elevations of the Temblor Range and in the lower Elkhorn Hills. Although much of the grasslands are dominated by introduced species, native bunchgrasses can be found on north-facing slopes and within some shrub communities. Heavy rains in March 1991, the so-

called “March miracle,” appeared to promote saltbush establishment in the Carrizo Plain and western San Joaquin Valley. Among other areas, new populations of common saltbush (*Atriplex polycarpa*) appeared in the drainages extending into the Elkhorn Plain from the Temblor Range. Although some plants have since died out, the saltbush seems to have reestablished populations thought extirpated by the historical practice of year-round grazing. The subregion is home to the endangered San Joaquin woolly-threads, and the rare Temblor buckwheat and forked fiddleneck.

The area is noteworthy for having the highest known density of blunt-nosed leopard lizards (Germano and Williams 2005) and among the highest density of giant kangaroo rats, and includes two large areas of core habitat. The subregion also supports other arid land species once common in the San Joaquin Valley, such as short-nosed kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, and mountain plover. Some areas of common saltbush and, to a lesser extent, ephedra found within this subregion provide habitat for Le Conte’s thrasher. Virtually all of the subregion has recently been grazed: the northern 1/3 as part of Section 15 allotments and the southern 2/3 for the purpose of vegetation management, including plots from the Carrizo grazing study (Christian et al., in prep).

Temblor Range

The Temblor Range subregion contains the upper elevations on the eastern border of the Monument. The terrain is steep and eroded, with an aspect trending generally to the southwest. Elevations range from 1,950 feet to 4,250 feet. Overall, the area is quite dry, with only a few springs present. Vegetation is primarily upper Sonoran subshrub scrub dissected by interior Coast Range saltbush scrub in the drainages and north-facing slopes, where one encounters native bunchgrasses as well. Some of the more mesic (moist) sites on the northwest end support juniper oak cismontane woodland and cismontane juniper woodland and scrub, and there are a few small meadows of nonnative grassland. In the southern end of the subregion, spiny saltbush scrub is present and there are patches of large Alvord oaks in some canyons. The Temblor Mountains are home to upland game species such as California quail, chukar, and mule deer.

The northern 1/3 of the Temblor Range subregion is within Section 15 grazing allotments, as is a small area at the south end. The rest of the subregion has been grazed in the recent past in an effort to achieve vegetation management goals. The subregion is considered marginal habitat for kangaroo rats; however, during favorable conditions in the recent past, the species has expanded along the ridgetops and spread to the crest of the Temblor Range. It is better habitat for antelope ground squirrels and kit fox and provides important linkage between Carrizo Plain and San Joaquin Valley populations. Habitat management in this subregion is focused on preserving and restoring the Alvord oak populations, protecting the linkage between the Carrizo and the Valley, and ensuring the long-term survival of the subshrub scrub, bunchgrass, and yucca communities.

Caliente Foothills North

The Caliente Foothills North subregion lies along the northeast flanks of the Caliente Mountains, from the Monument’s northern boundary, south to the KCL campground. The subregion encompasses the northeast-facing slopes of the Caliente Mountains between the Carrizo Valley floor and their upper elevations. Most of the CDFG American unit is within this subregion. The terrain is relatively gentle to steep, from 1,900 to 3,200 feet in elevation. This subregion tends to get more precipitation than many other areas of the Monument. Because of this, the vegetation is primarily *Avena* (wild oat) dominated nonnative grassland with patches of upper Sonoran subshrub scrub, interior Coast Range saltbush scrub, and Diablan sage scrub in the upper elevations and more mesic sites. Some of these shrub communities in the upper elevations areas also have scattered juniper. A small amount of juniper oak woodland is present along the border with the Caliente Mountains. In the southern portion of the subregion are stringers and

patches of valley saltbush scrub. Springs and their associated riparian vegetation can be found in many of the canyons. Areas of native bunchgrasses, primarily needle grass (*Nassella* spp.) and one-sided bluegrass (*Poa secunda* ssp. *secunda*) are encountered throughout the subregion, most commonly on north-facing slopes. Much of the lower elevation lands were previously tilled and most, if not all, of the subregion was grazed at one time or another; the original vegetation probably tended to be shrub-dominated communities. Rare plants associated with vertisol clay belts in the Caliente foothills include oval-leaved snapdragon, heart-leaved thornmint, and pale-yellow layia. Other rare plants in the subregion include forked fiddleneck and San Joaquin woolly-threads.

The North Caliente Foothills subregion includes habitat for pronghorn foraging and fawning, for elk calving, and for upland birds, especially quail. Scattered throughout the subregion are rock outcrops that provide habitat for bats and birds and occasional temporary pools for fairy shrimp.

Current management focuses on native bunchgrass, shrub communities, native herbs, rare plants, bats, ground-nesting birds, pronghorn, and elk. Over half of the Caliente Foothills North has been grazed for the purpose of vegetation management and includes plots from the Carrizo grazing study (Christian et al. in prep). The subregion also includes a small area where grazing is excluded and the northern portion of a large Section 15 grazing allotment.

Caliente Foothills South

The Caliente Foothills South subregion lies along the northeast flanks of the Caliente Mountains, from the KCL campground to the Monument's southern boundary. The subregion encompasses the northeast-facing slopes of the Caliente Mountains between the Carrizo Valley floor and their upper elevations. The terrain ranges from relatively gentle to steep, from 2,100 to 3,500 feet in elevation. This subregion is drier than the Caliente Foothills North, but more mesic than the valley floor. Vegetation is mostly upper Sonoran subshrub scrub transitioning to *Bromus*-dominated nonnative grassland in the southern end of the subregion. The Sonoran scrub is often dominated by *Ephedra*. Interspersed in the northern end are pockets of interior Coast Range saltbush scrub, valley saltbush scrub, juniper woodland, and nonnative grassland. Areas of native bunchgrasses, primarily needle grass (*Nassella* spp.) and one-sided bluegrass (*P. secunda* ssp. *secunda*) are encountered throughout the subregion, most commonly on north-facing slopes. Introduced annual grasses are common and especially abundant in previously cultivated areas. Much of the lower elevation lands were previously tilled and most, if not all, of the subregion was grazed at one time or another. Rare plants associated with vertisol clay belts in the Caliente foothills include oval-leaved snapdragon, heart-leaved thornmint, and pale-yellow layia. Federally listed plants in the subregion include California jewelflower, San Joaquin woolly-threads, and the recently delisted Hoover's woolly-star.

The Caliente Foothills South subregion provides a little pronghorn foraging habitat as well as some habitat for kangaroo rats and other San Joaquin sensitive species. Some of the dry washes support sun cups (*Camissonia* spp.), larval food for Kern primrose sphinx moth. Vernal pools in the subregion provide habitat for longhorn and versatile fairy shrimp and breeding sites for spadefoot toads. Sag ponds, formed by irregular ground movement associated with the San Andreas Fault, tend to have higher alkalinity and support pouch-pocketed fairy shrimp and brine shrimp. Scattered throughout the foothills are rock outcrops that provide habitat for bats and birds.

Management focus is on California jewelflower and other rare plants, native bunchgrass, shrub communities (especially *Ephedra*), native herbs, Kern primrose sphinx moth, fairy shrimp, spadefoot toads, and bats. Over 80 percent of the Caliente Foothills South subregion has been grazed for the purpose of vegetation management and includes plots from the Carrizo grazing study (Christian et al. in prep). The southern end of the subregion also includes a small portion of a Section 15 grazing allotment. There has

been no authorization of livestock grazing by BLM in a large portion of the northern end due to sensitive resources and the large number of private inholdings; however, trespass grazing by sheep has been a recurring issue.

Caliente Mountains North

The Caliente Mountains North subregion contains the northeast-facing side of the Caliente Range. A small parcel of California State Schools land is within this subregion. The topography is one of relatively steep ridges and drainages, from 2,600 to 5,100 feet in elevation. This subregion generally has the highest precipitation in the Monument. Vegetation is mostly juniper oak woodland and juniper woodland, with the former better represented in the more mesic northwest end of the subregion. In addition, Diablan sage scrub is found interspersed within the woodland communities. Stands of native bunchgrasses are fairly common, especially in the more mesic sites. Several important springs and their associated vegetation are present. About 2/3 of the subregion is part of Section 15 grazing allotments. The remaining 1/3 has been grazed for vegetation management and includes plots from the Carrizo grazing study (Christian et al. in prep). Most livestock activity appears to have been concentrated in the lower elevations.

Sufficient cover is available for upland birds such as California quail and chukar, and habitat is appropriate for deer and elk. Bears are also present. Nonnative wild pigs can be encountered, in higher numbers during wet years. The numerous rock outcrops and cliff faces provide habitat for raptors, other birds, and bats.

Management focus is on oval-leaved snapdragon, native bunchgrass, scrub oak and manzanita scrub, and blue and/or Alvord oak populations.

Caliente Mountains South

The Caliente Mountains South subregion contains the southwest-facing side of the Caliente Range and extends to the southern Monument boundary. The topography is one of steep ridges and drainages, from 1,650 to 5,100 feet in elevation. The region is quite arid; the vegetation a mosaic of Diablan sage scrub, upper Sonoran subshrub scrub, interior Coast Range saltbush scrub, and occasional patches of nonnative grassland. Stands of native bunchgrasses occur in some of the more mesic sites. A few springs and their associated vegetation are present and a few populations of oval-leaved snapdragon can be found in the far western portion,

Within the shrub communities are upland game species such as California quail and chukar and occasional deer are seen. The numerous rock outcrops and cliff faces provide habitat for raptors, other birds, and bats.

On the southern boundary of the subregion, the flatlands and associated canyons bordering the Cuyama Valley could be considered a separate subregion, but this area is included in this document as part of the mapped Caliente Mountains South subregion. Vegetation is primarily saltbush scrub and nonnative grassland that provides habitat for blunt-nosed leopard lizard, giant kangaroo rat, antelope squirrel, and populations of San Joaquin woolly-threads and Hoover's woolly-star.

The northern ¾ of the subregion is within Section 15 grazing allotments. The southern ¼ has been grazed for vegetation management. Most of the livestock activity appears to be concentrated in the lower elevations where reliable water resources are present.

Management concerns include yucca colonies, saltbush vegetation, springs and riparian vegetation, and biological crusts. In the lower saltbush vegetation, focus is on the two rare plants and the giant kangaroo rat, antelope squirrel, and blunt-nosed leopard lizard.

3.2.2 Wildlife

3.2.2.1 Introduction and Habitat Types

The Monument Proclamation that established the CPNM recognized its exceptional biological resources as objects to be protected and the importance of the area as a large remnant of habitat for many wildlife species endemic to the nearby San Joaquin Valley, and as a refuge for the dwindling flora and fauna of the valley. While over 90 percent of the San Joaquin Valley has been converted from grassland, scrubland, and wetland to intensive agricultural, urban, and energy/industrial land uses (USFWS 1998), the CPNM has remained largely intact as a large landscape of native wildlife. The importance of the area is highlighted by the role that the CPNM plays in the conservation and recovery of several San Joaquin Valley animals listed as threatened or endangered. The CPNM has also been designated by the National Audubon Society as a Globally Important Bird Area that is “an internationally important site that if degraded or lost would leave a lasting negative impact on bird populations.”

Management of the Monument has focused on maintaining or enhancing the native plant communities to serve as high-quality wildlife habitat. Over the past 20 years, more than 40,000 acres of previously dryland farmed fields have reverted to grasslands and shrublands that now provide more functional wildlife habitats. Monitoring and research studies have been initiated to determine how the habitats should be managed to meet the Monument Proclamation and management plan goals.

The wildlife found within the Monument is characteristic of the San Joaquin Valley and inner Coast Range Mountains. The Monument Wildlife List (see Appendix K) includes 4 species of amphibians, 22 species of reptiles, 47 species of mammals, and 183 species of birds, of which 41 are special status species (BLM 2007a, 2007b, 2007c). The most common wildlife likely to be seen by visitors include desert cottontail, black-tailed hare, California ground squirrel, San Joaquin antelope squirrel, coyote, San Joaquin kit fox, tule elk, pronghorn, northern harrier, red-tailed hawk, American kestrel, prairie falcon, California quail, long-billed curlew, mourning dove, greater roadrunner, burrowing owl, western kingbird, horned lark, scrub jay, common raven, mountain bluebird, loggerhead shrike, lark sparrow, sage sparrow, savannah sparrow, white-crowned sparrow, western meadowlark, house finch, western fence lizard, side-blotched lizard, western whiptail, San Joaquin coachwhip, gopher snake, and western rattlesnake.

Wildlife habitats of the San Joaquin Valley recognized as objects to be protected under the Proclamation include annual grassland (92,644 acres), alkali desert scrub (52,370), Soda Lake playa (4,827 acres), and small vernal pools (<20 acres). Other wildlife habitats include mixed chaparral (58,236 acres), piñon-juniper woodland (38,509 acres), and small unmapped aquatic and riparian habitats and small patches of oak woodland (see Section 3.2.3, Vegetation, for further descriptions of these habitats) (Mayer and Laudenslayer 1988). Across the landscape, the variety or richness of animals is most often related to the diversity of vegetation structure and the variety of these habitats found within an area (Ronan and Rosenberg 2002). Increased diversity in plant communities provides an increasing number of habitat niches that, in turn, support more animal species (Thomas and Maser 1983). Thus, grasslands generally have lower animal species richness than shrublands. Woodlands support more species than shrublands due to the greater variety of feeding, nesting, resting, and escape cover and food or prey items provided by the more diverse vegetative structure. Riparian and aquatic habitats often have even higher numbers of species due to the availability of water, insects, and more diverse vegetation. A rangeland with a high diversity of communities and successional stages provides habitat for a wide variety of wildlife (Thomas

and Maser 1983). This is often applied in habitat management by managing for a mosaic of habitat types and seral stages (structure) across the landscape.

3.2.2.2 Special Status Animals

Over 40 special status animals inhabit the CPNM (Table 3.2-2). The CPNM has been identified as a core recovery area of natural lands targeted for protection in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). Note that the term “core area” identified on Map 3-2, Special Status Animals and discussed in Chapter 2 of this RMP, refers to CPNM-specific core areas identified for management under this RMP and not to the broader core recovery area identified in the San Joaquin Valley Recovery Plan referenced above. Wildlife species targeted for conservation and recovery in the Monument include blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin kit fox, short-nosed kangaroo rat, Tulare grasshopper mouse, and San Joaquin LeConte’s thrasher. There are a variety of recovery tasks in the Recovery Plan to be implemented in the Monument. The animal species recovery tasks include studies on the effects of fire, the effects of grazing, competition among kangaroo rats, social systems of the giant kangaroo rat, and monitoring and documenting reproduction and demography. The Recovery Plan also identifies the importance of maintaining linkages between the Monument and the Cuyama Valley, Salinas Valley, and Western Kern County. The Monument plays an important role in meeting delisting and downlisting criteria for giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox. Since the Bureau of Land Management (BLM) is obligated under Section 7(a)(1) of the *Endangered Species Act* to carry out programs for the conservation of endangered species and threatened species, the recovery tasks identified for the Monument are a focus of management actions.

Three species listed in the Recovery Plan (short-nosed kangaroo rat, Tulare grasshopper mouse, and San Joaquin Le Conte’s thrasher), though not treated separately in the sections below, have populations occurring within the Monument that receive protection from current and future threats that exist for much of the remainder of the San Joaquin Valley, namely agriculture, development, and energy production. While little is known regarding the habitat requirements of short-nosed kangaroo rat, Tulare grasshopper mouse occupies the same habitat as other listed species such as giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox, and it is therefore believed that management actions to protect these species will also provide protection for the grasshopper mouse (USFWS 1998). Habitat needs of Le Conte’s thrasher are more specialized, requiring mature, appropriately spaced saltbush stands for roosting, nesting, and dispersal. The ground is usually bare or has low-growing vegetation but there must also be sufficient foraging litter beneath or near shrubs to provide adequate insects for food (Fitton 2008). Management objectives and actions as defined in the Conservation Target Table, such as mapping areas of suitable habitat, annual monitoring, and protecting saltbush stands from fire and summer grazing by livestock, will be carried out to ensure ecological requirements are met.

Giant Kangaroo Rat (*Dipodomys ingens*)

Federal status: endangered.

State status: endangered.

Object of the Proclamation.

Regional Context

The giant kangaroo rat is listed as endangered by the CDFG and the U.S. Fish and Wildlife Service (USFWS 1987). Population numbers of the giant kangaroo rat plummeted during the 20th century, mainly as a result of habitat loss as desert areas were converted to agriculture. Over 95 percent of the former range has been lost due to cultivation, overgrazing, mining operations, and invasive weeds (USFWS

Table 3.2-2. Special Status Animals in the Carrizo Plain National Monument

Common Name	Scientific Name	Federal Status	California Status
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	FE, OP	
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT, OP	
Kern primrose sphinx moth	<i>Euproserpinus euterpe</i>	FT	
Western spadefoot toad	<i>Spea (Scaphiopus) hammondi</i>	BS	SSC
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE,OP	SE, SFP
California horned lizard	<i>Phrynosoma coronatum frontale</i>	BS	SSC
Silvery legless lizard	<i>Anniella pulchra pulchra</i>		SSC
San Joaquin coachwhip	<i>Masticophis flagellum ruddocki</i>		SSC
Western small-footed myotis	<i>Myotis ciliolabrum</i>	BS	
Long-eared myotis	<i>Myotis evotis</i>	BS	
Fringed myotis	<i>Myotis thysanodes</i>	BS	
Yuma myotis	<i>Myotis yumanensis</i>	BS	
Townsend’s big-eared bat	<i>Corynorhinus townsendii</i>	BS	SSC
Pallid bat	<i>Antrozous pallidus</i>	BS	SSC
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	BS	
Big free-tailed bat	<i>Nyctinomops macrotis</i>		SSC
Western mastiff bat	<i>Eumops perotis californicus</i>	BS	SSC
San Joaquin antelope squirrel	<i>Ammospermophilus nelsoni</i>	OP	ST
Giant kangaroo rat	<i>Dipodomys ingens</i>	FE, OP	SE
Short-nosed kangaroo rat	<i>Dipodomys nitratooides brevinasus</i>	BS	SSC
Tulare grasshopper mouse	<i>Onychomys torridus tularensis</i>	BS	SSC
San Joaquin pocket mouse	<i>Perognathus inornatus inornatus</i>	BS	
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE, OP	ST
California condor	<i>Gymnogyps californianus</i>	FE, OP	SE, SFP
White-tailed kite	<i>Elanus leucurus</i>		SFP
Bald eagle	<i>Haliaeetus leucocephalus</i>	FD	SE, SFP
Northern harrier	<i>Circus cyaneus</i>		SSC-breed
Swainson’s hawk	<i>Buteo swainsonii</i>		ST
Golden eagle	<i>Aquila chrysaetos</i>		SFP
Peregrine falcon	<i>Falco peregrinus</i>	FD	SCD, SFP
Greater sandhill crane	<i>Grus canadensis tabida</i>		ST
Lesser sandhill crane	<i>Grus canadensis canadensis</i>		SSC
Mountain plover	<i>Charadrius montanus</i>	BS	SSC
Burrowing owl	<i>Athene cunicularia</i>	BS	SSC-breed
Long-eared owl	<i>Asio otus</i>		SSC-breed
Short-eared owl	<i>Asio flammeus</i>		SSC-breed
Vaux’s swift	<i>Chaetura vauxi</i>		SSC-breed
Willow flycatcher	<i>Empidonax trailii</i>		SE
Loggerhead shrike	<i>Lanius ludovicianus</i>		SSC-breed
Le Conte’s thrasher (San Joaquin population)	<i>Toxostoma lecontei</i>	BS	SSC-breed
Yellow warbler	<i>Dendroica petechia</i>		SSC-breed
Oregon vesper sparrow	<i>Poocetes gramineus affinis</i>		SSC-winter
Grasshopper sparrow	<i>Ammodramus savannarum</i>		SSC-breed
Tricolored blackbird	<i>Agelaius tricolor</i>	BS	SSC-breed
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>		SSC-breed

FE: federal, endangered
 FT: federal, threatened
 FD: federal, delisted
 OP: Object of Proclamation
 BS: BLM sensitive

SE: California, endangered
 ST: California, threatened
 SSC: California species of special concern
 breed: known to breed on the CPNM

winter: status applies to CPNM wintering populations
 SCD: California candidate for delisting (recovered)
 SFP: California fully protected

1998). The CPNM provides the greatest expanse of occupied giant kangaroo rat habitat remaining within the range of this species. As such, the Monument has been identified as a critical element in the conservation and recovery of this species (USFWS 1998).

Present Condition and Trends

Populations of giant kangaroo rats have been documented to occur on over 153,000 acres from near Soda Lake to the extreme southern end of the Monument, in the foothills of the Caliente Range, throughout the Panorama Hills and Elkhorn Plain, and along the upper ridgelines of the Temblor Range (see Map 3-2, Special Status Animals). Populations are more robust and persistent in the dryer Elkhorn Plain and in the southern-central portion of the Carrizo Plain where rainfall is generally lower and where vegetative cover is sparser than at the northern end of the Monument. Giant kangaroo rats are most abundant in the Carrizo Central and Panorama Hills-Elkhorn Plain subregions. They are found to a lesser extent in the Carrizo Plain North, Caliente Foothills North, Caliente Foothills South, and Soda Lake Sink subregions. They occasionally occur on the ridgelines of the Temblor Range. They have been observed in some of the flat-bottom arroyos at the base of the Caliente Mountains South adjacent to the floor of the Cuyama Valley.

Giant kangaroo rats are the most abundant and dominant small mammal over the Elkhorn Plain and Carrizo Plains. In many instances, they are the only kangaroo rat in the community (Prugh and Brashares 2007; Germano and Saslaw 1996; Kelly et al. 2004) and have been found to dominate the community to the exclusion of other rodent species (Williams and Kilburn 1991). Occasionally, smaller Heermann's kangaroo rats and short-nosed kangaroo rats may co-occur with giant kangaroo rats, but the larger giant kangaroo rats are found in greater numbers and seem to persist as the dominant species over time (Germano and Saslaw 2007; Kelly et al. 2004). Giant kangaroo rat distributions expand and decline with changing weather patterns (USFWS 1998). Population monitoring data in the Carrizo Plain and Lokern Area in western Kern County indicate that populations have declined in prolonged drought periods as well as in a series of above-average rainfall years (Williams and Germano 1994; Germano and Saslaw 2007; ESRP 2005).

Observations of giant kangaroo rats within the Monument have indicated periods of occupation and extirpation of occupied sites over time. Williams (1985) observed substantial decreases and complete extirpation of giant kangaroo rats at several sites on the Elkhorn scarp and on the Carrizo Plain between 1979 and 1985. More recent monitoring studies have recorded similar decreases and increases in numbers and the distributions of kangaroo rats in the Monument (Christensen et al. 2007; Germano and Saslaw 1996; Bidlack 2007). A significant and widespread decline occurred in the 1994 to 1996 period when giant kangaroo rats were absent from many areas of the Carrizo Plain. Populations were generally maintained on the Elkhorn Plain (ESRP 2005; Germano and Saslaw 1996).

During the course of the grazing study on the Monument (1997-2002), the density of giant kangaroo rat burrow systems (precincts) increased by nearly 50% (1997: 1.73 precincts/ha; 2002: 3.57 precincts/ha). Similarly, the percentage of sampling locations with giant kangaroo rat precincts increased from 21% to 35% during this same period, suggesting an overall increase in abundance of this species. However, the density of giant kangaroo rat precincts was significantly lower in grazed areas than ungrazed ones ($F_{1,1429} = 4.47$; $P = 0.035$). In addition, there was a significant year X grazing interaction term, indicating that the negative effects of grazing were significantly greater in some years (1998, 1999, 2000, 2002; $F_{5,1429}$, $P < 0.0009$).

Studies conducted by the Endangered Species Recovery Program at the Elkhorn Plain Ecological Reserve (ESRP 2005) best illustrate the long-term population fluctuations of giant kangaroo rats since 1987. The largest population decline occurred in 1991 following several years of drought. The record-setting rains of

March 1991 probably resulted in flooding that resulted in a population of only two animals per hectare in April 1991. Subsequently, densities increased to 120 to 140 animals per hectare in 1992 and remained at 60 to 120 animals per hectare through 1997. A record El Niño rainfall year in 1998 resulted in a significant decrease to 20 animals per hectare on an ungrazed plot while remaining at 100 animals per hectare on the adjacent grazed plot (USFWS 2007a). The ungrazed plot numbers increased between 1998 and 2001 to equal the numbers on the grazed plot. During the dry years of 2001 to 2004, the numbers of individuals on the plots remained relatively high at 70 to 130 animals per hectare (USFWS 2007a).

The reasons for the population fluctuations are not well understood. The 1994 and 1995 population declines occurred throughout the San Joaquin Valley in the fifth wettest winter on record, which was also much cooler than normal (Single et al. 1996). Vegetation cover and biomass increased markedly during this period. During this period, Cypher (2001) found negative relationships between vegetation cover and Heermann's and short-nosed kangaroo rats in western Kern County, indicating that dense cover constituted less favorable conditions for these species. He also noted that kangaroo rats, in general, are hampered by dense vegetation (Bartholomew and Caswell 1951) that impedes their ability to detect and elude predators (Rosenzweig and Winakur 1969) and they prefer to forage in area of open bare ground. Recent monitoring of giant kangaroo rats in the Panoche region of western Fresno County found declining numbers of giant kangaroo rat precincts with increasing amounts of residual dry matter (BLM 2007d). Monitoring data from the Carrizo Plain detected a possible threshold of approximately 1,100 pounds per acre residual dry matter, above which precinct densities remain low (Holmes 2004). In most years, giant kangaroo rats are able to remove vegetation cover to meet their needs, but it appears that vegetation can occasionally become too dense to meet their habitat requirements. Focused studies are currently underway to evaluate the effects of cattle grazing on giant kangaroo rat populations, habitat structure, and how both cattle and giant kangaroo rats affect vegetation structure and composition (Prugh 2007).

The CDFG conducted mapping of giant kangaroo rat distributions on the Carrizo Plain and Elkhorn Plain during aerial surveys in 2001 and 2006 (see Map 3-2, Special Status Animals). During the intervening years, the distributions of giant kangaroo rats increased in area by 83 percent. BLM monitoring studies that counted active giant kangaroo rat burrow systems between 1997 and 2005 recorded increases in the numbers averaging from 0.92 animals per acre in 1997 to 28.3 animals per acre in 2005 in 12 pastures where giant kangaroo rats commonly occurred (Christensen et al. 2007). It appears that the Elkhorn Plain and the south-central portion of the Carrizo Plain have had the most persistent populations of giant kangaroo rats in both drought and wet periods to serve as source populations for population expansions. Some of the lower foothills of the Caliente Range may also serve this purpose.

Current Management Program

The giant kangaroo rat is specifically identified as an object of the Proclamation and is considered a keystone species in the ecological function of the annual grassland and alkali desert scrub wildlife habitats in the Monument. As a keystone species, this animal contributes disproportionately to biotic and abiotic factors in the ecosystem (Goldingay et al. 1997). Kangaroo rats consume and distribute seeds of many plants, clip vegetation, and modify soil properties through their extensive burrowing and precinct maintenance activities (Brown and Heske 1990; Schiffman 1994). For example, several other endangered animals and plants depend on giant kangaroo rat vegetation clipping above their burrow systems, called precincts, for habitat structure, food, and cover (Goldingay et al. 1997; USFWS 1998). As a keystone species, management actions are aimed at maintaining populations of giant kangaroo rats across the landscape, where appropriate, to maintain ecological function within the natural range of variation. Thus, the distribution and abundance of giant kangaroo rats are considered to be indicators of ecosystem health and success in managing for many of the biological objects of the Proclamation. They are often a key factor in determining vegetation management objectives. Monitoring has focused on management effects

and on population trends of giant kangaroo rats. BLM and the managing partners have provided financial and logistical support to several research projects focused on this species. A more focused giant kangaroo rat study was initiated in 2006 by the managing partners and the University of California, Berkeley, to evaluate livestock grazing between grazed and ungrazed plots in the central Carrizo core area. This study is researching the interactions of cattle grazing and giant kangaroo rat grazing on vegetation composition and structure and on giant kangaroo rat populations in paired grazed and ungrazed (cattle excluded) plots (Prugh and Brashares 2007).

Monitoring data suggest that giant kangaroo rats have been able to successfully manipulate the amount of nonnative grass and forbs in most years to maintain their distributions and abundance across the Monument landscape. In average rainfall periods when there are ample openings in nonnative grass cover, and in low rainfall periods when little vegetation structure is produced, they are generally abundant across the landscape of the plains. In periods of prolonged drought (such as the 1989 to 2001 period), the populations decline, but there are few management options to reverse these declines. In occasional wet periods, a landscape-wide dense cover of grass has occurred that could be the cause of extensive giant kangaroo rat population declines. Such wet periods may have only occurred about six times over the past 118 years, based on Bakersfield rainfall records (NOAA 2008). Over the past 15 years, BLM and the Nature Conservancy (TNC) have occasionally applied prescribed fire and have more generally used livestock grazing as management tools to maintain habitat conditions favorable to giant kangaroo rats in periods of high nonnative grass growth and cover. Monitoring studies are conducted to evaluate these management tools and determine under what conditions and intervals vegetation management may be required to maintain giant kangaroo rat populations.

The giant kangaroo rat recovery strategy (USFWS 1998) stated that the highest priority recovery action is proper land use and management of the publicly owned and conservation lands in the Carrizo Plain Natural Area and several other areas. This strategy considered that historic land uses that maintained giant kangaroo rat populations, such as livestock grazing, should be reestablished where appropriate. The strategy places equal importance on research that focuses on the effects of livestock grazing on habitat quality. BLM plans to implement this conservation recovery strategy through managing viable populations with livestock grazing and/or prescribed fire, and through population and habitat monitoring.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

Federal status: endangered.

State status: threatened.

Object of the Proclamation.

Regional Context

The San Joaquin kit fox is a subspecies of kit fox that inhabits much of the valley floor and foothills of both the Carrizo and Elkhorn Plains within the Monument. This species was listed by the federal government as endangered in 1967 and is included in the USFWS *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). The San Joaquin kit fox was listed as threatened by the State of California in 1971.

Based on Grinnell et al. (1937), the historical range for the San Joaquin kit fox is believed to have once included nearly the entire San Joaquin Valley. Current distribution includes the southern tip of the San Joaquin Valley to Contra Costa County but the kit fox is largely absent from the east side of the San Joaquin Valley. Furthermore, agriculture throughout the San Joaquin Valley makes distribution spotty (CDFG 2008a) and has caused habitat to become highly fragmented (Cypher et al. 2005). Three core populations of foxes now exist within their remaining range. The largest of the three is found in the

CPNM, making this area vital for the recovery of the species (USFWS 1998). A management plan that includes the survival of kit foxes as a management goal is an important downlisting criteria (USFWS 2007b). The kit fox is considered an umbrella species (USFWS 1998) since its habitat requirements and occurrence overlaps many other imperiled San Joaquin Valley species. The USFWS and CDFG consider efforts to protect and conserve the San Joaquin kit fox to also benefit other San Joaquin Valley listed species.

Present Condition and Trends

Approximately 150,000 acres within the Monument are considered suitable habitat for the San Joaquin kit fox (see Map 3-2, Special Status Animals). The openness of the valley floor, as well as the gentle topography of nearby foothills, provides the necessary prey base and the ability to see and avoid predators such as coyotes and bobcats (Nelson 2005). Plant communities associated with kit fox habitat on the Carrizo Plain are valley sink scrub, valley saltbush scrub, upper Sonoran subshrub scrub, and nonnative grassland. The Carrizo Plain Central, Carrizo Plain North, and the Panorama Hills-Elkhorn Plain subregions contain the highest percentage of kit fox habitat in the Monument. The Soda Lake Sink is used to a lesser extent and is likely avoided because of the dense shrub cover. The lower elevation and gentle drainages of the Caliente Mountains South may provide important remnants for kit foxes living in the Cuyama Valley, but no recent observations have been recorded.

Population estimates of foxes within the Monument are not well known. Quarterly spotlighting surveys have been conducted by the CDFG since 1970 and have averaged 22 kit foxes along Elkhorn Road and 16 along Soda Lake Road. Survey numbers ranged from 4 to 66 along Elkhorn Road and from 0 to 64 along Soda Lake Road (Bidlack 2007). There has been a shift in kit fox distributions along Soda Lake Road, with fewer foxes observed in the southern portion of the survey route and a higher proportion of foxes observed in the northern half of the route. In contrast, the Elkhorn Road observations were relatively constant through the 35 years. The distributions of kit foxes were strongly correlated to the distribution of giant kangaroo rats. As kangaroo rats expanded their distributions between 2001 and 2006 by 83 percent (see Map 3-2, Special Status Animals), kit fox observations also expanded with the giant kangaroo rat range. In addition, kit fox observations were higher in the middle portions of the routes than at the ends near the Monument boundary. Kit fox numbers were quite variable over time, and the populations did not correlate to rainfall or the land cover of grasslands or shrubs.

Within the Monument, the availability of large tracts of relatively natural, wild lands where rodenticides are prohibited is important for the continued survival of kit foxes. Threats to kit fox in the CPNM include natural phenomena such as drought and predators, and human-caused impacts including vehicle strikes and shootings. Fluctuations in prey populations due to drought or other factors affect kit fox reproduction in that many pups do not survive (USFWS 1998). Natural predators include coyote (*Canis latrans*), bobcat (*Felis rufus*), red fox (*Vulpes vulpes*), golden eagle (*Aquila chrysaetos*), and other large raptors. Except for coyotes, kit foxes are a food source for these animals. Coyotes, more often than not, do not eat kit foxes but kill them because they are in direct competition for the same food sources (B. Cypher, personal communication, 2007; Nelson 2005). Red foxes are known to occur just north of the Monument and have not been considered a major threat.

Vehicle strikes occur occasionally on Soda Lake Road, the main road through the Monument that receives the highest amount of vehicle use. Strikes have occurred along paved and unpaved sections of road but foxes are especially vulnerable when dens are located close to the edge of the road (BLM staff, personal observation, 2004-2007). There is a concern that kit fox are mistaken for young coyotes and as a result, killed as varmints, though this has not been documented.

Current Management Program

San Joaquin kit fox is specifically identified as an object of the Proclamation and is considered an umbrella species for the conservation of listed species and management of the Monument. BLM and the managing partners have provided funding and logistical support for kit fox research on the Monument. The CDFG continues to conduct quarterly spotlighting surveys and the 35 years of data were recently analyzed by Bidlack (2007). A number of recent studies conducted outside the Monument in western Kern County have provided information pertaining to road effects, effects of habitat and competition with coyotes, and survey methods (Cypher et al. 2005).

Management of prey populations and an open low grass structure of vegetation have been the primary focus of kit fox management. Management has generally been applied to reduce the amount of nonnative grass to improve conditions for prey species. Studies have found that small nocturnal mammals comprise over 30 to 50 percent of kit fox diets, with California ground squirrels, black-tailed jackrabbits, desert cottontails, ground-nesting birds, reptiles, and insects making up the remainder (White et al. 1996; White and Ralls 1993). Cypher et al. (2000) noted that food availability appears to be the primary factor influencing kit fox population dynamics. Therefore, management strategies that create more abundant food supplies would potentially benefit kit foxes. They also noted that vegetation management tools such as controlled grazing or burning might increase kangaroo rat abundance. Habitat management has aimed to create a variety of grassland and shrubland conditions that favor this wide array of species across the landscape.

Livestock grazing and prescribed fire have been used to reduce vegetation biomass. While monitoring studies indicated a lower abundance of giant kangaroo rat precincts in grazed relative to ungrazed pastures between 1997 and 2003, there was a substantial increase (from 1 precinct per acre to 40 per acre) of the overall abundance of giant kangaroo rats in both grazed and ungrazed pastures from 1997 to 2005. Livestock grazing did appear to maintain a higher abundance in the grazed pasture relative to the ungrazed enclosure at the Elkhorn Plain Ecological reserve during the extremely high biomass production in 1998 and 1999. Similarly, a prescribed burn in the West Well pasture in 1995 appeared to maintain giant kangaroo rat abundance relative to the unburned area for one year during the widespread declines of 1995. Since giant kangaroo rats are able to maintain abundant populations and modify the vegetation biomass to meet their needs in most years, prescribed burning or grazing is generally being employed to maintain kit fox prey populations in the occasional years of high vegetation biomass.

Two educational videos are currently being produced about the Carrizo Plain and San Joaquin Valley grasslands to inform the public of the importance of the preservation and protection of annual grasslands. The CPNM website currently informs hunters about the visual similarities between kit fox and young coyote and advises caution when hunting varmints to avoid shooting kit foxes. Roadside signage is in the design phase to alert drivers of the need for caution in areas of high kit fox densities along the higher speed County roads. Enforcement of speed limit laws, when possible, helps prevent vehicle casualties of all wildlife. Also, to prevent possible vehicle strikes, tall grasses and weeds along these areas are mowed each year to allow drivers to more easily see kit fox along the road and to allow animals to cross safely.

Blunt-Nosed Leopard Lizard (*Gambelia sila*)

Federal status: endangered.

State status: endangered, fully protected.

Object of the Proclamation.

Regional Context

The blunt-nosed leopard lizard was listed as endangered by the U.S. Department of the Interior in 1967 and the State of California in 1971. This species is also included for protection under the California *Fully Protected Species Act* that prohibits the lawful take of this species.

The Monument is one of largest remaining population centers for the blunt-nosed leopard lizard and has been identified as one of five key areas for their conservation and recovery (USFWS 1998). The Elkhorn Plain may represent one of the best remaining habitats for this species when environmental conditions are favorable (Germano and Williams 2005). The Monument offers a large-scale ecosystem where many of the research and monitoring tasks identified in the Recovery Plan can be conducted.

Present Condition and Trends

Blunt-nosed leopard lizards are closely associated with the distributions of giant kangaroo rats due to the kangaroo rat's vegetation clearing and burrowing activities (see Map 3-2, Special Status Animals). They occupy about 87,600 acres of the Monument and are most abundant on the Elkhorn Plain, in the south-central portion of the Carrizo Plain, and in the foothills area where the vegetation structure tends to be more open with less dense and persistent grass cover. The number of blunt-nosed leopard lizards occupying a site appears to be quite variable between years and may be correlated to weather, rainfall, vegetative cover, and prey availability (such as grasshoppers, coleopteran beetles, bees, wasps, and ants) (Germano et al. 2007). Studies conducted on two 20-acre plots on the Elkhorn Plain estimated populations ranging from 20 above-ground adults in the drought year of 1990 to more than 164 in 1993. Hatchlings were even more variable in numbers, ranging from 0 in 1990 to 273 in 1993 (Germano and Williams 2005). Between the years 1993 and 2005, the number of blunt-nosed leopard lizards at the Elkhorn Plain Ecological Reserve ranged from a high of 187 in 1993, to a low of 3 in 1999, then back to a high of 30 in 2005. The numbers on the nearby grazed plot were 54 in 1993, 0 in 1999, and 19 in 2005. Over the years of study, the Elkhorn Plain Ecological Reserve had 1.5 to nearly 5 times the number of blunt-nosed leopard lizards as the plot subject to grazing.

In 2007 the CDFG re-sampled a number of quarter sections (160 acres) previously surveyed for blunt-nosed leopard lizard by California Energy Commission biologists (under BLM contract) in 1988. Using similar one-day walking transects, the CDFG survey found blunt-nosed leopard lizard in 13 of the 15 quarter sections. This survey suggests that the overall distribution of blunt-nosed leopard lizards appears to be similar to those seen in the late 1980s when the managing partners began acquisitions and management.

Current Management Program

Blunt-nosed leopard lizards are specifically recognized as an object of the Proclamation and are a focus of habitat management prescriptions. The acquisition of private lands on the Carrizo and Elkhorn Plains has made substantial contributions toward the recovery of this species. Monitoring of blunt-nosed leopard populations and habitat conditions has been conducted by the Endangered Species Recovery Program at the Elkhorn Plain Ecological Reserve and adjacent BLM plots since 1989. The CDFG has conducted periodic walkover surveys of several locations within the Monument to monitor general distribution.

Habitat management has focused on providing suitable habitat of open ground cover, low grass structure, and scattered shrubs in the south-central Carrizo Plain, Elkhorn Plain, and Panorama Hills areas. Landscape-level habitat monitoring has been focused on giant kangaroo rats as the keystone species that provides habitat for blunt-nosed leopard lizard. However, there are limitations to this approach since blunt-nosed leopard lizards are hindered by the thick grass cover that occurs during their breeding and foraging activities, before the giant kangaroo rats begin clipping the grass later in the spring.

San Joaquin Antelope Squirrel (*Ammospermophilus nelsoni*)

Federal status: BLM sensitive.

State status: threatened.

Object of the Proclamation.

Regional Context

The San Joaquin antelope squirrel was listed by the State of California as a threatened species in 1980 (CDFG 1980). The CPNM is known to support two of four substantial populations of San Joaquin antelope squirrels remaining within its historic range (USFWS 1998). Both the Carrizo and Elkhorn Plains are important population centers where they are often found in association with giant kangaroo rats. Harris (in Williams et al. 1988) stated that the Carrizo and Elkhorn Plains and the Elk Hills and Buena Vista Valley are the heart of the San Joaquin antelope squirrel range. He also stated that BLM lands on the margin of the Caliente Range and Cuyama Valley are critical for maintenance of the species in the southwestern end of its range.

Present Condition and Trends

Antelope squirrels occur over 153,000 acres of the Monument and are most abundant in the central, eastern, and southern regions of the CPNM, with fewer observations in the northern area west of Soda Lake. They also occur at the ridgeline and slopes of the Temblor Range. San Joaquin antelope squirrels are most abundant in areas of sparse to moderate shrub cover, but may occur in shrub-free areas where giant kangaroo rat burrows are abundant or where they can easily excavate their own burrows in friable soils (USFWS 1998). Populations on the Monument have experienced fluctuations similar to those seen for giant kangaroo rats. They were commonly seen following the 1990 drought, but less abundant during the 1995 and 1998 El Niño period. Populations appear to have been more widespread and abundant since 2003. However, no Monument-wide surveys have been conducted to evaluate population trends or determine detailed distributions.

Current Management Program

As described for the previous San Joaquin Valley species, acquisition of habitat by TNC, BLM, and CDFG have made substantial contributions to the conservation and recovery of this species. Ecological studies of antelope squirrels were conducted at the Elkhorn Plain Ecological Reserve and showed some of the highest numbers within their range to occur there (Williams et al. 1988). A radio tracking study was conducted by the U.S. Geological Survey (USGS) on the Carrizo Plain between 1995 and 1997 (Rathbun 1997). During that study, antelope squirrel declined from 15 animals captured in 1995 to 2 in 1996 and none in 1997. Burrows were found to be on the edge of giant kangaroo rat precincts, often just beyond the clipped grass. Burrows were only rarely found in the area between precincts (Langtimm and Rathbun 1995). Currently, antelope squirrel habitat use is being studied by Prugh and Brashares (2007) in an evaluation of livestock grazing as a vegetation management tool.

Habitat management has focused on providing suitable habitat of open ground cover, low grass structure, and scattered shrubs in the south-central Carrizo Plain, Elkhorn Plain, and Panorama Hills areas. Several prescribed burns have been conducted to improve habitat conditions for this species. Landscape-level habitat monitoring has been focused on giant kangaroo rats as the keystone species that provides habitat for San Joaquin antelope squirrels.

Pallid Bat (*Antrozous pallidus*), Western Mastiff Bat (*Eumops perotis*), and Other Bats

Federal status: BLM sensitive species.

State status: species of special concern.

Regional Context

Population declines have resulted in 12 of the 26 species of California bats being designated as BLM-California sensitive species or California species of special concern. Four of these species (pallid bat, western mastiff bat, fringed myotis, and big free-tailed bat) have been documented in the CPNM. Three additional species (Townsend's big-eared bat, Yuma myotis, and long-eared myotis) may also occur on the CPNM. Of the 26 bat species known from California, the CPNM provides documented or potential habitat for 12 of these species (Johnston 1998, 2007; P. Kelly, California State University-Stanislaus personal communication, 2000; C. Johnson, California Department of Transportation, personal communication, 2000; D. Williams, California State University-Stanislaus, personal communication, 2002).

The regional importance of the Monument to bat conservation is largely unknown. However, pallid bats appear to be relatively common throughout the western side of the CPNM. As this species is more scarce and declining substantially in other parts of California, the relative abundance of pallid bats in the CPNM is of regional significance (Johnston 1998).

Present Condition and Trends

Loss of roosts and direct persecution by humans are thought to be the primary cause of bat population declines (Tuttle 1988). The presence of water also influences bat distributions. Upon emerging, most bats take a drink of fresh water from a pond, water trough, or other source of surface water, and then set off to forage. The proximity to available water and foraging areas can influence the use of roosts by bats.

Known bat roosts in the CPNM include structures, rock formations, and hollow trees. Structures in several ranch complexes have been documented as bat roosts. Structures known to be used by bats include Saucito Ranch house (Johnston 1998), several structures at the Washburn Ranch (J. Hummel, BLM, personal communication, 1996; D. Williams, California State University-Stanislaus, personal communication, 1998), several structures at the KCL Ranch, L.E. Traver Ranch house, and the Van Matre Ranch metal shed. Rock formations known to be used as roosts include the series of rocks between Painted Rock and Selby Rocks (Johnston 1998), rock outcrops and slabs on the eastern flank of the Caliente Mountains, and the occasional outcrop on the Elkhorn Plain and Panorama Hills (D. Christian, BLM, personal communication, 1999; K. Cuevas, BLM, personal communication, 1999).

Several structures are consistently well-used pallid bat roosts. The abandoned cinder block house at the L.E. Traver Ranch, the metal shed at the Van Matre Ranch, the Washburn Ranch bunkhouse, and the structures at the KCL Ranch area have been long used by pallid bats. The L.E. Traver Ranch house is used as a pallid bat night roost and a maternity colony was documented in the garage wall in 1998. The hollow cinderblock walls of the L.E. Traver Ranch house may also be used as day roosts. The Van Matre Ranch, Washburn Ranch, and KCL Ranch structures are used as night roosts.

Two of the CPNM bat species, the pallid bat and the western mastiff bat, are considered imperiled or at high risk. The number of pallid bats occurring in coastal California has continued to decline substantially in recent years (Johnston 1998). Individuals and maternity colonies are sensitive to human disturbances at roost sites, and coastal populations are threatened by the loss of oaks (Johnston 1998). Other possible causes for the decline include loss of habitat, pesticides, and eviction from human-made structures.

Current Management Program

Natural bat roosts receive little impact from visitors and are unaffected by Monument activities. However, many of the uninhabited human-made features that have provided roosting habitat for bats have been subject to deterioration, vandalism, or removal. Several structures documented to be used as bat roosts have been stabilized or are managed in a state of arrested decay to maintain bat habitat. Several of these sites are used for visitor education about bats and bat conservation. Several surveys and assessments for bats have been completed.

California Condor (*Gymnogyps californianus*)

Federal status: endangered.

State status: endangered, fully protected.

Object of the Proclamation.

Regional Context

The California condor was listed by the State of California as a fully protected species in 1954 and was federally listed as endangered in 1967 (USFWS 1996). Prior to their capture in 1987, foraging California condors commonly used the Carrizo Plains, Panorama Hills, and the Elkhorn Plain (USFWS 1984a). These areas were used by condors year-round with the heaviest use recorded in late winter and spring (USFWS 1996). Between 1982 and 1987, condor sightings were most common on the southern portion of the Monument, which is adjacent to the Bittercreek National Wildlife Refuge. The CPNM is recognized in the Condor Recovery Plan as a key foraging area that is fairly close to traditional nesting sites (USFWS 1996).

Present Condition and Trends

In the past, condors would routinely travel between the La Panza Range, located just north and west of the CPNM, and the Sespe Condor Sanctuary, located near Fillmore. A common flight path cuts across the Los Padres National Forest in Santa Barbara County and follows the Cuyama Valley and Caliente Range ridgeline. At the northern extreme of the Caliente Range, the path crosses over Highway 166 and continues to Freeborn Mountain and Hubbard Hills and the La Panza Range. Foraging condors have not used the Monument in recent years. The availability of large carrion such as cattle, sheep, tule elk, pronghorn, and mule deer is believed to be an important factor in future condor use of the Monument. Implementing management recommendations and strategies to minimize contaminant-related mortality and provide lead-free and pesticide-free carcasses is identified as a Priority 1 task in the Condor Recovery Plan. Priority 1 tasks are actions that must be taken to prevent extinction or to prevent the species from declining irreversibly.

Currently, the most serious sources of human-related mortality are lead poisoning, shooting, collisions with power lines, and the ingestion of small pieces of garbage. With the passage of AB 821, the *Ridley-Tree Condor Preservation Act* in August 2007, lead ammunition will be regulated within the present and historic range of the California condor, including the Monument.

Current Management Program

As an object of the Proclamation, BLM manages the Monument to maintain unobstructed condor habitat and provide foraging areas that do not pose risks to individual birds. The USFWS still intends to utilize the CPNM as a supplemental feeding location for condors. In the future, use of the CPNM by condors may resume either as the wild condor population increases or due to use as a supplemental feeding site. Maintenance of foraging habitat and potential sources of food on the CPNM is identified as a Priority 1 task in the Condor Recovery Plan.

Condor biologists use the Elkhorn Hills to monitor the movements of radio-tagged condors. From a spur road leading off Elkhorn Hills Road, USFWS biologists are able to pick up radio signals from as far away as the Sierra foothills.

Greater Sandhill Crane (*Grus canadensis tabida*) and Lesser Sandhill Crane (*Grus canadensis canadensis*)

Greater Sandhill Crane:

Federal status: none.
State status: threatened.

Lesser Sandhill Crane:

Federal status: none.
State status: species of special concern.

Regional Context

Sandhill cranes (*Grus canadensis*) are winter visitors to the Monument that have been closely associated with the occurrence of standing water in Soda Lake and the cultivation of grain crops in adjacent farm fields. The most common subspecies inhabiting the Monument are lesser sandhill cranes (*G. canadensis canadensis*) with 5 to 10 percent of the population estimated to be greater sandhill cranes (*G. canadensis tabida*), a California-listed threatened species (Gernon 1978). Flocks of cranes may arrive as early as October before the fall rains create standing water on the lakebed, but the largest numbers are seen after substantial rains form the shallow lake on the dry Soda Lake playa. Cranes have been observed flying between the Soda Lake habitats and the San Joaquin Valley during the winter season. The birds often depart the Soda Lake wintering range in mid March.

Present Condition and Trends

The number of sandhill cranes wintering in the Monument has been declining over the past 19 years (Audubon 2008). Crane numbers have dropped from a high of 5,768, counted during the 1986 Christmas Bird Count, to a low of 0 in the 2001 count. In the 2004 and 2005 counts, there were 46 and 12 birds, respectively. No cranes have been observed since 2005. This decline is probably due to the elimination of 40,000 acres of grain crops that were cultivated by dryland farming in the Monument prior to TNC acquisitions in 1988 and the overall decline of cultivated grain fields in California Valley and the foothills adjacent to the Monument. The decline in crane numbers has not been consistent with fall precipitation, and has occurred while the numbers of sandhill cranes counted in California during the Christmas Bird Counts has remained high (above 20,000 birds in 2001). It appears that the availability of wheat directly adjacent to Soda Lake may have been important for cranes, since use of the CPNM by cranes has declined to very low numbers without such food supplies.

Historically, the activities of sandhill cranes wintering on the Monument have centered around roosting sites in or near Soda Lake, where large flocks gathered to spend the night. Preferred sites are associated with shallow water, an open shoreline, level terrain, and isolated locations away from human disturbance

(Lewis 1976). Gernon (1978) observed cranes using sink habitats adjacent to Soda Lake as alternate roosting sites. However, during very wet periods, when Soda Lake and adjacent sink habitats became too deep in water for the cranes to use, the cranes used open grassland sites with ephemeral ponds further south of Soda Lake. As water depths decreased, the sink habitat with many small sinkholes became the primary roosting site, but Soda Lake was probably still too deep to use.

Current Management Program

The prospect of seeing sandhill cranes in the Soda Lake area attracts many bird watchers in the winter season. The boardwalk constructed on the west side of Soda Lake provides an opportunity to see these birds on the lake. The managing partners discourage human activities around other portions of the lake during the winter season, to provide secure roosting habitat. No grain crops have been planted in the Monument since the land acquisitions by the managing partners in 1987, and the amount of grain cultivation has also decreased on the adjacent private lands over the past 20 years.

Mountain Plover (*Charadrius montanus*)

Federal status: BLM sensitive.

State status: species of special concern.

Regional Context

Mountain plovers are winter visitors to the Monument from October through March, migrating from their summer breeding range in the western Great Plains and Colorado Plateau regions of New Mexico, Colorado, Wyoming, Montana, and the panhandles of Texas and Oklahoma. On their wintering grounds, they use open grasslands, which historically supported tule elk, pronghorn, and kangaroo rats. They prefer open, flat tablelands with local aridity, disturbance, or, when found in prairies, short intensively grazed grass (Knopf 1996).

On their winter ranges on the CPNM, mountain plovers prefer very open habitats created by recent fires, heavily grazed areas, and naturally unvegetated barrens (Knopf and Rupert 1995). Clipping of vegetation by extensive numbers of giant kangaroo rats across large areas also provides plover habitat in most years. Based on repeated Carrizo Plain roadside surveys, vegetative structure can greatly influence plover use and distribution; however, prey abundance is equally important but less directly influenced by vegetation management. Vegetation management decisions (such as graze or no graze, burn or no burn decisions) and various stochastic events, such as tall and thick vegetation growth after rainfall events, can influence whether a potentially suitable area is available for plover use or not. When few sites are available on the CPNM, the birds likely move to farmed fields in the San Joaquin Valley (Knopf and Ruppert 1995). Species experts are concerned about this movement since the birds are then more likely to be exposed to pesticides used in agricultural farm fields.

Present Condition and Trends

On the Monument, mountain plover population numbers are variable between years. Roadside surveys have ranged from a high of over 500 to a low of 10 detections. During the 1980 to 2007 Christmas Bird Counts, the average count was 57 plovers; there was a high of 176 in 1980, 142 in 1986, 125 in 2004, 99 in 2005, 0 in 2006, and 18 in the 2007 (Audubon 2008). Winter surveys conducted in 2005 through 2007 resulted in 41 birds in 2005, 247 in 2006, and 91 in 2007 (BLM 2005-2006-2007). While habitat suitability within the Monument may have an influence on the number of wintering plovers, it is more likely that factors such as the breeding ranges, food resources, environmental contaminants, and

availability of alternate wintering areas determine the number and trends of mountain plovers on the Monument.

In dry years with little vegetative production, most of the grasslands with sparse shrub and herbaceous cover are used in the fall and winter until spring growth of annual vegetation exceeds the bird's tolerance for height and cover. In wet periods of high vegetative growth and cover, only the natural barrens or disturbed sites are used, but the barrens have been unavailable in wet years due to standing water. Foraging generally occurs in habitats with less than one inch of vegetation; bare ground, including disturbed patches on kangaroo rat precincts; sites of heavy sheep or cattle grazing; or around water facilities, dirt or gravel roads, and plowed or fallowed fields.

The maximum theoretical extent of mountain plover habitat within the Monument is approximately 69,000 acres. This habitat may be reduced depending on the density and height of residual dry matter present, which fluctuates dramatically from year to year and even within the period between October and March when mountain plovers are most likely to be found in the Monument. Plovers first arriving at the Monument in fall could find either near maximum potential habitat or very few acres, depending on the amount and height of the remaining standing vegetation. The increase in new plant growth in the late winter can eventually make suitable areas unsuitable. In addition, the brown colored playas are some of the most frequently used habitats in the CPNM, but with sufficient rainfall they become shallow lakes, unsuitable for this bare-ground plover. Occasionally, the spring green season is advanced enough and in such abundance that mountain plovers have few areas of suitable habitat prior to their normal departure date of mid March.

Current Management Program

Management of mountain plover habitat has focused on maintaining an open habitat structure within traditional use areas of the Monument. It appears that giant kangaroo rat clipping provides adequate low vegetation structure in the fall and early winter in most years. Both prescribed fires and livestock grazing have been used to reduce standing biomass for the fall season when plovers arrive. Livestock grazing has also been used to reduce grass growth and maintain suitable low structure throughout the winter. Since the upland areas managed for plovers overlap with the distributions of giant kangaroo rats, blunt-nosed leopard lizards, and San Joaquin antelope squirrels, management prescriptions for these species also serve the habitat needs of the mountain plover. Surveys of wintering mountain plovers in the Monument are held annually.

Western Burrowing Owl (*Athene cunicularia hypugea*)

Federal status: BLM sensitive species, protected under *Migratory Bird Treaty Act*.

State status: species of special concern.

Regional Context

In California, the burrowing owl is a state species of special concern and a BLM sensitive species. California supports one of the largest resident (year-round) and winter migrant populations of burrowing owls in the United States (Klute et al. 2003). The Carrizo Plain is one of the largest areas of undeveloped grassland habitat left for burrowing owls in California (Rosenberg et al. 1998). The Carrizo Plain has served as a study site that is part of a California-wide program that includes study sites representing the four major habitat types used by burrowing owls in California:

- small patches of remnant grassland surrounded by agriculture (Lemoore Naval Air Station),
- large expanses of grassland (Carrizo Plain),

- agricultural systems where owls nest along irrigation banks (Imperial Valley), and
- remnant grasslands surrounded by urban or suburban development (South San Francisco Bay Area).

Present Condition and Trends

Our understanding of burrowing owls on the CPNM is due largely to the work conducted by Dr. Daniel Rosenberg and his team of field researchers. Dr. Rosenberg and his team have prepared a number of reports that detail their work on the Carrizo Plain (Gervais et al. 1997; Rosenberg and DeSante 1997; Rosenberg et al. 1998; Ronan and Rosenberg 1999, 2000; Ronan 2002; Catlin 2004; Rosenberg et al. 2007).

Burrowing owls are widely distributed in the CPNM. Most nests are found on the flat plains, with the exception of a few found in low, rolling hills (Ronan 2002; Rosier et al. 2001). On the CPNM, owls use burrows created primarily by California ground squirrels. Burrowing owls prefer areas of short, sparse, and open vegetation. Rosenberg et al. (2007) found overwhelming selection for grassland rather than almost equally available scrub vegetation types. Owls also favored sites with greater numbers of large-diameter burrows and burrows near vegetation that acts as a short perch (Rosenberg et al. 2007).

A total of 186 nests were located on the Carrizo Plain between 1997 and 2002 (Rosenberg 1998; Ronan and Rosenberg 1999, 2000; Tice and Rosenberg 2002). During the 1997, 1998, 1999, 2000, and 2002 nesting seasons, researchers located 37, 32, 40, 46, and 31 active nests, respectively, on the Carrizo Plain. Researchers considered this to be a small subset of the owls within the Carrizo Plain (D. Rosenberg, Oregon State University, personal communication, 2004).

The continuing research has allowed documentation of the temporal dynamics of burrowing owl populations and their environment on the Carrizo Plain. In their 2000 progress report, Ronan and Rosenberg noted the following:

The 1998 season was characterized by heavy rains, extensive vegetation growth, low numbers of burrowing owls and low nest success. The 1999 season was characterized by more normal precipitation, lower vegetation density and height, a “boom” in rodent numbers, higher numbers of burrowing owls and higher nest success. The 2000 season was characterized by much drier conditions, very low vegetation density and height, and a moderate level of nest success.

Ronan and Rosenberg (2000) also commented that the 2000 season was notable in that many of the historic nest sites that had been active for several years were inactive in 2000.

Burrowing owls have been consistently observed during the Carrizo Breeding Bird Survey and Carrizo Christmas Bird Count since the early 1990s. During this period, each survey had only two years where no owls were observed. Commonly, 1 to 4 owls are observed and occasionally large numbers of owls (for example, 8, 13, 17) are observed.

Prey items on the CPNM include a variety of insects and small mammals. Based on casual observation, the majority of pellets collected during the 2002 field season were composed almost solely of insect exoskeletons (Tice and Rosenberg 2002). Occasionally a small bone or some fur was found in the pellets. Prey items found at nest burrow entrances during the 2002 field season included crickets, tarantulas, and two unidentified insects (Tice and Rosenberg 2002). Ronan (2002) observed that when burrowing owl nests were successful on the Carrizo Plain between 1998 and 2000, productivity appeared to be positively influenced by a higher proportion of rodents in the diet, a pattern that may hold generally through California (Rosenberg and Haley 2004; Gervais and Anthony 2003). Prey caches observed inside burrows occasionally included giant kangaroo rats (Tice and Rosenberg 2002). Some evidence was found in 2002

suggesting that burrowing owls may prey on young burrowing owl chicks (Tice and Rosenberg 2002), which is believed to occur frequently in response to food shortages (Haley 2002). Two older dead chicks were found in the tunnel of a nest while a clutch of young downy chicks was found in the nest chamber. The dead chicks were of the same approximate age as the chick in a neighboring burrow 50 meters away (Tice and Rosenberg 2002).

The reproductive success of burrowing owls inhabiting the Monument has been associated with prey abundance. Ronan (2002) observed that when burrowing owl nests were successful on the Carrizo Plain between 1998 and 2000, productivity appeared to be positively influenced by a higher proportion of rodents in the diet, a pattern that may hold generally throughout California (Rosenberg and Haley 2004; Gervais and Anthony 2003).

Current Management Program

Beginning in 1996, the Carrizo Plain has been a study site for the Burrowing Owl Research Program. This program, coordinated by the Institute for Bird Populations, was initiated to provide a scientific basis for developing a California-wide conservation strategy for the burrowing owl. Toxicological studies were conducted from 1996 to 1997 and demographic studies were conducted from 1996 to 2000. A telemetry study was initiated in 2002 to learn about dispersal habits of owls. A draft monograph synthesizing the demographic and space use studies was completed in March 2007 (Rosenberg et al. 2007). The burrowing owl research is integrated into the Monument's environmental education and outreach materials.

Western Spadefoot Toad (*Spea hammondi*)

Federal status: BLM sensitive species.

State status: species of special concern.

Regional Context

Western spadefoot toads are nearly endemic to California and at one time could be found throughout the Central Valley, coastal ranges, and lowlands. *Spea hammondi* is currently extirpated from much of its former range (Stebbins 1985), and continues to be threatened by urban development and intensive agriculture (USFWS 2005a). The CPNM provides a large expanse of protected grassland habitats with seasonal ponds and vernal pools which are critical for reproduction. The western spadefoot toad co-occurs with *Branchinecta longiantenna*, a federally listed species of fairy shrimp, currently found in ponds and pools within the Monument and north of Seven Mile Road, outside the Monument boundary on private property. Pools located on private property lie within designated critical habitat for vernal pool ecosystems (see Longhorn and Vernal Pool Fairy Shrimp discussion, below). Both *B. longiantenna* and *S. hammondi* are covered in the USFWS Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005a). Because they share much of the same habitat, both are afforded protection.

Present Condition and Trends

Spadefoot toads are almost completely terrestrial except for breeding, egg laying, and larval development, all of which occur in ephemeral or temporary pools (Jennings and Hayes 1994; Morey 1998). Little is known of the terrestrial activities of adult toads, but more is known about their breeding and reproduction. Currently known breeding sites occur primarily at the northern and southern ends of the CPNM, both in and outside of the Monument boundary, on private, federal, and state lands. These breeding sites are located in the Caliente Range, its foothills, and the valley floor. There are currently no known pools that

support spadefoot toads on the Elkhorn Plain or in the Temblor Range but more breeding sites are expected adjacent to Soda Lake and in additional rock outcroppings.

Adult toads have been known to breed in a variety of pool types within the Monument including vernal pools, sag ponds, roadside puddles, sandstone outcroppings, and man-made stock ponds (BLM staff, personal observation, 2003). On the northern end of the Carrizo Plain, spadefoot tadpoles have been observed in four vernal pools located just north of the Monument on private property. Adult toads have been observed near Painted Rock Ranch. Numerous pools and sag ponds are located in the southwestern half of the Carrizo Plain, all within the Monument boundary. All ponds do not support tadpoles each year that water is present, most likely due to the amount of water and/or the water chemistry of the pools. Duration of breeding ponds varies with rainfall and pool type and directly affects reproductive success (Morey 1998). From 1998 to present, spadefoot toad tadpoles have been observed in 27 different ponds and pools within and adjacent to the CPNM. During the El Niño year of 1998, an irruption (rapid increase) occurred, resulting in thousands of juvenile toads across the southern end of the Monument (BLM staff, personal observation, 1998).

While several small monitoring studies have been initiated, long-term population trends are unknown.

Current Management Program

Ponds and vernal pools within the Monument are generally managed to maintain current conditions of hydrology and livestock use until new information identifies the need for a change in management or protection. Management on the Monument for spadefoot toads includes monitoring for presence or absence in ponds during years of sufficient rainfall. Ponds where *B. longiantenna* co-occur are a priority. Other data are collected including the presence of other species, mostly invertebrates. In favorable years, other information is documented, including size, depth, turbidity estimates, and water temperature. Factors affecting toad mortality, pond chemistry, and longevity are taken into consideration when deciding whether to use livestock grazing as a tool in any particular year.

Kern Primrose Sphinx Moth (*Euproserpinus euterpe*)

Federal status: threatened.

State status: none.

Regional Context

In February 2002, lepidopterist Peter Jump observed several Kern primrose sphinx moths (*E. euterpe*) on the Carrizo Plain. New locations outside the Monument, in the Cuyama Valley near the town of Ventucopa, were also discovered in 2004 and 2005. Prior to these discoveries, the Kern primrose sphinx moth was known only from the Walker Basin area of Kern County. The Kern primrose sphinx moth was thought to be extinct until its rediscovery in Walker Basin in 1974 (USFWS 1984b). From 1975 to 1978, the moth was present in low numbers and very restricted in distribution at the Walker Basin site (USFWS 1980). In 1979, many more moths were present and they ranged more widely over the Walker Basin, but were abundant only at one site. The discovery of Kern primrose sphinx moth in the CPNM and Cuyama Valley substantially extends the distribution.

Present Condition and Trends

Since the 2002 discovery, annual surveys for the Kern primrose sphinx moth have been conducted on the Carrizo Plain. These surveys provide preliminary information about the ecology and distribution of the CPNM population (Jump et al. 2006). Moths have been observed in at least five sandy washes on the

western side of the Carrizo Plain. Two unconfirmed sites also occur on the Elkhorn Scarp. Adult moths were observed on the Monument in 2002, 2003, 2004, 2005, and 2007. Although moths were not observed on the Monument in 2006, they were observed in the Cuyama Valley.

Current Management Program

BLM has funded several monitoring efforts to determine Kern primrose sphinx moth distributions and habitat relationships. Most of the moth locations are on private inholdings adjacent to BLM lands. BLM has made an effort to contact the landowners and inquire if BLM acquisition is a possibility. Several washes and arroyos supporting the Kern primrose sphinx moths have been barricaded and signed to restrict unauthorized off-highway vehicle (OHV) use. Livestock grazing (sheep and cattle) occurs at several of the moth locations (private and BLM). The BLM sites are monitored to prevent habitat disturbance of the occupied sites.

Longhorn and Vernal Pool Fairy Shrimp (*Branchinecta longiantenna* and *Branchinecta lynchi*)

Longhorn fairy shrimp

Federal status: endangered.
State status: none.
Object of the Proclamation.

Vernal pool fairy shrimp

Federal status: threatened.
State status: none.
Object of the Proclamation.

Regional Context

Five species of fairy shrimp are found within the Monument: longhorn fairy shrimp (*B. longiantenna*), vernal pool fairy shrimp (*B. lynchi*), versatile fairy shrimp (*B. lindahli*), alkali fairy shrimp (*B. mackini*), pouch-pocketed fairy shrimp (*B. campestris*), and brine shrimp (*Artemia franciscana*).

The longhorn fairy shrimp is endemic to California and restricted to three general areas: the foothill grasslands near Tracy, Kesterson National Wildlife Refuge, and the Carrizo Plain (USFWS 1994; Eng et al. 1990). The species was federally listed as endangered in 1994 (USFWS 1994). The vernal pool fairy shrimp was federally listed as threatened in 1994 (USFWS 1994). At the time of listing, the vernal pool fairy shrimp was only known from California. At least two sites outside California (in Jackson County in southern Oregon) have been discovered since publication of the 1994 final rule (USFWS 2005a). The vernal pool fairy shrimp is the least observed and most restricted species within the CPNM region. This species has only been found twice in the CPNM region, in 1985 from three pools near Cambria Road (CDFG 2008b) and in 1995 off Gorman Road. Both of these locations are north of Seven Mile Road, placing them outside the Monument boundary, and located on private property. The vernal pool fairy shrimp is found relatively widely in the southern and Central Valley of California, but is generally not abundant anywhere (Eng et al. 1990).

The alkali fairy shrimp, versatile fairy shrimp, pouch-pocketed fairy shrimp, and brine shrimp are widely distributed in the western United States and Canada. However, the only two California locations for the pouch-pocketed fairy shrimp occur at Soda Lake and at a private sag pond on the southern end of the Carrizo Plain.

Critical habitat for the longhorn fairy shrimp and vernal pool fairy shrimp occurs immediately north of the Monument boundary. The original critical habitat designation on August 6, 2003 (USFWS 2003a), included approximately 15,549 acres of BLM land and 234 acres of CDFG land inside the Monument boundary. On August 11, 2005, USFWS revised the critical habitat boundary by excluding the portion

within the Monument (USFWS 2005b). The USFWS concluded that the benefits of exclusion exceeded the benefits of inclusion (USFWS 2005b).

Present Condition and Trends

Within the vicinity of the CPNM, the longhorn fairy shrimp has been observed at 21 locations clustered at the north and south ends of the plain. The 14 northern locations occur from California Valley, south to the northern shore of Soda Lake, and along Soda Lake Road to the American Ranch cattle guard. Four of these are within the Monument boundary. The sites include small and large pools and roadside ditches. The southern cluster begins at Padrone Road and continues south to the vicinity of the Hanline Ranch. All seven of these sites are within the Monument boundary. The sites at this southern end include shallow depressions and deeper ponds.

Current Management Program

Known locations of federally listed fairy shrimp are sampled for species occurrence during periods when the ponds support fairy shrimp populations. In favorable years, additional inventories are conducted to identify occupied sites, species composition, and pond characteristics. Naturally occurring ponds are protected from vehicle use and disturbance. In general, current livestock use is similar to past use in order to maintain current conditions supporting fairy shrimp. If information is obtained to show that altered livestock use patterns can improve shrimp habitat, such changes would be implemented.

3.2.2.3 Featured Species

In addition to the special status species listed in the previous section, BLM has specific management programs in place for raptors and three additional wildlife species: pronghorn, tule elk, and long-billed curlew. These have been termed “featured species” for the purposes of this planning effort. Pronghorn and tule elk have historical associations with the regional ecology and generate a high level of visitor interest. The Monument provides habitat important for the long-term conservation of long-billed curlew and numerous raptor species.

Pronghorn (*Antilocapra americana*)

Object of the Proclamation.

Regional Context

Pronghorn were historically present in the Carrizo Plain, but were extirpated from San Luis Obispo and Kern Counties around 1910. Extensive agricultural land conversion, poaching, livestock competition, land use changes, and market hunting of pronghorn during early settlement eliminated most of the pronghorn herds in the region by the 1870s. Between 1985 and 1990, the CDFG translocated 239 animals from northeastern California back onto the Carrizo Plain and several adjacent private lands. The CPNM supports the only population of free-ranging pronghorn on public lands in the Central Coast and Central Valley regions.

Present Condition and Trends

Pronghorn are commonly observed in the northern valley portion of the Monument (see Map 3-3 Pronghorn and Elk Habitat), and on adjacent private rangelands and farm fields. A separate subherd is found at the southern end of the Monument and adjacent farm fields in the Cuyama Valley.

Of the 239 animals translocated to the area, approximately 142 pronghorn were released within the CPNM (Bob Stafford, CDFG, personal communication, 2007; Longshore and Lowrey 2007). Between 1990 and 2002 the population of the herd unit experienced a steady decline from the original 142 animals to 44 animals. There has been a recent increase of the herd to 84 animals in 2007.

A study of pronghorn habitat suitability, fawn bed site selection, and food habitats was conducted in the CPNM in 2003 and 2004 (Longshore and Lowrey 2007). This study evaluated the suitability of grassland and grassland/scrub habitats occupied by pronghorn in the Monument and determined that the best available habitat in the CPNM to be of moderate quality. The study indicated that topography and distance to water indicated high quality pronghorn habitat. Most pastures ranked high or moderate for herbaceous cover, moderate for herb and grass diversity, and high to moderate for vegetation height. Shrub cover ranked moderate to low, and shrub diversity ranked low. The best pastures within the grassland habitats were the East American, Painted Rock, and Ranch pastures. The best pastures within the grassland/scrub habitat (but rated as moderate quality) were Airstrip, Brumley, East American, East Painted Rock, Painted Rock, Ranch, Selby, Sheep Camp, Shipping, Silver Gate, Soda Lake, South Cousins, Swain, West Painted Rock, and Windmill pastures. The remaining 31 pastures were evaluated as having low quality habitat for pronghorn.

The study found few areas greater than five square kilometers with a vegetation height considered necessary for pronghorn fawn bed-site concealment. Only the Ranch, Brumley, Painted Rock, and Sheep Camp pastures contain the habitat factors of 30- to 50-centimeter vegetation height and long-range visibility considered necessary for pronghorn fawn concealment. These pastures comprised 26 of the 30 bed sites located in the Monument during the study.

The pronghorn study also evaluated diets and forage availability. Pronghorn on the Monument ate forbs for the majority of their diet, followed by grasses and shrubs in equal amounts. During the spring of 2003 and 2004, forbs and grasses made up 93.9 percent and 92.8 percent of their diet, respectively. It is somewhat unusual that grasses comprised a higher percentage than shrubs, but this may be due to a lack of shrubs in the study site.

Overall, the study suggests that without habitat rehabilitation, the present-day CPNM may not contain enough suitable habitat to support a viable population of pronghorn antelope. Restoration of native bunchgrasses and shrubs are considered important to improve habitat suitability.

Current Management Program

Following the translocations into the Carrizo Plain, CDFG delineated a herd management unit with a boundary of State Route 166 on the south, State Route 46 on the north, the Temblor Range on the East, and State Route 101 on the west. CDFG is managing the herd unit to double the number of translocated animals to about 500 in total, with 250 to 300 within the Monument. The population was hunted between 1996 and 2001 with a harvest of 18 bucks. However, population monitoring in 2000 and 2001 indicated a decline in the herd that warranted suspending the hunting seasons.

Since 1998, CDFG and BLM have modified or removed over 150 miles of fence in the Monument to meet pronghorn passage standards. Fence removal/retrofit efforts have been primarily directed to areas considered the best pronghorn habitat. In addition, efforts have been made to maintain water troughs to provide water for pronghorn during the summer months (out of the livestock grazing season). Livestock grazing management prescriptions have also been modified to maintain greater vegetative cover in pronghorn fawning areas. BLM, in conjunction with CDFG and TNC, initiated a pronghorn population/habitat study in the Monument with the USGS starting in 2003 to determine possible reasons for population declines and to recommend management prescriptions.

Tule Elk (*Cervus elaphus nanodes*)

Object of the Proclamation.

Regional Context

Prior to European settlement in the mid 1800s, tule elk were the most abundant game animal in California (Burcham 1981) and approximately 500,000 tule elk inhabited the state (CDFG 2002). By the late 1860s, tule elk were extirpated from all but one small locale in the southern San Joaquin Valley and genetic studies indicate that fewer than 5 animals persisted (Matocq et al. 2002; Meredith et al. 2007). However, with protection of the herds from hunting and the translocation of excess animals into several suitable habitats, the populations increased. The population that currently exists on the CPNM is the result of translocations to adjacent areas in 1983 and 1985. The Monument is one of several public reserves that support tule elk in Central California, including the Tule Elk Reserve in Kern County and the San Luis National Wildlife Refuge in Merced County, both of which are confined in fenced paddocks less than 3,000 acres in size. However, the Carrizo Plain and adjacent CDFG Chimineas Ranch herd contain the largest free-ranging tule elk in the Central Coast region and this herd has the potential to be the largest tule elk herd in the state.

Present Condition and Trends

The tule elk found on the Monument are the result of a translocation of 20 animals to the Chimineas Ranch in 1983 and another 120 animals to various locations in San Luis Obispo County in 1985. Since that time, the herd has increased to a minimum of 630 in 2007 (CDFG 2007a). These animals are managed as the La Panza Elk Management Unit, which ranges north from San Luis Obispo and western Kern Counties into Monterey and San Benito Counties. There are two groups of elk that use small portions of the Monument. The largest group of 165 elk is found in the American Ranch and Painted Rock areas, moving back and forth to the northern Chimineas Ranch (see Map 3-3 Pronghorn and Elk Habitat). The second group of about 75 animals ranges from Sycamore Canyon in the Los Padres National Forest to Morales Canyon on the CPNM. Approximately 2,000 acres of this area is located within the boundaries of the Monument.

Prior to 2004, the north CPNM group generally resided in the remote hilly country where they were rarely seen by visitors. In recent years, this group has ventured out onto the flatlands and lower foothills around Painted Rock and the Washburn Ranch. These elk most often use the ungrazed CDFG lands and ungrazed BLM pastures in the Monument and tend to segregate themselves from cattle when using private ranch lands (B. Stafford, CDFG, personal communication, 2007).

The south CPNM group is found in the juniper woodlands, grasslands, and scrub habitats of the southwestern foothills of the Caliente Range. They tend to move east-west to the Chimineas Ranch and lower slopes of the Cuyama Valley oak woodlands. In the Monument, they may be found on the lower ridgelines and upper reaches of Morales Canyon.

Current Management Program

Tule elk management in the Monument has been focused on improving forage quality on the Carrizo Plain North and Caliente Foothills North subregions through a number of prescribed fires and native grass seedings. The CDFG has initiated studies to determine distributions and habitat use. In early 2005, female elk were fitted with Global Positioning System (GPS) radio collars in four separate subherds in eastern San Luis Obispo County, including the two subherds on the CPNM. The collars were retrieved at the end

of 2006. Interestingly, these studies showed no movements of female elk between any of these subherds (B. Stafford, CDFG, personal communication, 2007). This may have ramifications regarding long-term management strategies for all of these subherds. Nine additional GPS collars were placed on both male and female elk in the CPNM subherds in 2008 to help determine to what extent the subherds interact.

Tule elk routinely conflict with private ranching operations due to damage to fences, crops, and reduction in livestock forage (Koch 1994). Additionally, many of the existing herds in other portions of the state have grown beyond their carrying capacity or are contained within fenced areas. Military bases, which once were important areas for elk conservation, increasingly desire that elk herds on their lands either be reduced or in some cases, entirely removed. In all of these cases, excess elk are captured and relocated to other herds within their range. Translocations have also been recommended as a way to maintain and increase the limited genetic diversity in tule elk (Williams et al. 2004; Meredith et al. 2007). CPNM and the surrounding public lands are considered one of the best areas for relocation since the CPNM herds are free ranging, there are comparatively few conflicts, and the area is well below carrying capacity. The combined population objective for the CPNM herds is a minimum population of 500.

The BLM and CDFG lands of the Monument provide a large area of public lands for hunter access to the elk. Since 1993, there have been annual hunting seasons in the La Panza Management Unit with an allocation of 6 to 12 bull elk and 6 to 12 cow elk per year. Hunter success is quite variable, depending on whether the animals are found on the public lands or have moved onto the adjacent private lands where hunter access is restricted. Harvest objectives are to maintain at least 25 bulls per 100 cows. In 2001, there were 49 bulls per 100 cows and 28 calves per 100 cows (CDFG 2002). Population modeling by the CDFG for the projected harvest of 18 bull elk and 19 cow elk within the herd unit indicates that there would not be a reduction of herd size, the bull-to-cow ratio objective would be met, and the calf-to-cow ratio would increase (CDFG 2002).

Long-Billed Curlew (*Numenius americanus*)

Regional Context

Long-billed curlews are both a shorebird and a grassland species. Curlews, on the CPNM, forage in the grasslands and roost in ponds near Soda Lake at night. In California, long-billed curlews are known to winter along the coast and in the Central Valley. They are a bird with highly migratory habits that require many interconnected stops (Sibley 2001). This suggests that a reliable protected area such as the Monument may play an important role for wintering.

Long-billed curlews are also a very popular bird for both birdwatchers and the general public who visit the Monument. This bird has been on the logo for both the Natural Area and Monument for over 10 years.

Present Condition and Trends

Long-billed curlews arrive in the Monument in the fall and leave for summer breeding ranges in the interior Great Basin in April (a few can be found in early May). Some nonbreeding birds summer on the Central California coast. Small numbers of long-billed curlews have been observed in the CPNM during the summer (S. Fitton, BLM, personal communication, 2008; BLM staff, personal observation). Winter survey numbers for curlews in early 2006 – 2008 ranged from 21 to 850 birds. Roost counts for 2007 and 2008 had 679 and 763 birds, respectively. Christmas Bird Counts on the Carrizo Plain since 1983 have ranged from 3 to over 2,500 birds, with an average of 375 birds (Audubon 2008). While there is no apparent trend in the winter birds, the 1999 and 2000 counts were very low (30 and 3, respectively), and the 2004 to 2005 counts showed some rebound (58 and 155,

respectively). Flocks numbering as high as 3,000 have been observed outside of counts. These numbers likely reflect a variety of factors both within the Monument and across the western populations.

Curlews are most often seen using large flat grasslands with suitable openings in shrub cover to avoid predators and obtain takeoff and landings. On breeding ranges in the Great Basin, long-billed curlews were negatively correlated with vegetation height and percent vertical coverage (Bicak et al. 1981). Very little information about curlew use of non-wetland habitats in the Central Valley has been recorded (Dugger and Dugger 2002). Long-billed curlews on the Monument have been observed foraging in habitats ranging from bare ground (including burned areas), to grasses taller than the curlews. In 2007 the Point Reyes Bird Observatory and Museum of Natural History of Los Angeles County initiated a census of long-billed curlews in the Carrizo Plain, Central Valley, and Imperial Valley to evaluate distributions and habitat use in these areas.

Current Management Program

Management for long-billed curlews includes several monitoring efforts in the fall and winter when birds are most prevalent. Livestock grazing has been used to attain a low vegetation structure for other species, while prescribed fire has been used for restoration purposes. These tools may also be beneficial for curlew foraging areas by affecting structure and increasing the prey base.

The effects of various tools and the natural variation in vegetation height across the Monument, including short structure created by giant kangaroo rats, are likely to be favorable for curlews.

Long-billed curlews are monitored during annual fall raptor surveys, focused winter surveys, and Christmas Bird Counts.

Raptors

Regional Context

The Carrizo and Elkhorn Plains contain some of the largest contiguous grasslands in California, providing habitat for numerous grassland avian species including raptors. The plains provide an abundance of prey that is free of rodenticide or other chemicals that may be present in food items found elsewhere in the San Joaquin Valley and state.

Over 20 different species of raptors including eagles, hawks, falcons, and owls can be found within the CPNM. Some inhabit the plains and surrounding mountains year-round, while others winter here, make brief stops during spring and fall migration periods, or arrive to breed and nest in one of the varied types of habitats that make up the Monument. The Carrizo Plain has been described as an area with extremely high raptor habitat values (Olendorff et al. 1989). Some of these values include rock outcroppings, dry washes with steep, vertical banks, Soda Lake and other ephemeral ponds, and large rodent and other prey populations.

The Swainson's hawk is listed by California as a threatened species and the northern harrier, long-eared owl, short-eared owl, burrowing owl, and loggerhead shrike are listed by the state as species of special concern. With the loss of habitat occurring for many grassland species such as the ferruginous hawk and northern harrier, the CPNM becomes increasingly important for wintering and nesting.

Present Condition and Trends

The largest number of raptor species occurs during the months of October through April when the birds use the CPNM for their wintering grounds. The fewest species occur during the summer months (Fitton 1998). Common fall and winter birds include the ferruginous hawk, rough-legged hawk, merlin, and long-eared owl. Less commonly seen migrants have included the white-tailed kite, Swainson's hawk, and bald eagle. Some of the more common raptors that are found throughout the year on the CPNM are the northern harrier, red-tailed hawk, golden eagle, American kestrel, prairie falcon, great horned owl, short-eared owl, burrowing owl, and barn owl.

In general, the diversity of migratory raptor species increases in the northwest part of the Monument, with more overall species found in the foothills of the Caliente Mountains (Fitton 1998). Several species choose rock outcroppings or vertical faces in large gullies or man-made structures for nesting. The grasslands provide many food sources for raptors including passerines, giant and other species of kangaroo rats, ground squirrels and other rodents, lagomorphs, and many reptile species. Six power lines that traverse the CPNM in varying locations are used predominantly by red-tailed hawks, ravens, and prairie falcons as nesting and roosting sites. Fences and ornamental trees also serve as perches, roosts, and nest sites. Burrows created by ground squirrels, kit fox, or badgers provide homes for burrowing owls, while areas of tall grass and shrubs serve as nest habitat for northern harrier and short-eared owls.

Current Management Program

BLM, along with the managing partners and dedicated volunteers, conducts a variety of surveys and monitoring studies of raptors and their nesting or roosting sites either seasonally or annually. Raptor and sensitive species surveys take place annually during the months of October through April utilizing routes along Soda Lake and Elkhorn Roads. Some communal roosting sites for long-eared owls have been documented, but little is known about how many owls winter on the CPNM. A Christmas Bird Count has been held on the Carrizo Plain since 1971 and breeding bird surveys have been conducted for over 20 years.

Two of the more well-known rock outcroppings, the Selby Rocks and Painted Rock, are monitored during the breeding and nesting season to protect nest sites from visitor impacts. Both have been nesting sites for prairie falcons, golden eagles, and several owl species. Selby Rocks are posted to remind visitors of the sensitive nature of nesting birds. Painted Rock is closed each year during the nesting season with access allowed by guided tour only. Tour guides are instructed in how to conduct tours in a minimally invasive manner that protects the nest site(s). Nest sites at other locations are recorded and monitored periodically. Though many raptor nest sites have been located since the 1980s, little is known about the nesting locations on much of the Monument, especially in the Temblor and Caliente Ranges, or how many nesting sites there are for any one species.

3.2.3 Vegetation

The Monument Proclamation identifies vegetation resources as objects to be protected. Specifically:

Since the mid-1800s, large portions of the grasslands that once spanned the entire four hundred mile expanse of California's nearby San Joaquin Valley and other valleys in the vicinity have been eliminated by extensive land conversion to agricultural, industrial, and urban land uses. The Carrizo Plain National Monument, which is dramatically bisected by the San Andreas Fault zone, is the largest undeveloped remnant of this ecosystem, providing crucial habitat for the long-term conservation of the many endemic plant and animal species that still inhabit the area.

The area is also home to many rare and sensitive plant species, including the California jewelflower, the Hoover's woolly-star, the San Joaquin woolly-threads, the pale-yellow layia, the forked fiddleneck, the Carrizo peppergrass, the Lost Hills saltbush, the Temblor buckwheat, the recurved larkspur, and the Munz's tidy-tips. Despite past human use, the size, isolation, and relatively undeveloped nature of the area make it ideal for long-term conservation of the dwindling flora and fauna characteristic of the San Joaquin Valley region.

3.2.3.1 General Botanical Setting

The Carrizo Plain is at the interface between the Coast Range and the drier, more desert-like San Joaquin Valley. The Carrizo Plain's valley floor contains the closed-basin Soda Lake system, surrounded by alkali-tolerant shrub communities, grasslands, and herb-dominated communities now dominated by nonnative annual species. The grasslands of CPNM's higher elevations (2,300 to 3,250 feet) support a higher proportion of native perennial grasses not characteristic of the southern San Joaquin Valley floor (Wester 1981; Hamilton 1997; Holstein 2001) and include shrub and woodland communities with more overall affinity to the Coast Ranges than to the San Joaquin Valley (Holland 1988). The upper Sonoran subshrub scrub vegetation is common to both the Carrizo Plain and the San Joaquin Valley. In general, the distribution of species and natural communities within the Monument reflect the gradation of wetter to drier climate from north to south and from west to east. The northern end of the CPNM averages 10 to 12 inches of annual precipitation and is dominated by annual grasses, while the southern Carrizo Plain and the Elkhorn Plain average 5 to 8 inches annual precipitation and tend to have a more open vegetation of annual plants and shrubs, a mixture of coastal, San Joaquin Valley, and Mojave Desert species. The vegetation of the northern slopes of the Temblor and Caliente Ranges, which receive more moisture than the plains, consists of abundant native perennial grasses, shrubs, and woodlands. In contrast, the extremely dry south sides of the Caliente and Temblor Ranges receive less precipitation than the plains and are characterized by more xeric (dry) shrub communities. Similar effects of north and south slopes can be seen throughout the Monument on a much smaller scale, wherever there is varied topography. This variation in plant community and topography has resulted in a species-rich flora (Appendix W, CPNM Flora) of close to 700 species.

During the mid- to late-19th century throughout California, and including the Carrizo Plain area, there occurred widespread displacement of native plants by Mediterranean species. California grasslands and other arid communities were particularly affected. It is thought that introduction of and intensive grazing by livestock during and after the gold rush, combined with widespread cultivation and a series of droughts, provided the opportunity for these nonnative species to get established and ultimately dominate California's grasslands. This wholesale conversion of California's grasslands is thought to have occurred in less than 40 years and has had widespread and long-lasting effects. In addition to displacement of native species, the productivity of the landscape has changed in both amount and timing and the resulting fire regime has been drastically altered (Burcham 1957).

The ecological landscape of the CPNM is a product of a generally dry, Mediterranean climate, as modified by variation in the timing, geographical pattern, and amount of each year's precipitation, and as influenced by the interspecific competition between native and exotic species. Vegetation production and composition are highly influenced by the amount of water available and can change radically between years. In very dry years, there is little to no growth of annual vegetation and perennial shrubs die back. Animal populations respond by having little to no reproduction. If the drought persists, the landscape in the valley floor can shift from grassland to bare dirt. In contrast, a wet year, especially an El Niño event, can result in knee- to thigh-deep lush grasslands and spectacular wildflower displays. In every year, the pattern and amount of precipitation tend to favor one guild or species over another. Early and regular rains tend to favor the introduced Mediterranean species and good rains following a few years of drought seem to be best for native forbs and wildflowers.

The native habitat on the Monument has been influenced by past human activity. Much of the valley floor was dry-farmed, primarily for grain. Grazing by cattle and sheep was widespread and not always in balance with vegetative production. Springs were altered to provide water for livestock and for human use. Some trees were cut for fence posts, and others were probably used for firewood. In other areas, particularly around homesteads, nonnative trees were planted in this largely treeless landscape. As a consequence of human activities, grazing, weeds were introduced and spread. There was also extensive poisoning of native rodents to control losses in grain fields, as well as control of predators such as coyotes and foxes and an elimination of elk and pronghorn. These activities resulted in a shift in herbivore levels that undoubtedly affected native vegetation. Changes in natural hydrologic patterns due to the construction of roads, the development of stock ponds, and soil disturbances associated with farming and livestock operations also impacted native vegetation.

Prior to the invasion of the Mediterranean grasses, fire did not appear to be a frequent environmental factor in the desert-like scrub communities common in the southern Carrizo Plain. It is not known whether pre-contact Native Americans set fires in the Monument area, but the only source of natural ignitions, lightning strikes, were probably very rare events and, in the recent history, none have resulted in substantial fires (the few were extinguished by the accompanying precipitation). Fifty years of records from the Pinnacles National Monument to the north indicate a single lightning-ignited fire. There are none from 60 years of records from the Santa Monica National Monument to the south. In addition, the CPNM scrub communities include fire-sensitive, non-sprouting dominant species such as *Atriplex* spp., *Arctostaphylos glauca*, and *Juniperus californica*, but not fire-adapted, sprouting species like *Arctostaphylos glandulosa*, *Ceanothus* spp., *Adenostoma fasciculata*, or *Rhus* spp. (Keeley and Keeley 1977; USDA 2008a). The only fire-adapted species common in the CPNM are *Quercus john-tuckeri* and possibly *Yucca whipplei* (populations vary as to their response to fire). Based on the time scale developed by Eigenbrode (1999), the four charcoal layers present in a recent core of Soda Lake (Davis 1990) suggest a pre-contact fire return interval of about 300 years, with no discernable events in the last 600 years. It is to be expected that the Carrizo Plain did occasionally experience large Santa Ana-driven fires, but these appear to have been rare exceptions, not the norm.

Prior to European contact, in most years, fuel loads in what are now nonnative dominated grasslands were probably not sufficient to generate extensive fires; however, the introduction and dominance of exotic annual grasses has altered fire regimes in the Carrizo Plain as well as in much of the west (Brooks 1999; D'Antonio and Vitousek 1992; Keeley et al. 2005). Currently, in wet years, introduced annual grasses can create persistent fuel loads that facilitate the ignition and spread of fire. Populations of native saltbush, a species not adapted to recurring fires, may be diminished or lost altogether (E. Cypher, ESRP, personal communication, 2003; Germano et al. 2001). When there are recurring fires with a shorter than natural return interval in southern California, the previously open scrub and desert-like communities have been replaced by nonnative annual grasslands (Keeler-Wolf 1995; Keeley 2001).

Livestock grazing has also been shown to contribute to the conversion of shrublands to grasslands. During dry summers and drought years, when little annual forage is available, livestock focus on shrub species like saltbush (Twisselmann 1967). Shrub communities are especially vulnerable in areas where stock levels are not in balance with annual forage production. Livestock grazing may also benefit some shrub communities by removing fine flashy fuels (mostly nonnative annual grasses) and thus affecting ignition, spread, and fire return interval (Germano et al. 2001).

3.2.3.2 Vegetation Management

Two main issues are responsible for the large-scale vegetation management actions taken in the recent past by the Carrizo's managing partners. One is the objective to restore native vegetation in degraded

areas, with the focus on previously cultivated fields. The second is the concern that if grassland vegetation gets too tall, habitat for a suite of listed and sensitive San Joaquin Valley species would be compromised. Specific management tools have been applied with the goal of increasing the amount of native plants in the vegetation and lessening the nonnative component. The primary management tool has been grazing by cattle, with lesser acreage treated by prescribed burns and/or active restoration by seeding.

Livestock grazing during the green season has been employed under the assumption that it was “an effective tool to remove standing biomass, reduce the dominance of nonnative species, and enhance the reestablishment of native species” (BLM 1996). Because of this idea, much of the Monument was available for grazing, either as part of Section 15 allotment or under a free use grazing permit where grazing was applied for the purpose of vegetation management (Map 2-8). The hypothesis was that livestock grazing would diminish the biomass of nonnative plants to the benefit of native plants and animals. In 1996, the Carrizo’s managing partners initiated a study to test the effectiveness of livestock grazing as a tool. Data collected included elements such as the abundance and diversity of native and nonnative plants, the presence of kangaroo rats, and the amount of precipitation. Recent analyses of these data (see summary below) indicate that, contrary to the working hypothesis, green season grazing would not be an effective tool for reducing the dominance of nonnative species and would have detrimental effects on native annual plants.

Prescribed burns have been used to remove accumulations of dead annual vegetation (primarily nonnative grasses). Goals included improving habitat for the San Joaquin Valley suite of species, to provide bare areas for visiting mountain plovers, to improve forb production for native ungulates, and to benefit native plants. Initial response by the native flora is promising, but no long-term studies have been done.

Active restoration has involved pretreatments by burning, followed by planting native species using tractor-driven seeding machinery. Observations by BLM personnel suggest initial success; however, it remains to be seen if seeded populations will persist. The first plantings utilized a variety of wildflowers and native bunchgrasses. More recent restoration has focused on two major bunchgrass species, one-sided bluegrass (*P. secunda* ssp. *secunda*) and nodding needlegrass (*Nassella cernua*). Seed for planting these two species comes from farmed plants grown from seed originally collected on the Monument. Restoration of biological crusts and native herb-dominated communities, now dominated by nonnative annual grasses, is envisioned, but much work remains to be done to determine appropriate seed mixes, site pretreatments, and ways to minimize the presence and impacts of weedy nonnatives.

3.2.3.3 Summary of the Carrizo Plain Grazing Monitoring Study

Background

Livestock grazing is used by some land managers as a tool for preserving and restoring grassland ecosystems in California and elsewhere. Although implicated in the original demise of California’s grasslands, livestock grazing is thought to provide a number of ecological benefits to grasslands, especially those degraded by exotic plant species. Indeed, some studies done in the more productive grasslands (for example, those found on the California coast and in the Central Valley) have found that properly managed cattle grazing helps to encourage native plant species – especially annual forbs and perennial grasses – by reducing competition with exotic plants and the build-up of thatch (that is, leaf litter) from invasive grasses. Grazing by livestock may also mimic disturbances caused by native grazers now gone from many grassland systems and help to create and maintain habitat for native plant and animal species.

Although livestock grazing may serve as a promising tool for managing certain types of grasslands, it may also have unintended negative consequences, including facilitating the invasion and spread of exotic

plants, impacting soil health and water quality and otherwise degrading native species habitat. Different types of grassland/herbland communities – especially more arid ones like the Carrizo Plain – have shown widely variable responses to livestock grazing, suggesting that one management tool does not fit all when it comes to grasslands management. Given the uncertainty of how Carrizo Plain grasslands might respond to livestock grazing over the long run, successful management requires thoughtful implementation and monitoring of any grazing activities.

Assessing the Ecological Effects of Grazing at Carrizo Plain

As with most grasslands found throughout California, one of the greatest perceived threats facing native grassland diversity at Carrizo Plain is invasion by exotic plant species. To better understand the effects of cattle grazing on both native and exotic species, BLM, TNC, and CDFG (hereafter Managing Partners) initiated a long-term grazing study at Carrizo Plain in 1991 designed to evaluate several hypotheses concerning the effects of grazing on native plant communities and giant kangaroo rats. In the study, a total of 25 pastures were included, with 19 pastures available for livestock grazing and six pastures excluded from grazing. Pastures that were available to livestock were grazed seasonally in the winter and spring months (November - May) when criteria for turning out cattle were met (for example, sufficient rainfall and forage). Within these pastures, several locations and variables were monitored annually from 1997-2003, including percent cover of all plant species, native bunch grass frequency, the abundance of giant kangaroo rat precincts (that is, burrow systems), and plant biomass.

Results from the Grazing Study

Note to readers: The following results discussion covers both vegetation and wildlife habitat as well as effects. Therefore, the information is applicable to multiple sections of the document. However, the study is presented in its entirety in this section to provide the reader with an overall view of the findings in one location.

Plant Community

Drawing on previous research across California grassland ecosystems, the Managing Partners tested the hypothesis that a winter-spring (November to May) livestock grazing regime would benefit the native annual flora by reducing the biomass and cover of nonnative annual grasses, including *Avena*, *Bromus*, *Lolium*, and *Hordeum* spp. The assumption is that native annual species are limited by competition with exotic annual grasses, and that properly timed grazing would decrease exotic annual grass cover and biomass and increase native annual grass and forb richness and cover. Similarly, by this same mechanism, native perennial bunchgrass cover and abundance would increase.

As with most livestock grazing studies conducted in California grasslands, the results from the Carrizo study are complex. However, unlike findings from previous studies done elsewhere in the state, the cover and richness of native annual forb species – by far the most diverse group of plants at Carrizo Plain – was significantly lower in grazed areas compared to ungrazed ones. However, the magnitude of the grazing effects depended on vegetation type: the negative effects of grazing were greatest in scrub and annual grassland communities and grazing had less impact on the areas more recently cultivated. These results suggest that the more disturbed areas lack a sufficient native seed bank. In contrast, the cover of exotic annual grasses increased with greater levels of cattle grazing; however, this effect was most pronounced in certain soil types, such as those found on alluvial flats and fans. Thus, two of the primary management objectives for using grazing as a vegetation management tool – to enhance native plant species and to decrease exotic ones – are not supported by this study.

The effects of livestock grazing on native perennial grasses were also complex, and depended on a number of factors, including grass species, soil type, vegetation type, and cultivation history. For example, overall the frequency of *Poa secunda* was lower in grazed areas relative to ungrazed ones, especially in areas with annual grassland. In contrast, there was little difference in the frequency of *Poa secunda* between grazed and ungrazed areas in the scrub communities. For *Nassella* spp., there was no overall effect of grazing on frequency, but this species did respond differently to grazing depending on soil type and vegetation community: there was a negative relationship between cattle density and the frequency of *Nassella* spp. in annual grassland and scrub communities in the foothills (that is, Soil Types 7 and 8), but a positive effect in soils on alluvial flats and fans (that is, Soil Type 3). These varied results underscore the idea that native perennial grasses are an ecologically diverse group that may have different management requirements that depend on ecological factors such as soil type and disturbance history.

Giant Kangaroo Rats

The study was also designed to monitor the effects of livestock grazing on giant kangaroo rat abundance (as measured by precinct density), a likely keystone species in the Carrizo Plain ecosystem. Based on work done on kangaroo rats in similar grassland ecosystems, managers at Carrizo Plain hypothesized that livestock grazing would have a positive effect on giant kangaroo rat precinct density by removing built-up dead biomass (thatch) from exotic annual grasses. Even though giant kangaroo rat can remove a significant amount of biomass through clipping plants to harvest seeds, the dominant hypothesis in the literature is that increased dead plant biomass decreases the suitability of giant kangaroo rat habitat.

The results of the monitoring study revealed that, overall, the density of giant kangaroo rat precincts was significantly lower in grazed areas than ungrazed areas. In addition, there was a significant interaction between grazing and year, indicating that the negative effects of grazing were significantly greater in some years (1998, 1999, 2000, 2002). Despite differences between grazed and ungrazed areas, during the course of the grazing study (1997-2002), the density of giant kangaroo rat precincts increased by nearly 50%. Similarly, the percentage of sampling locations with giant kangaroo rat precincts increased from 21% to 35% during this same period, suggesting an overall increase in abundance of this species at Carrizo Plain during the period.

Implications of Grazing Study for Management

Contrary to other recent grazing studies done in California, the results from the Carrizo grazing study do not support the general hypothesis that livestock grazing is beneficial for native plant communities, nor is there support for the hypothesis that grazing is important for maintaining giant kangaroo rat habitat. This finding is similar to results from a small-scale study at Carrizo Plain involving a comparison of vegetation in adjacent grazed and ungrazed pastures (Kimball and Schiffman 2003). Despite this general conclusion, results from this study emphasize the conditional nature of grazing impacts. Factors other than grazing, especially soil and vegetation type, play a strong role in determining the outcome of grazing effects, suggesting that a mosaic of management regimes will be necessary to meet the varied goals and objectives outlined in the RMP.

As with any study, it is critical to point out limitations. First, the results from the Carrizo grazing study cover only a seven-year period from 1997-2003. However, during this time, a major rainfall event occurred (1998), and despite dramatic increases in plant biomass during this period, no benefits of livestock grazing were detected for the plant community or giant kangaroo rat. Indeed, results indicate that grazing during the high-rainfall years had adverse effects on native plants and giant kangaroo rat. Another limitation is that this study does not address grazing impacts on other sensitive species found at CPNM, especially blunt-nosed leopard lizard and other federally listed endangered species. Thus, caution must be applied when extrapolating results from this study to other taxa. Similarly, the study was

conducted only on plant communities found on the valley floor and lower foothills. The effects of grazing have not been assessed for the more mountainous regions found in the Caliente and Temblor Mountains. Finally, although the results from the study indicate that grazing has negative effects on native plants and giant kangaroo rat, the ecological mechanisms underlying these results were not assessed.

3.2.3.4 Plant Communities

Plant community designations in the following pages are based on an existing Carrizo Plain vegetation map (see Map 3-4, Vegetation Types) using an older classification system (Holland 1988). Currently under development is a more precise vegetation map based on the classification in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995), with a revision in progress that will not be ready for inclusion in this document (T. Keeler-Wolf, personal communication, 7 November 2007). This new mapping is part of a larger effort by the CDFG to map vegetation throughout California. Table 3.2-3 outlines the relationship between the Holland (1988) system used here and the vegetation designations from Sawyer and Keeler-Wolf (1995), focusing on the vegetation series and associations present on the

Table 3.2-3. Relationship between Vegetation Mapping Designations

Holland 1998	Sawyer and Keeler Wolf 1995 ^a
Grasslands	
Nonnative grassland	California annual grassland series (slender oat/soft brome association, soft brome/rattail fescue association, soft brome/storkbill association)
Valley and foothill grassland ^b	One-sided bluegrass series, nodding needlegrass series
Valley needlegrass grassland ^b	Nodding needlegrass series
Scrub Communities	
Valley sink scrub	Bush seepweed series, iodine bush series (bush seepweed/iodine bush association, saltgrass/iodine bush association)
Spiny saltbush scrub	Spinescale series (often considered part of the chenopod or saltbush scrub, many species shared with bladderpod/California ephedra/narrowleaf goldenbush series)
Valley saltbush scrub	Allscale series (often considered part of the chenopod or saltbush scrub, many species shared with bladderpod/California ephedra/narrowleaf goldenbush series)
Interior Coast Range saltbush scrub	Allscale series (often considered part of the chenopod or saltbush scrub, many species shared with bladderpod/California ephedra/narrowleaf goldenbush series)
Diablan sage scrub	Black sage series, California buckwheat series, California sagebrush series (black sage/California buckwheat association, California buckwheat association, California sagebrush association, California sagebrush/deer weed association)
Subshrub scrubs (Upper Sonoran subshrub scrub)	Bladderpod/California ephedra/narrowleaf goldenbush series (shares species with the allscale series in Northern California)
Woodlands	
Juniper oak cismontane woodland	Blue oak series (blue oak/linear leaf goldenbush association, blue oak/understory oak/grass association, blue oak/grass association)
Alvord oak woodland	Blue oak series (blue oak/grass association)
Cismontane juniper woodland and scrub	California juniper series
Chaparral	
Upper Sonoran manzanita chaparral ^b	Bigberry manzanita series (bigberry manzanita association)
Scrub oak chaparral ^b	Mixed scrub oak series (scrub oak/bigberry manzanita association)

^a See also CNPS 2008.

^b Vegetation type not mapped but present on the CPNM.

Monument. A few Holland vegetation types listed in the table and present on the Monument are not mapped as separate entities on the vegetation map, but are treated as part of another mapped community (see vegetation descriptions below for details). The distribution of vegetation communities on the south side of the Caliente Mountains is much more complex than shown on the map. Current mapping within this region is at a very rough and approximate scale.

Nonnative Grassland

Nonnative grassland is the most abundant vegetation type on the Monument, covering extensive areas of the central valley and foothills, as well as forming understory for the scrub and woodland vegetation. Nonnative grassland is abundant throughout many parts of California, especially in the Central Valley and in Southern California. Some of the grasslands in the Monument could be characterized under the Holland system as valley and foothill grassland or valley needlegrass grassland, depending on their relative proportions of the native bunchgrasses, one-sided bluegrass (*Poa secunda* ssp. *secunda*), and nodding needlegrass (*Nasella cernua*). The height and density of this primarily annual vegetation is determined by the interaction of the yearly precipitation patterns with the composition of the seed bank. Nonnative annual grasses are not as prevalent after drought years since their seeds are relatively short-lived and do not persist in the seed bank. Native species that in most years are minor components of the grasslands may produce massive displays when weather patterns match their germination and growth requirements. In 2008, *Tropidocarpum gracile* (a small native mustard) carpeted the valley floor, indicating that the species had been present in great numbers in the seed bank, a fact not obvious from its presence in most years. Usually, the grassland tends to be dominated by introduced Mediterranean species, especially bromes (*Bromus* spp.), wild oats (*Avena* spp.), and filaree (*Erodium* spp.). Mustards (various genera) may also be common. A varying percent of the Monument's valley grasslands consists of native species, depending on location, cultivation history, and precipitation patterns. Native grass species present include one-sided bluegrass (*Poa secunda* ssp. *secunda*), needlegrass (*Nasella* spp.), alkali wildrye (*Leymus triticoides*), and saltgrass (*Distichlis spicata*). The native forb component includes species such as fiddleneck (*Amsinckia* spp.), pepperweed (*Lepidium* spp.), tidy tips (*Layia* spp.), hillside daisy (*Monolopia* spp.), goldfields (*Lasthenia* spp.), popcorn flower (*Plagiobotrys* spp.), lupines (*Lupinus* spp.), clover (*Trifolium* spp.), and locoweed (*Astragalus* spp.). Rare plants found in the Carrizo grasslands include San Joaquin woolly-threads (*Monolopia congdonii*), California jewelflower (*Caulanthus californicus*), Jared's peppergrass (*Lepidium jaredii* ssp. *jaredii*), San Joaquin bluecurls (*Trichostema ovatum*), and gypsum-loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*). Weedy species can be especially noticeable in some years. Prickly lettuce (*Lactuca serriola*) has formed dense stands up to six to eight feet tall in wetter years. Russian thistle (*Salsola tragus*) can infest large expanses of grassland and adjacent scrub communities in years with late rainfall, especially following a drought. Species of the native genus *Amsinckia* (fiddleneck or fireweed) were very abundant in the Carrizo valley floor during spring 2005. Considered by many as a wildflower and an important food plant for Lawrence's goldfinch (Martin et al. 1951), *Amsinckia* is listed as an agricultural weed in some parts of California and is a problem in South America and Australia (DiTomaso and Healy 2007). This native has traits shared with annual weedy exotics: early germination, vigorous and indeterminate growth habit, the ability to produce seeds at a variety of plant sizes, and high seed production.

Native grassland species face significant competition from introduced weedy species. The weedy nonnative grasses and forbs usually germinate earlier and compete with native species for habitat, water, and nutrients (Heady 1977; Bartolome 1979). In years with adequate rainfall, weedy nonnative species produce huge amounts of seed, flooding the seed bank. With the onset of fall germinating rains, residue of the previous year's growth can influence seedling success and the overall grassland species composition the following spring. Thatch from introduced annual grasses can build up following successive years of heavy rainfall and tends to be a barrier to the open and branching growth pattern of native forbs. Instead, thatch tends to favor a grass type of architecture and thus perpetuates grasslands dominated by exotic

weedy annual grasses (Bently and Talbot 1951; Bartolome et al. 1980; Bartolome and Betts 2001; Jackson and Bartolome 2002). A series of dry or drought years seems to lessen the dominance of the introduced grasses, possibly by depleting the seed bank. Some of the best native wildflower displays have occurred when a wet year follows a series of dry years.

Much of the valley floor, now covered by nonnative grasslands, was previously cultivated. All dryland farming ended in 1988 and with the elimination of this yearly disturbance, the agricultural fields are returning to a more natural condition. As plow lines disappear, natural drainage contours reform, native plants return, and microtopographical relief is generated by the activities of kangaroo rats and other fossorial (digging) mammals. This has occurred primarily through natural ecological processes; however, the managing partners have an ongoing restoration program and are planting selected areas with native shrubs, bluegrass, needlegrass, wild rye, and a variety of wildflower species. The goal has been to increase the native component of the Monument grassland communities and to restore native shrubs and bunchgrasses to areas where they were thought to occur prior to the dryland farming period. Livestock grazing during the green season has been the primary management tool used in the Monument's grasslands, however, analysis of the grazing study data (Christian et al. in prep) indicate that this method of grazing is detrimental to native annual plants and tends to promote nonnative grasses.

Valley Sink Scrub

Valley sink scrub is restricted to the alkali flats surrounding and southeast of Soda Lake. This vegetation was once widespread in the Central Valley, but is now rare due to the alteration of natural hydrological patterns and conversion of lands to agriculture. The Monument contains one of the best and largest examples of this now rare vegetation. The community is relatively open, consisting of moderately spaced shrubs up to three feet tall with an understory primarily of native grasses and forbs. The vegetation is dominated by alkali-tolerant chenopod shrubs such as iodine bush (*Allenrolfea occidentalis*), spiny saltbush (*Atriplex spinifera*), and bush seepweed (*Suaeda moquinii*, also known as *S. fruticosa*). Alkali heath (*Frankenia salina*) and native saltgrass (*Distichlis spicata*) are both common and patches of one-sided bluegrass (*Poa secunda* ssp. *secunda*) are also present, especially near the boardwalk along upper Soda Lake. Growing interspersed with the grasses are native forbs such as goldfields (*Lasthenia* spp.), tidy tips (*Layia* spp.), and peppergrass (*Lepidium* spp.). Sensitive species found within this vegetation include Lost Hills crownscale (*Atriplex vallicola*), recurved larkspur (*Delphinium recurvatum*), Jared's peppergrass (*Lepidium jaredii* ssp. *jaredii*), Munz's tidy tips (*Layia munzii*), and pale-yellow layia (*Layia heterotricha*). Sites with valley sink scrub are intermittently flooded and have saturated, hypersaline soils. Because of this, introduced annuals are not as common here as in other vegetation communities.

Valley Saltbush Scrub

In the Monument, the major expanse of valley saltbush scrub can be found in the central plain, where it surrounds Soda Lake and the adjacent valley sink scrub vegetation. Like the valley sink scrub, the valley saltbush scrub vegetation was once more widespread in the San Joaquin Valley, but is now much restricted and loss of this habitat continues as agriculture expands into new territories. Valley saltbush scrub soils are saline and alkaline, but not as much as those closer to Soda Lake, and they lack the surface depositions of salts. Topography ranges from relatively flat to hummocky and dissected by drainages. A few small patches of valley saltbush occur in the KCL drainage and along the south end of Soda Lake Road, but they tend not to be accompanied by the other species associated with typical valley saltbush scrub. The community structure is relatively open, consisting of moderately spaced, grayish shrubs approximately four feet tall, with an understory of grasses and forbs. Characteristic plants include spiny saltbush (*A. spinifera*), common saltbush (*A. polycarpa*), alkali heath (*F. salina*), and alkali goldenbush (*Isocoma acradenia* var. *bracteosa*). Sensitive species found within this vegetation are similar to those in valley sink scrub: Lost Hills crownscale (*A. vallicola*), recurved larkspur (*D. recurvatum*), Jared's

peppergrass (*L. jaredii*), and Munz's tidy tips (*L. munzii*). In wet years, the understory can become quite dense, with the introduced prickly lettuce (*L. serriola*) forming extensive stands overtopping the native shrubs. The placement of some CPNM roads has disrupted the natural flow of water (which was sheetflow) across the landscape and now forms barriers to the spread of saltbush populations. Saltbush scrub may be particularly vulnerable to fire, especially in areas where the proliferation of nonnative annual grasses has increased fire intensity. A wildfire in 1997 burned over 4,000 acres of saltbush in the western part of the San Joaquin Valley and regeneration of saltbush has been virtually nonexistent. Acreage treated at the same time in the Lokern area, with a cooler-burning prescribed fire, has been recolonized by spiny saltbush, but common saltbush has been slow to return.

Spiny Saltbush Scrub

This distinctive vegetation is found from the southwestern flanks of the southern Temblor Range down into the floor of the nearby Elkhorn Plain. Spiny saltbush scrub is also found in the interior central coast, the San Joaquin Valley (now mostly lost to agriculture), and the Mojave Desert. Characterized by a strong dominance of spiny saltbush (*Atriplex spinifera*), it shares elements of the adjacent interior Coast Range saltbush scrub (dominated by *A. polycarpa*) and upper Sonoran subshrub scrub (co-dominated by a number of species). The community consists of moderately spaced shrubs with an understory generally of grasses and forbs. In some areas, especially those on the Elkhorn Plain, spiny saltbush is the only shrub species present. Currently, spiny saltbush populations are expanding from the Temblor Range's drainages down into the Elkhorn Plain; many seedlings and small plants can be found near established shrubs and population boundaries that are beyond previously recorded limits (Kakiba-Russell et al. 1991). The precipitation generated during the "March miracle" of 1991 seemed to provide optimum conditions for spiny saltbush recruitment on the Monument, although there has been subsequent dieback in some areas of apparently marginal habitat. In some years, the annual introduced Russian thistle (*Salsola tragus*) forms a conspicuous element in these valley saltbush populations and dominates the adjacent grasslands; however, the 2003 infestation of Russian thistle on the Elkhorn Plain does not appear to have depressed recent saltbush recruitment.

Upper Sonoran Subshrub Scrub

Upper Sonoran subshrub scrub is the most common shrub vegetation on the Monument. It is especially well developed on the arid, moderate to steep ridges of the southern flanks of the central Temblor Mountains and in the foothills of the southern Caliente Mountains. The community also appears in small pockets along the northern foothills of the upper Caliente Range, where it may have been more extensive prior to conversion of the area to agriculture. Upper Sonoran subshrub scrub can also be found in the interior central coast, on the margins and foothills of the San Joaquin Valley, and in the western Mojave Desert. The community consists of several species of soft-wooded, relatively low shrubs (one to four feet tall), co-dominant in a very open structure and with an understory of grasses and herbs. Characteristic shrubs include interior goldenbush (*Ericameria linearifolia*), desert tea (*Ephedra californica*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), bladderpod (*Isomeris arborea*), Eastwoodia (*Eastwoodia elegans*), and snakeweed (*Gutierrezia californica*). Representative forbs include fiddleneck (*Amsinckia* spp.), Mojave sun cup (*Camissonia campestris*), and farewell to spring (*Clarkia cylindrica*). In addition, the upper Sonoran subshrub scrub community on the CPNM contains many rare forb species including San Joaquin woolly-threads (*M. congdonii*), California jewelflower (*C. californicus*), Hoover's woolly-star (*Eriastrum hooveri*), forked fiddleneck (*Amsinckia vernicosa* var. *furcata*), oval-leaved snapdragon (*Antirrhinum ovatum*), gypsum-loving larkspur (*D. gypsophilum* ssp. *gypsophilum*), cottony buckwheat (*Eriogonum gossypinum*), Temblor buckwheat (*E. temblorense*), stinkbells (*Fritillaria agrestis*), and San Joaquin bluecurls (*Trichostemmon ovatum*). Recent vegetation management has focused on livestock grazing during the green season as a method to remove standing biomass and benefit native species. Recent

analysis of the Carrizo grazing study, however, indicates that this method of grazing has strong negative impacts on the native annual flora in the upper Sonoran subshrub scrub community (Christian et al. in prep).

Interior Coast Range Saltbush Scrub

Interior Coast Range saltbush scrub can be found along the drainages of the Temblor Range, in the Elkhorn and Panorama Hills, along the San Andreas rift escarpment, in the hill north of KCL campground, and in scattered locations in the southern Caliente Range. As is the situation with the upper Sonoran subshrub scrub community, conversion of the northern Caliente foothills to cultivated fields probably eliminated stands of interior Coast Range saltbush scrub vegetation. The community, in one form or another, can be found in the drier areas and deserts of central and southern California. On the CPNM, interior Coast Range saltbush scrub is closely associated with upper Sonoran subshrub scrub. The two vegetation types are similar and share many elements; however, interior Coast Range saltbush scrub tends to be taller and denser in terms of vegetation structure. The major distinction in terms of species composition is that common saltbush (*A. polycarpa*) dominates in interior Coast Range saltbush scrub, and, in upper Sonoran subshrub scrub, several species share dominance, including interior goldenbush (*Ericameria linearifolia*). Shared characteristic shrub species include desert tea (*Ephedra californica*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), and sometimes bladderpod (*Isomeris arborea*) and snakeweed (*Gutierrezia californica*). Many of the herbs and sensitive plants in upper Sonoran subshrub scrub are also found in the interior Coast Range saltbush scrub. Two distinctive characteristic species are the locoweeds, freckled milkvetch (*Astragalus lentiginosus* var. *nigricalycis*) and Diablo locoweed (*Astragalus oxyphysus*). Understory for interior Coast Range saltbush scrub also includes grasses and forbs.

Diablan Sage Scrub

Diablan sage scrub occurs in the steep upper ridges of the Caliente Range, occupying drier sites within the juniper and juniper oak woodlands, where it often forms the understory. In the lower, drier elevations on the south side of the Caliente Range, this shrub vegetation tends to be found on the north-facing slopes. Vegetation similar to Diablan sage scrub occurs from central California to Baja California. The community is one of low shrubs, moderately spaced, with an understory composed of native forbs, native bunchgrasses such as one-sided bluegrass (*P. secunda* ssp. *secunda*), other grasses, and the introduced filaree (*Erodium cicutarium*). Species composition of the Carrizo Plain's Diablan sage scrub community is slightly different from the standard mix as reported by Holland (1988) and the intergrades with Venturan sage scrub (D. Hillyard, CDFG, personal communication, January 2008). Within the Monument, the community dominants include purple sage (*Salvia leucophylla*) (instead of black sage [*S. mellifera*]), interior goldenbush (*E. linearifolia*), and California buckwheat (*E. fasciculatum* var. *polifolium*). Other shrubs encountered include California sagebrush (*Artemisia californica*), golden yarrow (*Eriophyllum confertiflorum* var. *confertiflorum*), snakeweed (*G. californica*), common saltbush (*A. polycarpa*), four-winged saltbush (*A. canescens*), rubber rabbitbush (*Chrysothamnus nauseosus* ssp. *mojavensis*), deerweed (*Lotus scoparius* var. *scoparius*), and silver bush lupine (*Lupinus albifrons* var. *albifrons*). A rhizomatous yucca, our Lord's candle (*Yucca whipplei*), also occurs in this vegetation type. The specific shrub mixture varies with changes in slope, aspect, and other environmental variables. In contrast to the standard composition, the Carrizo Plain's Diablan sage scrub community contains no monkey flower (*Mimulus aurantiacus*). Rare plants to be encountered in this vegetation include oval-leaved snapdragon (*A. ovatum*) and Hoover's woolly-star (*E. hooveri*).

Juniper Oak Cismontane Woodland

Juniper oak cismontane woodland is well developed on the upper elevations of the Caliente Range and can also be found in a few patches in the more mesic sites of the northern Temblor Range. The topography is moderate to steep and the community density and extent often depend on slope aspect (more robust on north-facing slopes). Juniper oak woodland occurs in upland locations from central California to the Mojave Desert and Baja California. The vegetation consists primarily of large shrub-like California juniper (*Juniperus californica*) and scrubby blue oak (*Quercus douglasii*) and/or Tucker's oak (*Q. john-tuckeri*) with an assortment of smaller shrubs such as interior goldenbush (*Ericameria linearifolia*), desert tea (*Ephedra californica*), green ephedra (*E. viridus*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), bigberry manzanita (*Arctostaphylos glauca*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), yucca (*Yucca whipplei*), golden yarrow (*Eriophyllum confertifolium*), and snakeweed (*Gutierrezia californica*). In some areas of the Caliente Mountains, an occasional singleleaf piñon (*Pinus monophylla*) can be encountered within this vegetation. The sensitive species hollisteria (*Hollisteria lanata*) may also be present. Grassland elements present include introduced bromes as well as native grasses such as one-sided bluegrass (*P. secunda* ssp. *secunda*) and nodding needlegrass (*Nassella cernua*).

Cismontane Juniper Woodland and Scrub

Cismontane juniper woodland and scrub occurs in the upper elevations of the Caliente Range and in patches in the Temblor Range. In the Caliente Range, it is found adjacent to, and in slightly drier sites than, the juniper oak cismontane woodland. In the more xeric Temblor Range, the juniper woodland is less abundant and restricted to the relatively more mesic sites. Cismontane juniper woodland and scrub vegetation is essentially the same as juniper oak cismontane woodland, but without the oak element and with a greater percentage of arid-adapted shrubs. The overall distribution outside the Monument is also similar. The understory tends to consist of elements of the adjacent Diablan sage scrub.

Blue Oak Woodland and Alvord Oak Woodland

These two species are present as small populations within the Monument. Vegetation in both consists of small to large oak trees, with an understory of shrubs such as oak gooseberry (*Ribes quercetorum*), elements of the Diablan sage scrub, mesic herbs, and some weedy nonnative grassland elements. Juniper is often present or nearby. Blue oaks are encountered near the top of the Temblor Mountains and in the Caliente Mountains, where the species are present as small patches on some mesic, north-facing canyons. Blue oak woodland occurs in upland areas from northern Los Angeles County to the head of the Sacramento Valley. As a community, blue oak woodland is much better developed in the CDFG's Chimineas unit, farther north in the Caliente Mountains. Alvord oak (*Quercus x alvordiana*), a hybrid of blue and scrub oak, occurs sporadically in the upper reaches of the Temblor Mountains and as small populations in the steep canyons dissecting the south end of the Monument. Some Temblor Mountain oak populations display more blue oak characteristics and some specimens are difficult to clearly place as Alvord or blue oak. Given the ease with which blue and scrub oak hybridize, it is expected that most, if not all, of the blue oak trees in the Temblor Range contain at least some scrub oak genes. Vegetation under the Alvord oaks is sparse to nonexistent, a result of grazing by livestock. Cattle forage on oak acorns and leaves and use the trees for shade. Because of this, a number of the Monument's oaks have lost all their understory mulch and soil so that roots are exposed (D. Kearns, personal observation). The Alvord oaks in the canyons on the southern end of the Monument are much larger than is reported in the Jepson Manual (Hickman 1993). As elsewhere in California, oak regeneration appears depressed. Causal factors identified for the general decline in oaks include grazing effects, competition and fires associated with introduced annual grasses, and predation by pigs and gophers (Bartolome 1987; Borchert et al. 1989;

Dahlgren et al. 1997; Hall et al. 1992; Pavlik et al. 1991; Rousset and Lepart 2000). Deer have also been shown to depress the growth of small oaks.

Although not strictly considered to be vegetation communities, the following populations, features, and habitats are ecologically important.

Biological Soil Crusts

In the upper layers of soil, microbial activity creates a specialized microenvironment called a biological soil crust. Microorganisms that may comprise a soil crust ecosystem include visible elements such as cyanobacteria, green algae, lichens, and bryophytes, as well as less-evident fungi, bacteria, and slimemolds. Small invertebrates may also be present. The upper layers of soil are modified and stabilized by the interactions between these organisms and by their direct alteration of soil chemistry and physical structure. Soil crusts act to prevent erosion, modify water absorption and evaporation, recycle and make nutrients available, and provide microsites for seed germination and seedling establishment. Certain cyanobacteria (and lichens with those cyanobacteria as a component) are particularly important because they convert atmospheric nitrogen into a form that vascular plants can utilize (Belnap et al. 2001). Biological soil crusts are very important in maintaining soil health.

As with many communities, soil crust species composition depends on site stability, edaphic features of the soil, local physical properties (such as slope, aspect, and others), weather, and interactions between the biota. Crusts are found below or between vegetation as well as in vegetation-free areas, where they are particularly noticeable. A number of bare areas supporting crust communities are found within the Monument. The “balds,” located on ridge tops in the central Caliente foothills and among the vernal pools near the Hanline Ranch, have well-developed crust communities with cyanobacteria, lichens, and bryophytes (both mosses and liverworts). On the Cuyama side of the Caliente Range are bare south-facing ridge slopes with diverse lichen assemblages. On the more mesic north-facing slopes of these same ridges are shrub communities with a moss-dominated crust understory. Some seasonally disturbed drainages of the Caliente foothills support colonizing crust communities of early successional mosses and cyanobacteria.

Biological soil crusts can be easily damaged and, in arid environments, may take hundreds of years (or more) to regenerate completely (Belnap et al. 2001). As a general rule, most crusts are vulnerable when soils are saturated and easily deformed, or when the soils are completely dry and crust organisms are brittle, easily fragmented, and susceptible to subsequent wind erosion. Crust damage can be the result of OHV activity, grazing, mountain biking, and hiking. The extent of the damage depends on the nature of the underlying soils and topography, the timing and extent of disturbance, and the specific crust organisms present. Crust communities can repair some disturbance during the growing season, when soils are moist and organisms are biologically active. Crust communities in the Carrizo have been impacted or eliminated over the course of more than 100 years of dryland farming on the valley floor, and livestock grazing.

Lichens and Bryophytes

Besides forming a major part of the crust biota, lichens, mosses, and liverworts are important in other Monument habitats. Springs, seeps, and seasonally mesic sites often harbor well-developed moss and liverwort communities. Bryophytes are also common on moist north-facing rocks and steep slopes. Although rock outcrops can have severe environments in terms of nutrient availability, temperature fluctuations, and moisture regime, they can support diverse assemblages of crustose lichens and xeric mosses. Good examples are the sandstone outcrops within the Caliente Mountains. Habitat for foliose and fruticose lichens occurs on the ridgeline of the Caliente Range, where moisture from clouds intersecting

the ridge condenses on the scrub oaks and other shrubs. Here, many of the dead and older branches are completely covered by colorful lichens. A preliminary list of non-vascular plants is provided below.

A Preliminary List of Non-Vascular Plants Present on the Monument

LICHENS

<i>Acarospora obpallens</i>	<i>Melanelia glabra</i>	<i>Xanthoparmelia cumberlandia</i>
<i>Acarospora schleicheri</i>	<i>Melanelia subolivacea</i>	<i>Xanthoparmelia mexicana</i>
<i>Acarospora strigata</i>	<i>Peltula</i>	<i>Xanthoparmelia plittii</i>
<i>Aspicilia caesiocinerea</i>	<i>Physcia biziana</i>	<i>Xanthoria elegans</i>
<i>Aspicilia californica</i>	<i>Physcia dimidiata</i>	<i>Xanthoria oregana</i>
<i>Caloplaca atroalba</i>	<i>Physcia phaea</i>	<i>Xanthoria polycarpa</i>
<i>Caloplaca luteominia</i> var.	<i>Physcia stellaris</i>	
<i>luteominia</i>	<i>Physconia americana</i>	<u>MOSESSES</u>
<i>Caloplaca saxicola</i>	<i>Physconia enteroxantha</i>	<i>Bryum</i> sp.
<i>Candelaria concolor</i>	<i>Physconia isidiomuscigena</i>	<i>Bryum argenteum</i>
<i>Candelariella aurella</i>	<i>Placidium squamulosum</i>	<i>Bryum canariense</i>
<i>Candelariella vitellina</i>	<i>Placynthiella</i> spp.	<i>Ceratodon purpureus</i>
<i>Cladonia pocillum</i>	<i>Rinodina herrei</i>	<i>Didymodon</i>
<i>Collema tenax</i>	<i>Rhizocarpon</i>	<i>Funaria mühlenbergii</i>
<i>Lecanora dispersa</i>	<i>Rhizoplaca chrysoleuca</i>	<i>Grimmia laevigata</i>
<i>Lecanora hagenii</i>	<i>Staurothele drummondii</i>	<i>Leptobryum pyriforme</i>
<i>Lecanora muralis</i>	<i>Toninia ruginosa</i> ssp. <i>ruginosa</i>	<i>Syntrichia</i>
<i>Letharia vulpine</i>	<i>Trapeliopsis glaucopholis</i>	<i>Syntrichia norvegica</i>
<i>Melanelia elegantula</i>	<i>Umbilicaria phaea</i>	<i>Tortula</i> spp.
	<i>Xanthomendoza fallax</i>	<i>Tortula brevipes</i>

Species list from Charis Bratt (Santa Barbara Botanic Garden), James Shevock (USDA Forest Service, CA), and Roger Rosentreter (BLM, ID).

Vernal Pools and Other Ephemeral Aquatic Habitats

Vernal pools are small, shallow, ephemeral ponds that develop in areas of hardpan following winter rains. In the Monument, they occur on the valley floor and in depressions within the foothills of the Caliente Range. Water quality ranges from fresh to saline and alkaline, depending on the location; those near Soda Lake tend to be more saline and alkaline, while those in the southern Caliente foothills are usually of fresh water. The vernal pools on the Carrizo Plain are not as complex as the vernal pools of the Central Valley, nor do they produce the spectacular floral displays typical of other California vernal pools. They are, however, home to endangered fairy shrimp and aquatic insects, utilized by resident and migrating birds, and provide breeding habitat for fairy shrimp and spadefoot toads (see Section 3.2.2, Wildlife). In addition, two sensitive plant species, the spiny-sealed button-celery (*Eryngium spinosepalum*) and Hoover's button-celery (*E. aristulatum* var. *hooveri*), have been reported from freshwater pools in the Soda Lake area. Aside from the normal type of vernal pool, ephemeral aquatic habitat on the Carrizo Plain colonized by fairy shrimp includes sag ponds, depressions in sandstone outcrops, roadside ditches, and stock ponds. Management of these vernal pools has been to continue past management in regards to livestock grazing. Those pools that were previously grazed continue to be so and ungrazed pools remain ungrazed. This course of action was suggested by fairy shrimp expert, Denton Belk, to maintain water conditions for the listed shrimp. Livestock grazing may be beneficial for the Monument's vernal pool habitat, as has been documented in some San Joaquin Valley systems (Marty 2005). Some pools systems on the Carrizo, however, are surrounded by scalds containing biological soil crusts and do not have the extensive grasslands abutting the pools as in the Valley systems. Currently, the pools appear relatively healthy and expected shrimp populations continue to be encountered.

Soda Lake and Associated Playas

Soda Lake is one of the largest undisturbed alkali wetlands in California. The water is too saline and alkaline for vascular plants, but does support algae, which serve as food for the pouched-pocketed shrimp, alkali fairy shrimp, and brine shrimp. Associated with Soda Lake are clay dunes, which are now stabilized and covered by vegetation (USGS 2004). Also in the vicinity of Soda Lake are barren areas, or scalds, which are so salt affected that little grows there; however, it is habitat for the rare Jared's peppergrass (*Lepidium jaredii* ssp. *jaredii*). The scalds also provide wintering habitat for mountain plover. Soda Lake is surrounded by two salt-tolerant vegetation types: valley sink scrub and valley saltbush scrub. Salt cedar (*Tamarix ramosissima*), present in a few spots along the shoreline, is targeted for eradication.

Riparian: Springs, Seeps, and the Cuyama River

Vegetation in a specific spring area depends on the amount of water available, but can include typical riparian species such as willows (*Salix laevigata*), mule fat (*Baccharis salicifolia*), cattails (*Typha domingensis*), sedges (various *Cyperaceae*), rushes (*Juncus* spp.), common monkeyflower (*Mimulus guttatus*), willow herb (*Epilobium* spp.), and maiden-hair fern (*Adiantum jordanii*). In some riparian areas, saltgrass (*D. spicata*) is present, and one spring on the south side of the Caliente Mountains supports common reed (*Phragmites communis*). Invasive exotic weeds include saltcedar (*Tamarix ramosissima*), bull thistle (*Cirsium vulgare*), and annual beard grass (*Polypogon monspeliensis*). Some springs have been fenced to eliminate trampling by livestock and most have been altered at some time in the past to divert water for livestock. Damage by wild pigs is an ongoing problem and a few springs have been impacted by elk.

The far southwest corner of the Monument incorporates approximately 200 meters of the Cuyama River at its confluence with Cottonwood Canyon. Here, water primarily flows below surface level, unless there has been recent rainfall. In the main channel, vegetation includes willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), sedges (various *Cyperaceae*), rushes (*Juncus* spp.), and saltgrass (*Distichlis spicata*). Cottonwoods (*Populus fremontii*) are present in the Cottonwood Canyon drainage. Saltcedar (*Tamarix ramosissima*) and perennial pepperweed (*Lepidium latifolium*) are present in the Cuyama stream channel, both up and downstream from this site.

3.2.3.5 Rare Plants (Including Threatened and Endangered Species)

The Monument's Proclamation describes that the Carrizo Plain is important in the conservation of California's rare flora. There are 36 rare plants known to be present or with a good chance of being present on the Monument (Table 3.2-4), including 3 federally listed endangered plants: *Caulanthus californicus* (California jewelflower), *Monolopia congdonii* (San Joaquin woolly-threads), and *Eremalche parryi* var. *kernensis* (Kern mallow). The recently delisted *Eriastrum hooveri* (Hoover's woolly-star), will, according to an agreement between BLM and USFWS, continue to be treated on BLM lands as if it were still listed (USFWS 2003b). In addition to these 4 species, there are 32 other rare plants: 23 BLM sensitive plant species and 9 species on the California Native Plant Society (CNPS) (2001) watch list, 7 of which are considered as potentially rare. These additional rare plants are mostly small annual herbs. The exceptions, three larkspur species and three lilies, are small perennial herbs whose above ground parts die back each year with the onset of the dry season. A number of these rare plants occur in the alkaline communities of Soda Lake and its associated playas. Many of the remaining rare plants are found within the shrub and woodland communities in the Calientes; however, rare plant populations are spread across the Carrizo landscape. The Monument is especially important for the preservation of the eleven CNPS list 1B.1 species that are considered to be seriously endangered. More information is needed on the distributions, habitat requirements, pollinators, and general biology of these rare species. The major threats to these rare plants across their range include development and grazing (CNPS 2009). Only a

Table 3.2.4 Rare Plants In or Near the Monument

Species Name	CPNM Presence (known/potential) ¹	Federal/State Status ²	CNPS List ³
<i>Acanthomintha obovata</i> ssp. <i>cordata</i>	k		4.2
<i>Amsinckia vericosa</i> var. <i>furcata</i>	k	OP	4.2
<i>Antirrhinum ovatum</i>	k		4.2
<i>Aristocapsa insignis</i>	p	BLM	1B.2
<i>Astragalus hornii</i> var. <i>hornii</i>	p	BLM	1B.1
<i>Atriplex vallicola</i>	k	BLM, OP	1B.2
<i>California (Erodium) macrocarpus</i>	k	BLM	1B.1
<i>Calochortus palmeri</i> var. <i>palmeri</i>	p	BLM	1B.2
<i>Calochortus simulans</i>	p	BLM	1B.3
<i>Caulanthus californicus</i>	k	FE/CE, OP	1B.1
<i>Caulanthus coulteri</i> var. <i>lemmonii</i>	p	BLM	1B.2
<i>Calycadenia villosa</i>	p	BLM	1B.1
<i>Chorizanthe blakleyi</i>	p	BLM	1B.3
<i>Chorizanthe rectispina</i>	p	BLM	1B.3
<i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>	k		4.2
<i>Delphinium recurvatum</i>	k	BLM, OP	1B.2
<i>Delphinium umbraculorum</i>	p	BLM	1B.3
<i>Eriastrum hooveri</i>	k	FD, OP	4.2
<i>Eremalche parryi</i> var. <i>kernensis</i>	k*	FE	1B.1
<i>Eriogonum gossypinum</i>	k		4.2
<i>Eriogonum temblorense</i>	k	BLM	1B.2
<i>Eryngium aristulatum</i> var. <i>hooveri</i>	k	BLM	1B.1
<i>Eryngium spinosepalum</i>	k	BLM	1B.2
<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	p	BLM	1B.1
<i>Eschscholzia rhombipetala</i>	p	BLM	1B.1
<i>Fritillaria agrestis</i>	k		4.2
<i>Gilia latiflora</i> ssp. <i>cuyamensis</i>	k		4.3
<i>Gilia tenuiflora</i> ssp. <i>amplifaucalis</i>	k		4.3
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	k	BLM	1B.1
<i>Layia heterotricha</i>	k	BLM, OP	1B.1
<i>Layia munzii</i>	k	BLM, OP	1B.2
<i>Lepidium jaredii</i> ssp. <i>jaredii</i>	k	BLM, OP	1B.2
<i>Madia radiata</i>	p	BLM	1B.1
<i>Monolopia congdonii</i>	k	FE, OP	1B.2
<i>Stylocline citroleum</i>	p	BLM	1B.1
<i>Trichostema ovatum</i>	k		4.2

¹ k = known to be on CPNM, p = has potential to be on CPNM, * = see species account for clarification.

² FE = federally listed as endangered; CE = California-listed as endangered; FD = federally delisted but treated as if still listed; BLM = BLM sensitive (equivalent in CA to CNPS List 1.B); OP = Object of Proclamation.

³ CNPS Listing: 1B = rare, threatened, or endangered throughout range; List 4 = watch list, potentially rare. Decimal values indicate severity: 0.1-Seriously endangered in California (high degree/immediacy of threat); 0.2-Fairly endangered in California (moderate degree/immediacy of threat); 0.3-Not very endangered in California (low degree/immediacy of threats or no current threats known). See CNPS (2009) for additional details.

small portion of the Monument has been surveyed for rare plants. See Map 3-5, Special Status Plants, for the distribution of three listed species and five other rare plants for which populations have been mapped.

3.2.3.6 Threatened and Endangered Plants

Caulanthus californicus (California jewelflower)

Federal status: endangered.

State status: endangered.

Object of Proclamation.

CNPS category: 1B.1.

The California jewelflower is a small annual mustard now restricted to three areas: Santa Barbara Canyon near Cuyama Valley, the Carrizo Plain, and the Kreyenhagen Hills in Fresno County. Its historical distribution included the San Joaquin Valley floor and foothills, the Carrizo Plain, and Cuyama Valley – seven counties in all. Today, most populations have been eliminated from the San Joaquin Valley by agricultural and urban and industrial development (USFWS 1998).

A similar situation existed in the Monument, where jewelflower populations once ranged from Painted Rock to the southern end of the Carrizo Plain (Hubert and Kakiba-Russell 1991). Much of the habitat was impacted by dryland farming and grazing, and the Carrizo Plain populations were thought to be extinct (Taylor and Davilla 1986). Starting in 1988, additional plants were located (Hubert and Kakiba-Russell 1991; USFWS 1998) and the Carrizo Plain population in 2003 was calculated to be around 9,000 plants (BLM 2003), extending from the vicinity of KCL campground southeast to near Lawson Spring.

California jewelflower has been found in nonnative grassland, upper Sonoran subshrub scrub, and cismontane juniper woodland and scrub; and historical collections have possibly been in valley saltbush scrub (USFWS 1998). In the Carrizo Plain, the species is associated with the precincts (burrow systems) of giant kangaroo rats (Mazer and Hendrickson 1993a; Cypher 1994; USFWS 1998). However, kangaroo rats clip jewelflower inflorescences and thus may depress seed production (Mazer and Hendrickson 1993a). Jewelflower seeds germinate with the onset of winter rains, and plants flower from February to May (USFWS 1998). Like many annual species, jewelflower population numbers vary widely from year to year; relatively high rainfall appears to favor germination (Taylor and Davilla 1986; BLM 2003).

Currently, most CPNM jewelflower populations are protected from livestock grazing as the species is considered palatable to livestock and does poorly under normal grazing regimes. Some CPNM populations can be impacted by unauthorized sheep grazing (BLM 2003).

Eremalche parryi ssp. *kernensis* (Kern mallow)

Federal status: endangered (federally listed under the name *Eremalche kernensis*).

State status: not listed.

CNPS category: 1B.1.

Kern mallow is a small annual plant for which the exact definition of the species has been a matter of some disagreement. Reports, papers, and taxonomic treatments have varied in the exact description of the species, which populations should be included, and what the “real” distribution is. The online Jepson Manual treatment for Kern mallow indicates that this species occurs both in Kern and San Luis Obispo Counties (Hickman 1993). There are a number of specimens from the Carrizo that fall within this circumscription of the species. An earlier evaluation of the species concluded that the Carrizo populations should warrant recognition as a separate, rare subspecies, worthy of protection (Leonelli 1986). One specimen collected on the Elkhorn Plain is identified as Kern mallow (Consortium of California Herbaria 2009). Other specimens from Carrizo do not indicate subspecies and may or may not be Kern mallow. The species is considered to be seriously threatened by agriculture, grazing, and oil development (CNPS 2009).

***Monolopia congdonii* (San Joaquin woolly-threads)**

Federal status: endangered (federally listed under the name *Lembertia congdonii*).

Object of Proclamation.

State status: not listed.

CNPS category: 1B.2.

San Joaquin woolly-threads is a small annual composite which historically ranged throughout the southern San Joaquin Valley, the Carrizo Plain, and the upper Cuyama Valley (Taylor 1989). Current distribution includes four metapopulations and several small isolated populations, the largest being in the Carrizo Plain (USFWS 1998). In 1993, which was a favorable year for San Joaquin woolly-threads, the occupied habitat in the CPNM totaled over 2,800 acres across the central and southern Carrizo Plain and the Elkhorn Plain (BLM 1993).

San Joaquin woolly-threads occur in nonnative grassland, valley saltbush scrub, interior Coast Range saltbush scrub, and upper Sonoran subshrub scrub (USFWS 1998). On the Monument, it occurs on silty soils derived primarily from the Saltos Shale, Santa Margarita, and Temblor geologic formations (BLM 1993). Seeds of San Joaquin woolly-threads typically germinate in early winter and plants flower between late February and early April. In years with low rainfall, few seeds will germinate (USFWS 1998). San Joaquin woolly-threads has been found in areas that were previously plowed or disturbed within the Monument but that had been rested for at least five years (BLM 1993).

Most of the CPNM metapopulation occurs within currently grazed areas. Taylor (1989) suggested that the decumbent habit of the woolly-threads plants protected it from most livestock grazing and noted that the populations in the Carrizo Plain were doing well under a regime of moderate grazing. Mazer and Hendrickson (1993b) indicated that the populations they studied did not seem to be impacted by livestock grazing; however, the cattle were removed prior to woolly-threads flowering and the recommendation was that plant populations be monitored if subjected to grazing. BLM (1993) noted only minor grazing damage to plants and suggested that early grazing may benefit woolly-threads by the removal of competitors, but also recommended that cattle be removed before flowering starts in April. However, the BLM grazing study (Christian et al., in preparation) indicates that livestock grazing promotes nonnative grasses, which would increase competitors to woolly-threads. Cypher (1994) found the impacts of grazing on woolly-threads to be beneficial, neutral, or detrimental, depending on the site.

Herbivory by giant kangaroo rats has been shown to reduce the reproductive capacity of individual woolly-threads plants by up to 30 percent, with the intensity of damage correlated with the distance from a burrow (Mazer and Hendrickson 1993b). Woolly-threads' preference for growing on kangaroo rat precincts has been noted and attributed to the suggestion that the species is a poor competitor with introduced annual grasses (Taylor 1989). On the Carrizo Plain, greater woolly-threads plant size and flower head production have been associated with giant kangaroo rat activity (Mazer and Hendrickson 1993b), as have earlier seed germination and maturation (Cypher 1994), probably as a result of the better soil conditions on the precincts.

***Eriastrum hooveri* (Hoover's woolly-star)**

Federal status: previously threatened, now delisted.

Object of Proclamation.

State status: none.

CNPS category: List 4.2.

Hoover's woolly-star is a small annual phlox that is much more common and widespread than originally thought. The species was delisted on October 7, 2003 (Federal Register 68:57829-57837), but BLM will continue to treat it as a sensitive species per agreement with the USFWS, and conduct post-delisting monitoring for this species (USFWS 2003b).

Hoover's woolly-star populations are known from northern Santa Barbara County to central San Benito County, with more recently discovered large populations more than 140 kilometers (87 miles) to the southeast in the Mojave Desert and the Antelope Valley (USFWS 2003b). In addition, populations of this species in the Los Padres National Forest were discovered at higher elevations (2,700 to 3,000 feet) than the ones previously known (USFWS 2003b). The Monument's plants form part of the Carrizo Plain-Elkhorn Plain-Temblor Range-Caliente Mountains-Cuyama Valley-Sierra Madre Mountains metapopulation (USFWS 1998). Within the Monument, known locations of Hoover's woolly-star occur from the middle and higher portions of the Caliente Mountains between Horse and Padrone Canyons and in the lower portions of the Caliente Mountains bordering the Carrizo Plain north of Lawson Spring (BLM 1992, 1994a).

In the Monument, Hoover's woolly-star is associated with interior Coast Range saltbush scrub and upper Sonoran subshrub scrub. Elsewhere, it also occurs in valley saltbush scrub (USFWS 1998). Hoover's woolly-star is usually found in areas with little competing vegetation and is often found on previously disturbed areas such as lightly used roads, old firebreaks, and abandoned oil well pads (BLM 1994a). Although this species does better in sparsely vegetated areas, it can also be found in areas of dense vegetation (E. Cypher, CDFG, personal communication, 2005). Hoover's woolly-star seed germinates from January to mid-April and the plants typically flower between March and June (USFWS 1998). As is the case with other annuals, population numbers vary widely in response to precipitation patterns.

3.2.3.7 Other Rare Plants

Acanthomintha obovata ssp. *cordata* (heart-leaved thornmint) and *Antirrhinum ovatum* (oval-leaved snapdragon)

These two annual species, both California endemics, are notable for their presence within the Diablan sage vegetation in the narrow clay belts associated with the Caliente Range (Russ Lewis, personal communication). *A. obovata* ssp. *cordata* ranges from Monterey County to Los Angeles Counties in the mountains on the Pacific side of the San Andreas Fault. On the Monument, the species occurs in a few small populations in a narrow clay belt northwest of Caliente Mountain. *A. ovatum* ranges from Ventura to San Benito Counties in the inner Coast Range. On the Monument, the species occurs in the narrow clay belt with *Acanthomintha* as well in another clay belt in the foothills east of Caliente Mountain. Both of these rare plants are considered fairly endangered by CNPS, and are threatened by vehicles and grazing (CNPS 2009).

Amsinckia vernicosa var. *furcata* (forked fiddleneck), Object of Proclamation

The Carrizo population of this annual California endemic is notable because it is the southernmost population, separated from the main population by 100 miles. This suggests that it is a genetically unique population, since genetic exchange (cross pollination) with the northern population is unlikely. The species is threatened by mining and grazing and considered fairly endangered by CNPS (2009). Some populations most likely have been lost due to agricultural development. *A. vernicosa* var. *furcata* was specifically noted in the Monument Proclamation and, on the Monument, occurs in the foothills east of Caliente Mountain and across the valley in the Elkhorn Plain region. *A. vernicosa* var. *furcata* grows within the Diablan sage association.

Aristocapsa insignis (Indian Valley spineflower)

This annual California endemic has been collected just north of the Monument and would be expected to occur in sandy areas within the cismontane woodlands of the Calientes. The species is known from less than 20 populations in San Luis Obispo and Monterey Counties and is considered fairly rare by CNPS (2009).

Astragalus hornii* var. *hornii (Horn's milk-vetch)

This small annual legume is seriously endangered in California due to habitat alteration and because the species was targeted for eradication by the livestock industry in the early 1900s and is currently threatened by habitat alteration (CNPS 2009). *A. hornii* var. *hornii* is not currently known from the Monument, but much good habitat is present in the areas near Soda Lake and the associated playa system.

Atriplex vallicola (Lost Hills crownscale), Object of Proclamation

This small annual California endemic is considered to be fairly endangered by CNPS (2009). The species is threatened by grazing, agricultural conversion, and energy development. Lost Hills crownscale is found in the vicinity of Soda Lake in the saltbush scrub community. The plants from the Carrizo are notable because they are probably an unnamed new taxon (CNPS 2009) endemic to the Carrizo Plain. As such, the species would be especially vulnerable to impacts. This species was mentioned by name in the Monument Proclamation (as Lost Hills saltbush).

California (Erodium) macrophylla (round-leaved filaree)

This small annual herb is found in grasslands and cismontane woodlands. It was recently discovered in the northern Calientes on the Monument (G. Butterworth, personal communication, 2009). It is considered to be threatened by urbanization, habitat alteration, vehicles, pipeline construction, feral pigs, and nonnative plants, and considered to be potentially threatened by grazing (CNPS 2009). Most collections of this plant are considered historical (that is, the populations now probably gone) and the species is considered seriously endangered in California by CNPS (2009).

Calochortus palmeri* var. *palmeri (Palmer's mariposa lily) and ***Calochortus simulans*** (La Panza mariposa lily)

These two perennial lilies are known from the mountains surrounding the Monument and suitable habitat for both is present in the chaparral and montane woodland in the Calientes. The species are endemic to California and considered fairly endangered (*C. palmeri*) or not very endangered (*C. simulans*) by CNPS (2009). Both species are considered to be threatened by grazing and development (CNPS 2009).

Caulanthus coulteri* var. *lemmonii (Lemmon's jewelflower)

This annual native mustard is a California endemic species and considered to be fairly endangered by CNPS (2009). It occurs from the Transverse Range up through the Coast Range to the Bay Area and would be expected to be found in the juniper woodland and grassland areas in the Calientes. Populations are threatened by development and grazing (CNPS 2009).

Calycadenia villosa (dwarf calycadenia)

This small annual California endemic is known from the Coast Range from Santa Barbara to Monterey Counties and considered to be seriously endangered by CNPS (2009). On the Carrizo, the species would be expected in the chaparral and woodlands of the Calientes. Populations are threatened by grazing and other impacts (CNPS 2009).

Chorizanthe blakleyi (Blakley's spineflower)

This small annual is a California endemic, but considered not very endangered by CNPS (2009). The species occurs in the mountains south of the Cuyama River and has the potential to occur in the chaparral

and juniper woodlands on the southern side of the Calientes. Populations are threatened by development, grazing, recreation, and vehicles (CNPS 2009).

Chorizanthe rectispina (straight-awned spineflower)

Although only known from about 20 occurrences, this small, annual California endemic species is described under CNPS criteria as not very endangered (CNPS 2009). The species is known from chaparral, coastal scrub, and cismontane woodland in the Coast Ranges from Santa Barbara to Monterey Counties and has the potential to be found in similar habitat in the Calientes. The species has been collected north and south of the Monument. Possible threats include development and nonnative plants (CNPS 2009).

Delphinium gypsophilum ssp. gypsophilum (gypsum-loving larkspur)

This perennial herb is known from the hills surrounding the San Joaquin Valley. In the Monument, it occurs in the upper Sonoran subshrub scrub and nonnative grassland of the Caliente foothills and Elkhorn Plain. *D. gypsophilum ssp. gypsophilum* is endemic to California and considered to be fairly endangered by CNPS (2009). Populations are threatened by road construction and maintenance, energy development, and grazing.

Delphinium recurvatum (recurved larkspur), Object of Proclamation

This perennial herb was formerly widespread in the Central Valley, but has declined due to development and agriculture. Endemic to California, the species is considered fairly endangered by CNPS (2009). *D. recurvatum* is common in the saltbush scrub surrounding Soda Lake and was mentioned by name in the Monument Proclamation. Threats include development, grazing, and trampling.

Delphinium umbracolorum (umbrella larkspur)

This perennial herb is known from the Coast Range just south and west of the Monument and would be expected in the cismontane woodlands of the Calientes. The species is a California endemic, but considered to be not very endangered by CNPS (2009). Populations are considered to be possibly threatened by grazing (CNPS 2009).

Eriogonum gossypinum (cottony buckwheat)

This annual buckwheat, a California endemic species, is on the CNPS watch list and considered fairly endangered by CNPS (2009). It is known from the edges of the San Joaquin Valley and on the Monument, in the Caliente foothills, and the Elkhorn Plain, where the species occurs in gypsum soils in the Diablan sage association. The species is threatened by development (CNPS 2009).

Eriogonum temblorense (Temblor buckwheat), Object of Proclamation

This annual buckwheat, a California endemic species, occurs in the inner Coast Ranges from Kern to Fresno County. On the Monument, the species is found within the Diablan sage association in the foothills of the Elkhorn Plain. The species is considered fairly endangered by CNPS, and threatened by energy development (CNPS 2009). This species was mentioned by name in the Monument Proclamation.

Eryngium aristulatum var. hooveri (Hoover's button-celery) and ***Eryngium spinosepalum*** (spiny-sepaled button-celery)

These closely related vernal pool species are endemic to California. On the Carrizo, they are found within the Soda Lake area, its associated playas, and in the Monument's vernal pools. The Carrizo appears to be a nexus between the two species. *E. aristulatum var. hooveri* occurs within the Coast Ranges from San Diego to Alameda Counties, while *E. spinosepalum* is from the San Joaquin Valley. *E. aristulatum var. hooveri* is considered seriously endangered by CNPS and occurs on saline or alkaline soils. *E. spinosepalum* is considered fairly endangered by CNPS and occurs in more normal soils. Populations of both species have been lost as vernal pool habitat diminishes. Many occurrences within its historic range

were extirpated by agriculture, urbanization, and overgrazing. Continuing threats include development, grazing, road maintenance, hydrological alterations, and agriculture (CNPS 2009).

Eschscholzia lemmonii* ssp. *kernensis (Tejon poppy)

This rare annual poppy, a California endemic species, is only known from the western portion of Kern County. Currently, there are no records from the Carrizo, but suitable habitat (grasslands and chenopod scrub) is present in the Temblors, not too far from previous collections. The species is considered seriously endangered by CNPS; identified threats include grazing and competition from nonnative plants (CNPS 2009).

Eschscholzia rhombipetala (diamond-petaled California poppy)

This annual poppy, endemic to California, occurs in the grasslands along the inner Coast Range, with the population centered east of the Bay Area, but with one outlier in Colusa County and another far to the south in the Carrizo Plain. The species is currently not recorded on CPNM but has been collected three miles north of Seven Mile Road. Appropriate habitat is found surrounding Soda Lake within alkaline clay areas in the grassland. The species is considered by CNPS to be seriously endangered, and to be threatened by agriculture and grazing (CNPS 2009). The Carrizo populations are significant due to their disjunct position relative to the rest of the species.

Fritillaria agrestis (stinkbells)

This is a bulb-forming lily, endemic to California, occurring in small populations within grasslands, shrublands, and woodlands in the foothills surrounding the San Joaquin Valley. On the Monument, the species is found within upper Sonoran subshrub scrub in the Temblor Range. Considered to be fairly endangered in California by CNPS, the species is threatened by development and grazing (CNPS 2009).

Gilia latiflora* ssp. *cuyamensis (Cuyama gilia)

This is a small annual herb, endemic to California, with a limited distribution within piñon-juniper woodland in the area where the Coast Range and the Transverse Range meet. The only Monument population known is one from lower Goat Springs Canyon. At this point in time, the species is considered to be not very endangered by CNPS (2009); no threats were identified.

Gilia tenuiflora* ssp. *amplifaucalis (trumpet-throated gilia)

This is a small annual herb, endemic to California, with a limited distribution within grassland and cismontane woodland in the Coast Range of San Luis Obispo and Monterey Counties. The only Monument population known is one from the Cuyama side of the Calientes. At this point in time, the species is considered to be not very endangered by CNPS (2009); no threats were identified.

Lasthenia glabrata* ssp. *coulteri (Coulter's goldfields)

This small annual sunflower is associated with vernal pools, alkali sinks, and similar habitat. Ranging from Tulare County to Baja California and once more widespread, it is now considered to be seriously endangered by CNPS (2009). On the Monument, the species has been collected in the Soda Lake area and also on the Elkhorn Scarp and would be expected to occur in suitable habitat between. Threats identified for this species include urbanization and agricultural development (CNPS 2009).

Layia heterotricha (pale-yellow layia), Object of Proclamation

This small annual composite, endemic to California, is found in alkaline clay areas within grass, woodland, and scrub communities from the southern sierras, through the Transverse Ranges, and up the Coast Range to San Benito County. On the Monument, the species occurs within valley sink scrub associated with Soda Lake and associated playas. The species is threatened by agricultural conversion, grazing, nonnative plants, and vehicle use and considered to be seriously endangered by CNPS (2009). *L. heterotricha* was mentioned by name in the Monument Proclamation.

Layia munzii (Munz's tidy tips)

This small annual composite, endemic to California, occurs in alkaline clay soils within grasslands and chenopod scrub vegetation in the San Joaquin Valley and inner Coast Range from extreme northern Santa Barbara County to northern Fresno County. On the Monument, the species grows on saline/alkaline soils around Soda Lake and associated playas within valley saltbush scrub and adjacent grasslands. The species is considered to be fairly endangered and threatened by nonnative plants (CNPS 2009). *L. munzii* was mentioned by name in the Monument Proclamation

Lepidium jaredii* ssp. *jaredii (Jared's peppergrass)

This small annual mustard, endemic to California, is known from fewer than 6 populations (CNPS 2009). One population in northern San Luis Obispo County is now extinct. Another population in the Devil's Den area in Kern County is unprotected. The only protected populations are on the Monument, in the general region of Soda Lake and its associated playas. The species grows on saline/alkaline soils within valley sink scrub and often forms nice displays on normally barren clay flats. The habitat and plants are very susceptible to damage by human and livestock trampling and by off-road vehicle travel. The species is considered fairly endangered in California by CNPS (2009). *L. jaredii* ssp. *jaredii* was mentioned by name in the Monument Proclamation. The Carrizo populations are significant since they may soon be the only extant representation of this unique species.

Madia radiata (showy golden madia)

This annual sunflower, endemic to California, is found within grassland and cismontane woodland communities in the inner Coast Range from extreme northern Santa Barbara County to the Bay Area. The species has been found within three miles of Soda Lake, as well as in the Cuyama Valley. It would be expected to occur on suitable habitat in the Monument. The species is considered by CNPS to be seriously endangered and threatened by grazing and nonnative plants (CNPS 2009).

Stylocline citroleum (oil neststraw)

This diminutive annual sunflower, endemic to California, is known from western Kern County in habitat similar to that found on the Carrizo Plain. There are no records for the Monument, but much suitable habitat is present. The species is considered by CNPS to be seriously endangered and threatened by energy development and urbanization (CNPS 2009).

Trichostema ovatum (San Joaquin bluecurls)

This small summer annual, a California endemic species, is known from the southern San Joaquin Valley and adjacent upper Cuyama Valley. On the Monument, it occurs within the upper Sonoran subshrub scrub and grasslands of the Caliente foothills. The species is considered to be fairly endangered by CNPS (2009).

3.2.3.8 Invasive Nonnative Species

Nonnative plants comprise approximately 15 percent of the CPNM's flora and include widespread naturalized species, California listed noxious weeds (CDFA 2007), rare adventives, and landscape ornamentals. Weed control on BLM lands is based on integrated pest management principles. Methods include hand pulling, mowing, biological control, prescribed burns, and herbicides.

Much of the plain and foothill landscapes are dominated by introduced, but now naturalized, annual grasses and some forbs, sometimes referred to as the new natives (Heady 1977). These include common nonnative grasses such as soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), red brome (*B. madritensis* ssp. *rubens*), wild oat (*Avena fatua*), slender wild oat (*A. barbata*), and farmer's foxtail (*Hordeum murinum* ssp. *leporinum*). Nonnative forbs include filaree storksbill (*Erodium cicutarium*) and

long-beaked storksbill (*E. botrys*). Complete control or eradication of these widespread, naturalized exotic species is unrealistic, but methods used to reduce their impact on the Monument have included mowing, controlled burns, flaming, and applied livestock grazing. Controlled burns and flaming have been shown to provide temporary control of these nonnatives, useful in restoration efforts. The recent BLM grazing study has indicated that livestock grazing may not be effective in the Carrizo and actually increased the nonnative weedy grass component of the vegetation (Christian et al., in preparation).

A number of weedy, nonnative species are present on or near the Monument (Table 3.2-5). Some are designated as noxious weeds by the California Department of Food and Agriculture (CDFA) (3 California Code of Regulations [CaCR] 4500 4[6]). Depending on the species, the potential for spread, and the circumstances, treatment may be focused and aggressive or only as needed for a specific project (for example, restoration of native habitat). Founder populations of highly invasive weeds are treated as fast as possible when encountered, to minimize their chance of spreading.

Table 3.2-5. Target Nonnative Weedy Species Reported In or Near the Monument

CDFA*	Scientific Name	Common Name	Origin
B	<i>Acroptilon repens</i>	Russian knapweed	Central Asia
	<i>Ailanthus altissima</i>	tree of heaven	Eastern China
B	<i>Cardaria draba</i>	heart-podded hoary cress	Central Europe, western Asia
	<i>Centaurea melitensis</i>	toçalote	Southern Europe
C	<i>Centaurea solstitialis</i>	yellow star-thistle	Southern Europe, western Eurasia
	<i>Cirsium vulgare</i>	bull thistle	Europe, western Asia, northern Africa
C	<i>Convolvulus arvensis</i>	field bindweed	Europe
C	<i>Cynodon dactylon</i>	Bermuda grass	Africa
B	<i>Lepidium latifolium</i>	perennial pepperweed	Eurasia
A	<i>Salsola damascena</i>	wormleaf saltwort	Eurasia
C	<i>Salsola tragus</i>	Russian thistle	Eurasia
	<i>Tamarix chinensis/T. ramosissima</i>	tamarisk	Central Asia

* CDFA = California Department of Food and Agriculture listing of target weed species.

Some nonnative species are targeted for complete eradication from the Monument. Founder populations of Russian knapweed (*Acroptilon repens*) and heart-podded hoary cress (*Cardaria draba*), discovered in 2001, have been treated with herbicides on an annual basis. The extents of both populations are shrinking as underground stem reserves are depleted; complete eradication of existing populations is expected within a few years. Yellow star thistle (*Centaurea solstitialis*) has been found along Soda Lake Road and near the Saucito and American Ranches. Because the seeds can persist in the soil for a period of 10 years (Callihan et al. 1993), an ongoing survey and treatment program has been underway since about 1995. Methods used for control and eradication have included hand pulling, mowing, biological control (hairy weevils [*Eustenopus villosus*]), prescribed burns, and herbicides. Recent treatment has been primarily by hand-pulling plants in small populations, prior to seed production. Bull thistle (*Cirsium vulgare*) is known at Wells and Goat Springs, and is potentially present in other perennial drainages on the Monument. Current eradication efforts consist of annual removal by hand pulling prior to seed set. Tamarisk (*Tamarix chinensis/T. ramosissima*) infestations are now reduced to scattered plants in the Soda Lake area and at a few isolated seep areas. The remaining populations are targeted for elimination by cutting and stump spraying with herbicides. Perennial pepperweed (*Lepidium latifolium*) has not been found on the Monument but infestations are nearby in California Valley and its future presence on the Carrizo Plain is expected. Effective control requires repeated applications of herbicide; otherwise the plant readily resprouts from persistent rootstocks. Tarping may be effective for small infestations. Eradication efforts in off-Monument populations are underway by the San Luis Obispo County Agricultural Department.

On the Monument, tree of heaven (*Ailanthus altissima*) is managed to maintain the cultural heritage of the planted trees, while keeping the species from spreading. Tree of heaven was planted as a shade tree near many of the old ranch houses by the previous occupants of the Carrizo Plain. Mature trees and saplings can still be found around the Traver Ranch house, the MU Ranch, the KCL campground, and other old homestead sites, as well as at private residences in inholdings and in the surrounding area. The species spreads aggressively by root sprouts and, to a lesser extent, by seeds. Treatment of unwanted plants is by cutting and stump spraying.

Russian thistle (*Salsola tragus*) occurs occasionally throughout the Monument, usually limited to roadsides and disturbed areas. Since Russian thistle requires disturbance for germination and the seeds are short-lived (Young 1991), it tends to be a temporary, but recurrent, nuisance within the Monument. In 1990, Russian thistle invaded the East Cousins pasture area after the property was acquired by BLM and plowing ceased. Although Russian thistle was the first plant species to occupy the area, it was quickly succeeded by nonnative grasses and weedy natives such as fiddleneck, and by 1994, comprised only 10 percent of the area by cover (BLM 1994b). Russian thistle coverage, however, seems to be very dependent on precipitation. The late rainfall in 2003 seemed to favor Russian thistle and large acreages were noted, especially in the southern Elkhorn Plain. Controlled burns have been used on some populations and, when necessary, mature plants (such as tumbleweeds) are piled and burned. A mite may soon be available for biocontrol of Russian thistle (USDA 2008b).

Wormleaf saltwort (*Salsola damascena* or *S. vermiculata*), a perennial relative of Russian thistle, is present in some of the steep canyons of the Temblors and has been the target of a long-term eradication program by the Shafter APHIS station (Bill Abel, personal communication 24 June 2004). In 1969-1970, wormleaf salsola was planted on Temblor Ridge as part of a UC Davis Ph.D. research project evaluating the shrub as possible livestock forage. The original small plantings spread into adjacent habitat and, in 1983, eradication measures were instituted using herbicides. Control now is primarily by hand digging plants during fall surveys. Existing plants tend to be small and restricted to the bottom of steep canyons, but are estimated to be spread over any area of approximately 10,000 acres. Original estimates by the Ph.D. student of seed viability were on the order of two years, but current experience suggests at least ten years.

Other notable weedy nonnatives on the Monument are not currently the focus of active management. Tocalote (*Centaurea melitensis*), a close relative to yellow star-thistle, is fairly widespread and semi-naturalized throughout the Monument, but does not appear to currently be a problem. Twisselmann (1956) reported that field bindweed (*Convolvulus arvensis*) and Bermuda grass (*Cynodon dactylon*) occur within the Monument boundaries. Currently, field bindweed is known to occur along the access road to Painted Rock and along the edge of Soda Lake Road near the southern end of the Monument. The current distribution of Bermuda grass, if any, is unknown, but may be expected in the vicinity of the old ranch houses. Horehound (*Marrubium vulgare*) has spread along the Monument's roads and drainages. Future control efforts are envisioned.

3.3 Fire and Fuels Management

3.3.1 Introduction and Fire History

The fire and fuels management program is concerned with many aspects of fire on the natural landscape, including suppression of wildland fire, reduction of fuels to reduce wildland fire risk, and the use of fire as a management tool for vegetation and wildlife habitat manipulation.

Fire is a natural disturbance process that influences the development and maintenance of many natural ecosystems. However, as discussed in the General Botanical Setting (Section 3.2.3.1), prior to the

invasion of the Mediterranean grasses to the area, fire did not appear to be a frequent environmental factor in the desert-like scrub communities common in the southern Carrizo Plain. The native CPNM scrub communities include fire-sensitive, non-sprouting dominant species, especially *Atriplex* spp., that are sensitive to recurring fires. It is not known whether pre-contact Native Americans set fires in the Monument area. While fire may not have played a significant natural role in the native ecosystem, fire is one management tool that may be useful in restoring native vegetation through seedbed preparation and decreasing cover of nonnative species.

Fire history information has been compiled for the Monument (see Map 3-6, Fire History and Prescribed Burns). A fire of 416 acres moved up the east slope of the Caliente Mountains near Washburn Ranch in 1978. Human-caused wildfires burned in the southern Elkhorn Plain in the summers of 1993 and 1995, burning 225 and 1,800 acres, respectively. In May 1996, an escaped prescribed fire burned over 3,000 acres of grassland on the American Ranch. Three wildfires surrounding Soda Lake were sparked by mowers, burning 3,400 acres in 1994, 2,700 acres in 1996, and 530 acres in 1998. The Shell Fire burned over 6,000 acres in the Temblor Mountains in the summer of 2000. Over 2,300 acres burned in 2006, with the largest fire, the Beck Fire (1,666 acres), burning in grasslands on either side of Elkhorn Road in the northern portion of the CPNM.

3.3.2 Regulatory Framework and Current Fire Management Plan Direction

A single interagency policy for the management of wildland fire on federal lands was implemented in 1995 with the adoption of the Federal Wildland Fire Management Policy (FWFMP) (USDI/USDA 1995). The FWFMP was developed by the Secretaries of the Interior and Agriculture to respond to dramatic increases in the frequency, size, and catastrophic nature of wildland fires in the United States. The policy provides direction for suppression of unwanted fires, the use of naturally ignited fire for resource benefit, and the use of intentionally set or prescribed fire, as a management tool. The FWFMP also required all federal agencies to develop fire management plans (FMPs) for all burnable acreage within their jurisdictions. In January 2001, a “Review and Update of the 1995 Federal Wildland Fire Management Policy” was conducted by an interagency group, providing updated national direction (USDI et al. 2001). In February of 2009, additional clarification for consistent implementation of national fire policy across all agencies was provided in the document “Guidance for Implementation of Federal Wildland Fire Management Policy” (USDI and USDA 2009).

The BLM Bakersfield Field Office FMP, approved in September 2004, identifies resource values and conditions pertaining to fire management in the Bakersfield Field Office planning area and recommends strategies for wildland fire suppression, prescribed fire, and non-fire fuels treatment. Classification of lands in the FMP is by fire management unit (FMU), which is any land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, and other discernable features that set it apart from the management characteristics of an adjacent FMU. The CPNM was identified as a separate FMU in the Bakersfield Field Office FMP and classified as a special management area as its primary resource management strategy. The special management area classification recognizes the area’s National Monument status and indicates that special management techniques may be required to protect objects of interest in the CPNM FMU.

Fire protection priorities on the CPNM follow the national direction from the 2001 FWFMP (USDI et al. 2001):

The protection of human life is the single, overriding priority. Setting priorities to protect human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection.

The current FMP wildland fire suppression strategy is to limit individual fire size to 100 acres 80 percent of the time. Fires on the valley floor burning in grassland areas away from sensitive cultural sites and in fire intolerant shrub areas may be managed using a confine strategy, such as burning to the nearest road. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 500 acres. The FMP sets the target area burned by unplanned wildland fire per decade at 10,000 acres. The decadal target for prescribed fire is 10,000 acres. Up to 4,000 acres per decade are targeted for fuels treatment using non-fire methods, such as mowing or other mechanical treatment. No areas were identified in the CPNM for the use of wildland fire for resource benefit.

3.3.3 Wildland Fire Suppression

The entire CPNM is within the direct protection area of BLM, with the exception of small inclusions of private land in Kern County, which is a state responsibility area (see Map 3-7, Fire Protection Providers). Cooperative agreements for fire suppression exist with the surrounding county fire departments (Kern, San Luis Obispo, and Santa Barbara), the state of California, and the Forest Service. A BLM fire station was staffed at the Washburn Ranch from 1997 to 1999; however, staffing was removed following administrative, economic, and logistical complications. The closest BLM fire station is the Midway Station, currently located in Taft, with a drive time of approximately 30 minutes. The California Department of Forestry and Fire Protection, which staffs a fire station in California Valley, currently provides the closest source of fire suppression resources to the Monument. BLM meets annually with the Central Coast Operations group, a group consisting of representatives of all the local, state, and federal fire suppression agencies in the area, to discuss fire suppression tactics and special suppression considerations for all lands. The Central Coast Operating Plan includes a modified suppression plan for the CPNM that outlines suppression tactics to be used to minimize effects to sensitive resources. Limitations include using dozers only when necessary to protect life or property or other identified sensitive resources, minimizing new line construction and off-road travel, and restricting aerial retardant drops on rock outcrops and waterways. Minimum impact suppression tactics will be utilized within the Caliente Mountain Wilderness Study Area (WSA) and other areas having wilderness characteristics. The plan also requires that a BLM resource advisor be requested for all fires to advise suppression forces on resource issues.

There are several areas within the CPNM where fire is not desired and where mitigation and suppression are required to prevent direct threats to life or property. These areas include:

- Visitor use or administrative sites;
- Historic buildings;
- Key saltbush areas;
- Fire-sensitive archaeological sites, including, but not limited to, rock art sites; and
- Private structures or inholdings.

The Monument is being managed for the restoration of native species and natural processes to the greatest extent possible. While fire is a natural disturbance agent, there are several factors that must be considered when allowing fire to play its natural role in the ecosystem. Important considerations include potential damage to the sensitive areas listed above. Appropriate fire suppression responses are made considering the resources to be protected and tradeoffs among different suppression techniques. For example, direct, cross-country attack of fires burning in annual grasslands could potentially cause more damage to burrowing animals than the fire itself. Assuming no sensitive resources are at risk, the preferred response to wildland fire would be to allow the fire to burn to the nearest road, or backfire from the nearest road. More active suppression actions might be taken to suppress a fire before it reaches a key saltbush area, due to the fire intolerance of this important wildlife habitat community. Resource advisors will be

consulted when determining the response to wildland fire whenever possible, realizing that some suppression decisions will need to be made by responding fire personnel in emergency situations.

3.3.4 Prescribed Fire and Non-Fire Fuels Treatment

Prescribed fire is another vegetation management tool that can alter community structure and composition. Its use as a vegetation management tool is also being studied in the Monument. Fire may be an effective tool to reduce nonnative annual grasses, giving perennial grasses a competitive edge and allowing them to become more widely established. Some communities, such as saltbush, are not fire-tolerant and prescribed burning treatments would be designed to protect these areas.

Several prescribed burns have been implemented in the Monument. In 1993, approximately 130 acres were burned in the West Well and Coyote pastures to benefit mountain plover habitat. TNC conducted a burn in 1996 in the south Goodwin pasture that escaped control, burning into the American Ranch Ecological Reserve. Also in 1996, BLM conducted a prescribed burn of approximately 2,400 acres in the east and west Painted Rock pastures. Approximately 240 acres were burned adjacent to Soda Lake in 1997 for hazardous fuels reduction. Habitat maintenance burns were conducted in the Center Well pasture in 1997 (2,000 acres) and the Selby pasture (1,100 acres) in 1998. A small research burn (21 acres) was completed in the Center Well pasture in 1998. Just over 500 acres were burned in the Saucito area in 1999 for hazardous fuels reduction and exotic species control. In 2006, approximately 800 acres were burned in the vicinity of the Goodwin Ranch. Several areas were seeded with native species following the burn. The area is being monitored to test the effectiveness of this restoration treatment.

Prescribed fire is also used on an annual basis to reduce hazardous fuels around developments and along road corridors. Dead vegetation, often dominated by tumbleweeds, is piled and burned.

Approximately 350 acres are mowed each year to reduce wildfire ignition risks around developments and along main roads. Other than piling vegetation for burning, this is the only non-fire fuels treatment conducted on a regular basis.

3.4 Air Quality

The majority of the CPNM is within San Luis Obispo County, with a very small portion on the eastern boundary in Kern County. San Luis Obispo County falls within the South Central Coast Air Basin, and Kern County is part of the San Joaquin Valley Air Basin. Table 3.4-1 illustrates the attainment levels for air both state and federal quality standards by county.

Under the stricter state standard, San Luis Obispo County is considered in non-attainment for both ozone and PM₁₀. The air quality trend in San Luis Obispo County between 2003 and 2006 has been mixed, with ozone levels being reclassified from attainment to non-attainment, and PM_{2.5} moving from unclassified to attainment. Currently, there are insufficient air quality monitoring data available to classify attainment status for federal standards for San Luis Obispo County for ozone, PM₁₀, and PM_{2.5}. Kern County is considered in non-attainment for ozone, PM₁₀, and PM_{2.5} at both the federal and state levels.

Neither county regards the CPNM as a source or concentration area for air pollution, due to its extremely low population density, little industry, and few major transportation corridors. BLM does not have any ongoing operations in the CPNM that require air quality permits from the state or federal government. The two primary unregulated sources of air pollution that can originate on public lands in the CPNM are smoke from fires and dust generated from road use, maintenance, and rehabilitation.

Table 3.4-1. Air Quality

Standard	State Ambient Air Quality Standard		Federal Ambient Air Quality Standard	
	San Luis Obispo	Kern	San Luis Obispo	Kern
Carbon monoxide	Attainment	Attainment	Attainment	Attainment
Lead	Attainment	Attainment	Attainment	Attainment
Nitrogen dioxide	Attainment	Attainment	Attainment	Attainment
Particulate matter less than 10 micrometers in diameter (PM ₁₀)	Non-attainment	Non-attainment	Unclassifiable	Non-attainment
Particulate matter less than 2.5 micrometers in diameter (PM _{2.5})	Attainment	Non-attainment	Unclassifiable/attainment	Non-attainment
Ozone, 1-hour	Non-attainment	Non-attainment	Not applicable	Not applicable
Ozone, 8-hour	Non-attainment	Non-attainment	Unclassifiable/attainment	Non-attainment
Sulfur dioxide	Attainment	Attainment	Attainment	Attainment
Sulfates	Attainment	Attainment	No federal standard	
Hydrogen sulfide	Attainment	Unclassified	No federal standard	
Visibility reducing particles	Unclassified	Unclassified	No federal standard	

Sources: Cal/EPA 2007a, EPA 2007.

Prescribed fires are permitted by both the San Luis Obispo Air Pollution Control District and the San Joaquin Valley Air Pollution Control District. Under current management procedures, BLM submits a smoke management plan to the applicable air district to request a permit to conduct prescribed burns. Smoke management plans vary in the amount of information required based on the size of the proposed burn and its location to smoke-sensitive areas. Very basic information on location and timing is required for small projects (under 10 acres), while more detailed plans that include smoke mitigation procedures and methods of informing the public are required for larger projects. BLM maintains close communication with both air pollution control districts so smoke management plans are generally readily approved and burn day authorization is coordinated smoothly. In some instances, the San Luis Obispo Air Pollution Control District has been willing to authorize burning in the CPNM on a designated no-burn day due to the generally good air quality in the CPNM and the air district’s understanding of the need to conduct prescribed burns for restoration purposes. Prescribed burning prescriptions require specific wind direction so that smoke is not funneled into the more populated California Valley area, especially when school is in session. Smoke monitoring is conducted during the burn, and burning is suspended if smoke impacts occur. The predominantly lighter fuels that comprise the grass and forb vegetation type produce less smoke than heavier fuels such as shrubs or trees. Smoke emissions from prescribed burning have intermittent effects on the visual resources of the CPNM and surrounding communities, but are usually of limited duration.

Dusty roads have minor localized effects on air quality since there are no asbestos-containing (ultramafic or serpentine-bearing) rock formations within the CPNM. Currently, road maintenance activities are performed during moderately wet periods during the fall and spring to ensure adequate soil moisture content. This seasonal operation reduces dust generation during grading and enhances road surface compaction, which results in road surfaces that are less prone to dust generation from routine traffic and less likely to erode under precipitation. CPNM operations are either not subject to or are currently fully compliant with all air pollution control requirements. The soil-dwelling fungus that causes valley fever is likely present in soils in the CPNM; this hazard is discussed in Section 3.16, Public Safety and Emergency Services, of this chapter.

Occasionally, easterly winds transport pollutants into the CPNM from the San Joaquin Valley. The southern and eastern portions of the CPNM most frequently receive the heaviest accumulations.

3.5 Soils

The soils of the CPNM vary widely. The presence of the San Andreas Fault and contact between the Pacific and North American plates brings together two very different source rock materials for soil formation. This geologic phenomenon provides for very complex soil types. Approximately 72 percent of the Monument soils are designated as sandy or loamy soils (coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, clay loam, sandy clay loam, and silty clay loam) with the remaining 28 percent being clay soils located on the valley floor, Elkhorn Plain, and in isolated clay belts along the Caliente Mountains to the west.

3.5.1 Soil Types

A soil survey by the Natural Resources Conservation Service (2003) identified 10 general soil map units within the CPNM (see Map 3-8, General Soil Map Units). These units are grouped into three landscape sections as described in the following subsections.

3.5.1.1 Bolson (Valley) Floor Section or Playa Bottom

Chicote-Playas Unit: These are very deep, nearly level to moderately sloping, somewhat to poorly drained soils that formed in fine textured lacustrine sediments and alluvium on the valley floor. They are silty clay loams and silt loam soils. These soils are found in the Soda Lake Sink subregion (see Map 3-1, Carrizo Plain Subregions) and mainly support the sink/scrub vegetation.

Yeguas-Pinspring Unit: These are deep, nearly level and gently sloping, well-drained soils that formed in alluvium from mixed rock types on alluvial fans and alluvial flats on the valley floor. They are loam soils. These soils are found in the Panorama Hills and Carrizo Plain North subregions (see Map 3-1, Carrizo Plain Subregions) and mainly support the nonnative grassland vegetation.

3.5.1.2 Alluvial Flats and Fans, Flood Plains, and Terraces Section

Polonio-Padres-Wasioja Unit: These are very deep, nearly level to moderately sloping, well-drained soils that formed in alluvium from sedimentary rocks on alluvial flats and alluvial fans in the Carrizo and Elkhorn Plains. They are loam, clay loam, gravelly loam, and sandy loam soils. These soils are found in the Carrizo Plain Central, Carrizo Plain North, Caliente Foothills North, Caliente Foothills South, and Panorama Hills-Elkhorn Plain subregions (see Map 3-1, Carrizo Plain Subregions, and Section 3.2.1 Ecological Subregion Descriptions) and mainly support the nonnative grassland vegetation.

3.5.1.3 Hills and Mountains Section

Balcom-Nacimiento Unit: These are moderately deep to deep, strongly sloping to very steep, well-drained soils that formed in material weathered from sandstone and shale on hills and mountain slopes predominantly in the northwestern part of the Temblor Range. They are loam and clay loam soils. These soils are found in the Caliente Mountains North subregion (see Map 3-1, Carrizo Plain Subregions) and mainly support the scrub, shrub, and woodland vegetation.

Bellyspring-San Timoteo-San Andreas Unit: These are moderately deep, strongly sloping to very steep, well-drained soils that formed in residuum weathered from sedimentary rocks on hills and mountains in the Temblor Range. They are sandy loam soils. These soils are found in the Caliente Foothills South

subregion (see Map 3-1, Carrizo Plain Subregions) and mainly support the scrub, shrub, and woodland vegetation.

Panoza-Beam-Hillbrick Unit: These are shallow to moderately deep, strongly sloping to very steep, well-drained soils that formed in residuum weathered from sedimentary rocks on hills and mountains in the Temblor Range, Caliente Range, Panorama Hills, and Elkhorn Hills. They are loam, stoney loam, sandy loam, and fine sandy loam soils. These soils are found in the Temblor Range, Caliente Mountains North, and Caliente Mountains South subregions (see Map 3-1, Carrizo Plain Subregions) and mainly support the scrub, shrub, and woodland vegetation.

Aramburu-Temblor-Reward Unit: These are shallow to deep, moderately steep to very steep, well-drained soils that formed in residuum weathered from sedimentary rocks on hills and mountains at the higher elevations in the Temblor Range. These soils are channery loam, very channery loam, and very channery clay loams. These soils are found in the Temblor Range subregion (see Map 3-1, Carrizo Plain Subregions) and mainly support the woodland vegetation.

Aido-Ayar-Hillbrick Unit: These are shallow to deep, moderately steep to very steep, well-drained soils that formed in residuum weathered from sedimentary rocks on hills and mountains mainly in the Temblor Range. These soils are clay and loams. These soils are found in the Caliente Mountain North subregion (see Map 3-1, Carrizo Plain Subregions) and mainly support the scrub, shrub, and woodland vegetation.

Godde-Xerorthents-Rock Outcrop Unit: These are rock outcrops and shallow, steep and very steep, well-drained and somewhat excessively drained soils that formed in material derived from sandstone at higher elevations on mountains in the Caliente Range. They are sandy loams and exposures of hard sandstone and shale. These soils are found in the Caliente Mountains North subregion (see Map 3-1, Carrizo Plain Subregions) and mainly support the scrub and woodland vegetation.

Semper-Rock Outcrop-Muranch Unit: These include rock outcrops and shallow to moderately deep, steep and very steep, well-drained soils that formed in residuum weathered from basalt and sandstone on hills and mountains in the Caliente Range. These soils are very fine sandy loam and loams. These soils are found in the Caliente Mountains North and Caliente Mountains South subregions (see Map 3-1, Carrizo Plain Subregions) and mainly support the scrub, shrub, and woodland vegetation.

3.5.2 Current Management

Current management practices have reduced or tried to reduce unnatural erosion. These practices include proper stocking rates for livestock, rotation of grazing (where applicable), rehabilitation of severely disturbed areas (prescribed burning and drill seeding for native species reintroduction), restriction of vehicles to roads and trails, and control of concentrated recreational activities. However, considering the natural mosaic of habitats among soil, landform, precipitation, temperature patterns, and vegetation distributions, natural levels of soil erosion would be considered typical in most vegetative communities and soil types. Areas are currently managed to protect the characteristic soil types and plant communities.

3.6 Water Resources

The CPNM Proclamation includes an explicit reference to water rights:

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

There are no known existing water right issues within the CPNM. Should any water right be requested for access/removal of existing water, BLM would coordinate with the State of California to ensure that the intent of the Monument Proclamation is met.

The majority of the CPNM watershed is an internal drainage basin that lies between the Caliente Ranges on the west and the Temblor Range to the east. These mountains join together to close the basin at the southeastern tip of the CPNM. Runoff on the southern and western portions of the Caliente Mountain Range drains into the Cuyama Valley. The far southwest corner of the Monument incorporates approximately 200 meters of the Cuyama River at its confluence with Cottonwood Canyon. Here, water primarily flows below surface level, unless there has been recent rainfall.

No perennial streams or creeks are present within the Monument. Intermittent and ephemeral streams transport winter and spring runoff to Soda Lake. Covering about 3,000 acres in the center of the valley floor, this lake and the associated San Andreas Fault are the most distinctive geographic features of the Carrizo Plain. Although there are a number of dry lake/playa systems in the Mojave Desert, the Carrizo Plain's Soda Lake is the only feature of its kind in this region of California. Other ancient lakes formed along the San Andreas Fault in the south Coast Range (Jenkins 1973), but Soda Lake is the only extant closed-basin playa system. Core samples indicate that the lake has been present for at least 16,000 years (Rhodes et al. 2005). Like the Pleistocene lakes in the Great Basin region, Soda Lake dried up about 9,000 years ago (USGS 2004). As with other dry lake systems, the Carrizo watershed has no outlet. Winter rains falling on the surrounding plains and mountains drain into the depression in the valley center and then evaporate with the onset of summer heat. Occasionally, in years of above-average precipitation, water persists until the following rainy season. Normally, however, the dissolved salts carried from the surrounding landscape crystallize as the waters evaporate, leaving the lake bed covered with a bright white crust of mostly sulfate and carbonate salts, with less than 10 percent sodium chloride (USGS 2004). Soda Lake is downstream from the community of California Valley. The lake's water quality may be affected as development of that area continues. BLM currently has no program in place to monitor the water quality in Soda Lake or its tributaries. Map 3-9, Hydrographic Features, shows subbasins and springs within the National Monument.

Water also collects in numerous vernal pools, primarily on the north end of the CPNM. Water may be present for only a few days some years or, in wet years, from October into June. Species inhabiting the vernal pools and other ephemeral aquatic habitats are discussed in Section 3.2.2.2.

The majority of the Carrizo Plain is not in a floodplain and is considered to be in Federal Emergency Management Agency Flood Zone C, an area of minimal flooding. The CPNM contains a number of intermittent and ephemeral drainages that flow during heavy rains and are classified in Flood Zone A, areas that are within the 100-year floodplain. These areas have been designated as no-development zones.

Natural springs are common on the Caliente Mountains, but few springs are present on the Temblor Range. Inventory records show approximately 40 springs within the CPNM, with the majority located in the Caliente Mountains. Of these, 11 are recorded as public water reserves and are on file at the Bakersfield Field Office. Fifteen springs have been developed for livestock use (stockponds are associated with some), and they are also available for wildlife. Analysis of springs in the Wells Ranch area and the Caliente Mountains indicated most had very hard alkaline water. Levels of nitrates, sulfates, iron, fluoride, sodium, and total dissolved solids were above recommended levels in one or more springs (BLM 1982). The number of seeps is uncertain, many of which appear to form in response to the year's precipitation.

3.7 Wild and Scenic Rivers

There are no existing wild and scenic river designations within the Monument.

The *Wild and Scenic Rivers Act* of 1968 (Public Law 90-542) was passed by Congress to preserve riverine systems that contain outstanding features. The law was enacted during an era when many rivers were being dammed or diverted and is intended to balance this development by ensuring that certain rivers and streams remain in their free-flowing condition. BLM is required to evaluate stream segments on public lands as potential additions to the National Wild and Scenic Rivers System (NWSRS) during the RMP process under Section 5(d) of the Act. Formal designation as a wild and scenic river requires Congressional legislation, or designation can be approved by the Secretary of the Interior if nominated by the governor of the state containing the river segment. Although there are no perennial rivers within the Monument, the Act and the NWSRS has been applied to a broad range of waterways including some intermittent streams that are significant within the context of surrounding arid environments. The NWSRS study process has three distinct steps:

- Determine what rivers or river segments are eligible for NWSRS designation. The eligibility determination is limited to an assessment of whether or not a stream segment is free flowing and has one or more outstandingly remarkable values (such as geologic, recreational, fishery, or others).
- Determine the potential classification of eligible river segments as wild, scenic, recreational, or any combination thereof. Each of these classifications is based on the level of development within the corridor (for example, a wild segment is essentially roadless and undeveloped, while a recreational segment can have a relatively high level of development).
- Conduct a suitability study to determine if the river segments are suitable for designation as components of the NWSRS. The suitability analysis answers specific questions such as whether or not the segment is a worthy addition to the system, if alternate forms of protection available, if other land uses would be curtailed, or if there is local support.

The Soda Lake watershed was analyzed for eligibility and suitability in the 1997 Caliente RMP and found not to be eligible for wild and scenic river designation (BLM 1997). This decision is being carried forward in the CPNM RMP. The following geologic features/watersheds within the CPNM were assessed in this RMP to determine their eligibility and suitability for consideration under the *Wild and Scenic Rivers Act*: Wallace Creek, Cuyama River, and Abbott Canyon. The eligibility findings for these features are found in Appendix F, Wild and Scenic River Eligibility Analysis.

3.8 Climate

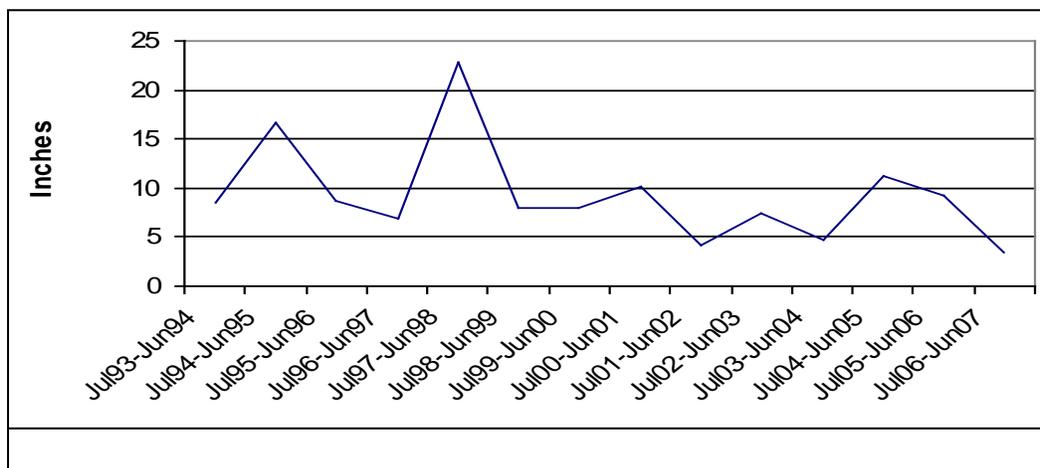
The CPNM has a Mediterranean climate, with warm, dry summers and cool, wet winters. Most precipitation occurs between November and April, primarily as rain. However, occasionally snow falls, usually in the mountains, but occasionally on the valley floor. Within an individual year, temperature and the amount of precipitation vary from north to south and by elevation. Precipitation patterns are dependent on storm direction and the interception of clouds by local topography. Overall, the Temblor Range is drier than the Caliente Mountains since storms usually intercept the Caliente Mountains first. Judging from vegetation response, precipitation on the Carrizo Plain appears to be very patchy. Although the north is generally wetter, in the drought year 2007, the southern end of the CPNM received more precipitation than the northern parts. Temperature patterns follow a typical elevation gradient and the valley floor tends to be warmer than the surrounding mountains.

Water temperature in the Pacific Ocean has a major influence on the Monument's climate and is a good predictor of yearly precipitation. Two major temperature and associated atmospheric patterns have been identified: El Niño/Southern Oscillation (ENSO) in the southern Pacific, and the Pacific Decadal

Oscillation (PDO) in the northern Pacific. Generally, warmer ocean temperatures in the Pacific are associated with higher than average precipitation in the Southwest. The El Niño pattern has the stronger effect, but the intensity of the response and the resulting precipitation is modified by the long-term patterns of the PDO. The greatest effect is when the two patterns coincide (Gershunov and Barnett 1998; McCabe and Dettinger 1999). Heavy precipitation years, such as 1997–1998, occur when El Niño effects are strengthened by a warm sequence in the PDO cycles. Droughts are more intense when La Niña coincides with colder than average PDO values (Nigam et al. 1999). Based on analyses of currently available climate change models, specific components of the ENSO system are expected to shift, but overall, the major patterns will remain unchanged (Collins et al. 2005; Van Oldenborgh et al. 2005).

Some idea of the climate on the Monument can be derived from the weather station located south of the Washburn Ranch (see Figure 3.8-1 and Table 3.8-1). This station is part of the Western Regional Climate Center’s Remote Automated Weather Station system and has operated for the last 15 years (Western Regional Climate Center 2007). Average temperatures in the summer range in degrees Fahrenheit (°F) from the low 50s at night to the upper 90s during the day. Daytime temperatures often exceed 100 °F, with a record high of 115 °F. Average winter temperatures range from highs in the mid 60s to lows in the mid 30s, with a record low of 0 °F. At the weather station, precipitation averages about 10 inches per year, ranging from a low of 3.5 inches during the 2006-2007 season to 22.9 inches during the El Niño event in 1997-1998. The driest areas on the Monument appear to receive much less rainfall, but this has not been documented with weather station data. Precipitation maps show average rainfall between 8 to 12 inches for the valley floor. Winds are generally from the south or southeast, averaging 5 mph in the morning, increasing to 10 mph by late afternoon, and dropping back down at sunset (see Figure 3.8-2).

Figure 3.8-1. Yearly Precipitation at the Washburn Ranch, CPNM 1993–2007



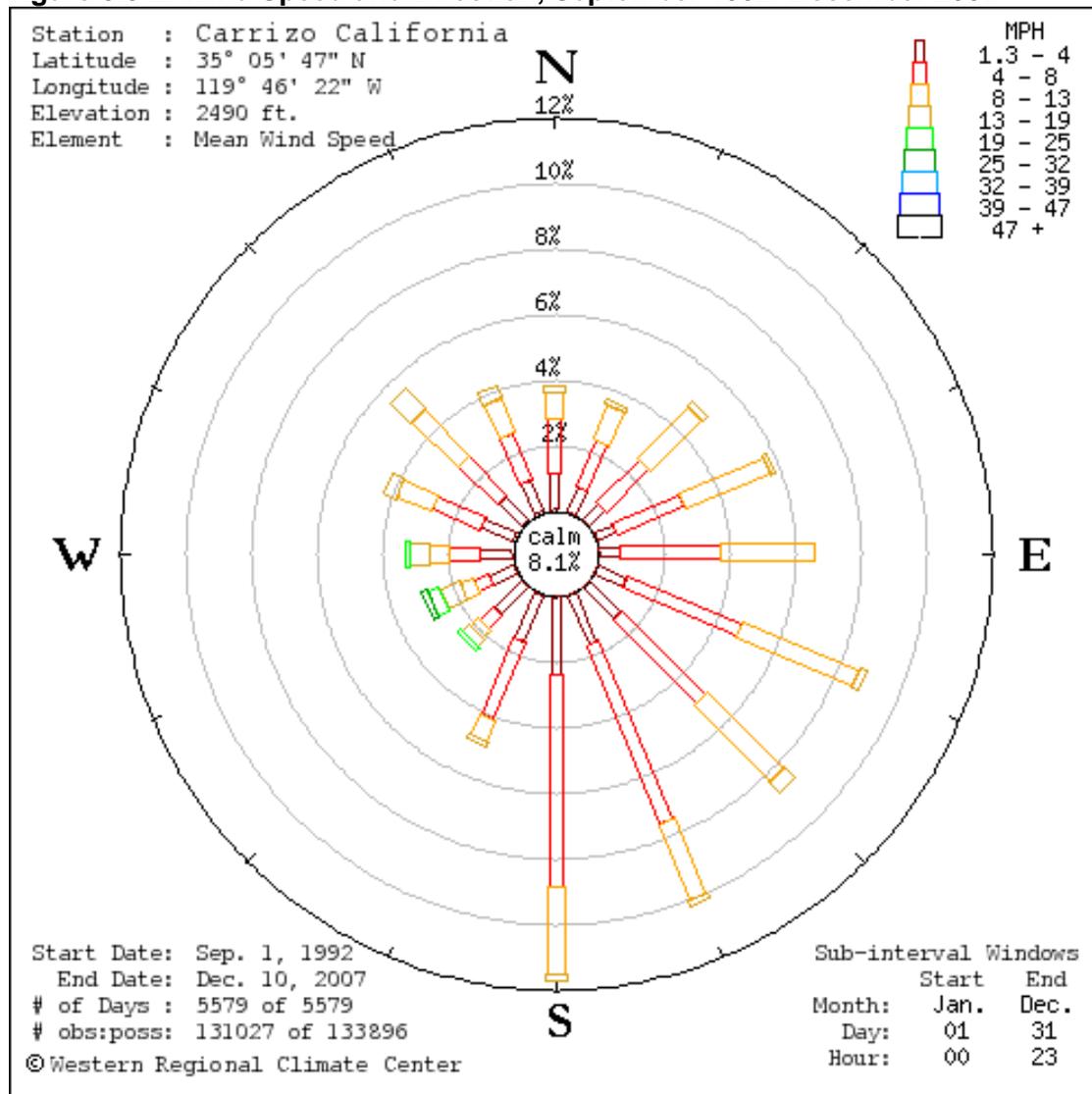
Source: Western Regional Climate Center 2007.

Table 3.8-1. Average Monthly Climate Summary at the Washburn Ranch, CPNM, September 1992 to August 2007

	Rainy Season						Dry Season						Year*
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Total Precipitation (inches)	0.74	1.37	1.72	2.57	1.58	0.66	0.29	0.02	0.05	0.01	0.11	0.45	9.4
Maximum Temperature (°F)	60	53	55	55	60	62	74	77	85	82	78	70	63
Minimum Temperature (°F)	46	45	46	46	45	51	54	66	76	75	68	61	59

Source: Western Regional Climate Center 2007.

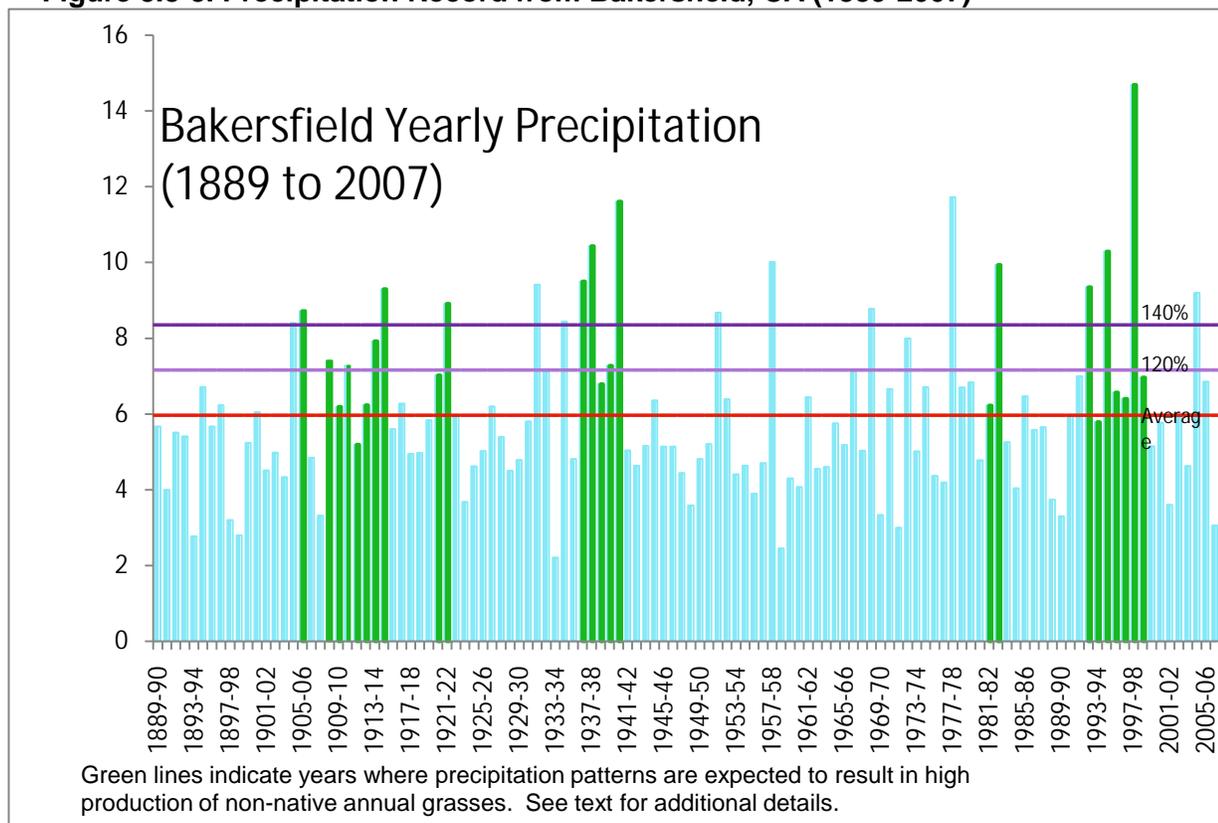
Figure 3.8-2. Wind Speed and Direction, September 1992–December 2007



Source: Western Regional Climate Center 2007.

Some sense of the great variation in yearly precipitation on the Monument can be obtained by looking at the 118-year climate record from Bakersfield (Figure 3.8-3, NOAA 2008). The Carrizo precipitation record of the last 15 years (the available Washburn data) matches the Bakersfield record; however, Bakersfield, on an annual basis, consistently gets less precipitation. The basic shape of the two graphs is the same and the 118 years of Bakersfield data can be used to estimate how often the precipitation pattern would be expected to result in a grassy year, that is, one in which nonnative annual grasses dominate the landscape, to the detriment of native species. Grassy years would be expected when precipitation is high and a large seedbank of annual nonnative grasses present. These are the types of years where vegetation management actions might be taken to combat the growth of the nonnative grasses.

Figure 3.8-3. Precipitation Record from Bakersfield, CA (1889-2007)



Source: NOAA 2008.

Two precipitation patterns are expected to result in grassy years: (a) when precipitation is $\geq 140\%$ of average, unless preceded by 3-4 years of drought (annual nonnative grass seeds are short-lived and seed bank populations diminish during drought periods), and (b) when there are a series of 3-4 years when precipitation is above average and at least one of the years is $\geq 120\%$ of average. In both patterns, annual nonnative grasses are favored and seed production is expected to be high. These two patterns occur 5-6 times in the 118 years, ranging in duration from 1-7 years each, for a total of 22-23 grassy years (about 20%). Although this is an average of two years out of ten, it should be noted that most of the grassy years came from three groups of 5-7 years, separated by drier, less grassy intervals of 2-40 years.

Precipitation has a major influence on the CPNM's ecology, and management must respond to this variation when addressing important issues such as the quality of endangered species habitat, the success

of restoration activities, the amount of recreational use, and whether sufficient forage is available for livestock. The desired open habitat for the San Joaquin Valley suite of endangered species is realized during average and drier years; however, prolonged droughts and high rainfall years are correlated with population declines. In the latter condition, vegetation management tools may help counteract the accumulation of weedy biomass (almost entirely nonnative annual grasses). The restoration of native vegetation depends on getting sufficient rainfall for seed germination and establishment, but planning restoration projects and gathering seed stock must be done before the current year's rainfall predictions are available. Seed acquired prior to a forecast drought may need to be placed into storage for use during more optimum years. The level of recreational use during the spring is related to the strength of the wildflower bloom, which, in turn, is related to precipitation and temperature patterns. Wet El Niño years tend to generate spectacular wildflower displays and visitor numbers are high. Grazing management is also affected by the climate. Grazing prescriptions such as when to allow livestock on a pasture are based on various factors, including how much biomass is available, with the expectation that additional vegetative growth will occur as the season progresses. If precipitation is inadequate, the grazing season may be shortened or canceled altogether.

3.8.1 Climate Change in the Action Area

Global climate change presents a challenge in describing the affected environment in that it adds a dynamic variable into describing baseline conditions for analysis. Climate change models are in their infancy regarding prediction of local changes so make detailed predictions that relate to site-specific planning analysis difficult. This section describes trends that can be expected in resource conditions within the CPNM based on current models. The *California Global Warming Solutions Act* of 2006 (AB 32) is one of the first laws in the United States that mandates regulation of greenhouse gases at a state level. California is in the process of implementing AB 32. This includes the Greenhouse Gas Inventory and Mandatory Reporting portion of the Act. Preliminary analysis of forest and rangeland emissions indicates that these sources represent approximately 1.2% of the total statewide 1990 greenhouse emissions, and concludes that statewide there will be little change from 1990 levels (California Air Resources Board 2007). Of the sources evaluated in this inventory, the category of forest and rangeland emissions is the most similar to conditions and activities occurring on the CPNM.

The Intergovernmental Panel on Climate Change reports that the southwestern United States is likely to become hotter and drier (Christensen et al. 2007). This prediction is the most current and thorough analysis of expected global climate change and is based on information from four potential sources: Atmosphere-Ocean General Circulation Model (AOGCM) simulations, downscaling of AOGCM-simulated data using techniques to enhance regional detail, physical understanding of the processes governing regional responses, and recent historical climate change. Analysis using a Regional Climate Model (RCM), shown to have good predictive value for California, also indicates that the Monument is likely to be hotter and drier in the future (Kueppers et al. 2005). The RCM scenario was considered better than its AOGCM counterpart because the RCM had a much finer resolution and was based on local topography, distance from the coast, latitude, and other fine-scale attributes not available in an AOGCM. The California Energy Commission (2005), using older analyses, also predicted increased temperatures, but precipitation trends were unclear.

Climate change refers to any significant change in measures of climate (for example, temperature or precipitation) lasting for an extended period of time (decades or longer). Climate change may result from natural processes, such as changes in the sun's intensity; natural processes within the climate system (such as changes in ocean circulation); human activities that change the atmosphere's composition (such as burning fossil fuels) and the land surface (such as urbanization) (IPCC 2007).

“Beginning late in the 18th century, human activities associated with the Industrial Revolution have also changed the composition of the atmosphere and therefore very likely are influencing the Earth's climate” (EPA 2009). Changes in the atmosphere have likely influenced temperature, precipitation, storms, and sea level (IPCC 2007). Rising greenhouse gas levels are likely contributing to global climate change. In the Carrizo Plain of California, climate change may result in warmer, drier conditions, and potentially more extreme weather events.

Drier conditions for the CPNM mean that, overall, there would be less vegetative growth. A change in vegetation zones is also expected. Oak and juniper woodlands would tend to shift to scrublands, scrublands to grasslands, and grasslands to desert-like habitat with significant portions of bare soils or, hopefully, biological crusts. Woodlands may be lost altogether from the Monument (Kueppers et al. 2005). With a slight drying, the wild oat grasslands in the northern part of the Monument would be expected to shift to brome-dominated grasslands. The conversion of grasslands to desert may be accelerated if winds erode unprotected soils exposed during droughts. As the general area becomes drier, plant communities and animal guilds are expected to migrate northward or upward in elevation, at least those species that can. Depending on the strength and rapidity of the change, some elements of the flora may disappear. As precipitation levels and recharge decline, some springs would dry up, while others would diminish in flow.

The amount and persistence of vegetation is expected to change. There would be less thatch generated, but, because winter moisture levels would be lower, less thatch would decompose. How this would affect the total amount of persistent biomass is unclear and would depend on the amount and pattern of precipitation as well as on the activities of kangaroo rats and other herbivores. With less precipitation, there would be less annual production and, overall, less food and water resources for animals. Less vegetative growth and a corresponding decrease in seed production are expected to depress population size of herbivorous and granivorous species such as kangaroo rats, rabbits, pronghorn, ants, and grasshoppers. Carnivores that prey on these primary consumers would be similarly affected.

With a drier climate, there should be more drought years, more years where the introduced annual grasses do poorly, and more years where the grassland vegetation is dominated by native drought-adapted species with long-lived seeds. However, there may be an invasion of weedy exotic species now prevalent in southern California deserts such as *Brassica tournefortii* (Saharan mustard) and *Schismus* spp. (Mediterranean grass). With fewer wet years, the grassland vegetation should remain at a lower, more open structure, thought to be optimum for the San Joaquin Valley species (kangaroo rat, antelope ground squirrel, blunt-nosed leopard lizard, and horned lizard) and thus fewer years where vegetation management may need to be applied in the core areas. Overall, population levels of these species are expected to reflect the benefits associated with a more open habitat versus the liabilities of increased droughts and an overall decrease in food and water resources.

Certain species such as spadefoot toads are well adapted to arid climates; however, it is unclear how they would be affected. Reduced reproductive success and some population declines to amphibian populations have been linked to climate change but most effects are expected to occur in montane species (Semlitsch 2000). Specific changes to the region may result in fewer years that pools receive enough water and retain it long enough for spadefoot toad larvae to be able to metamorphose. Effects to insect populations may result in less fat stores in adults prior to dormancy, thus affecting reproductive success or survival. Juvenile toads may not be as fit when leaving the pool with a shorter hydroperiod and may be less likely to survive longer periods of drought as well.

Other vernal pool adapted species, such as fairy shrimp, may be affected similarly to spadefoot toads. Fairy shrimp cysts are adapted to withstand long periods of drought. Species that depend on the waters of

Soda Lake, such as greater and lesser sandhill cranes, would be affected negatively and may stop using the Monument altogether.

Many climate change models also predict infrequent but strong storm activity. This would increase the susceptibility of soils to erosion. Drier soils are more susceptible to wind erosion, and drier conditions on the CPNM are known to promote a lower density of vegetative cover and root mass that would otherwise help hold soils against wind and water erosion. Strong winds and rainstorms could then have severe erosive effects.

The hotter, drier conditions predicted as a result of climate change in the foreseeable future may cause springs to dry or become ephemeral instead of perennial; Soda Lake to evaporate more rapidly, with the unique chemical properties of its water becoming more concentrated; and groundwater levels to drop as recharge from precipitation declines. These potential changes make the need for the proposed management actions to conserve water resources even more acute. Actions prescribing assessment and monitoring will make it possible to track these changes over time.

In summary, the body of information and predictive models for climate change is in its infancy regarding prediction of site-specific impacts to areas such as the Carrizo, and the plan assumes that knowledge will advance quickly with the current emphasis on climate research and model development. In addition, as the RMP is implemented, Monument managers would place a continued emphasis on research (see Chapter 3 – Research section). Where appropriate, studies would include components to assess the impacts of changing climate. In the event that climate change made achievement of RMP objectives themselves infeasible, the plan would need to be amended accordingly.

3.8.2 Acid Rain

Due to the remote setting of the CPNM, acid rain is not a concern at this time. The main sources for the sulfur and nitrogen compounds involved in the formation of acid rain in central California are vehicle emissions, farm and other off-highway equipment, oil production, and industrial processes (Cal/EPA 2007b; Corfidi 2004). If future development in the area increases local pollution levels, there may be concern, especially during foggy periods. Recent research in southern California indicates that fog readily combines with air pollutants to form acid fog, with higher acidity and potentially more devastating effects than acid rain (Roberts 1982).

3.9 Geology and Paleontology

The Monument Proclamation describes the value of the CPNM's geological resources:

The Carrizo Plain National Monument owes its existence to the geologic processes that occur along the San Andreas Fault, where two of the Earth's five great tectonic plates slide past one another, parallel to the axis of the Plain. Shifting along the fault created the Plain by rumpling the rocks to the northeast into the Temblor Range and isolating the Plain from the rest of the San Joaquin Valley. The area is world famous for its spectacular exposures of fault-generated landforms. Stream valleys emerge from the adjacent mountains, only to take dramatic right-angle turns where they intersect the fault. Ponds and sags form where the ground is extended and subsides between branches of the fault. Benches form where the fault offsets valley walls. Many dramatic landscape features are products of the interplay between very rapid fault movement and slower erosion. The dry climate of the area produces low erosion rates, thereby preserving the spectacular effects of fault slip, folding, and warping. On the Plain, these fault-related events happen intermittently, but with great force. In 1857, the strongest earthquake in California's recorded history ripped through the San Andreas Fault, wrenching the western side of the Carrizo Plain National Monument thirty-one feet northward.

The area is also distinguished for its significant fossil assemblages. The Caliente formation, exposed on the southeast side of the Caliente Range, is host to abundant and diverse terrestrial fossil mammal remains of the Miocene Epoch (from 13 million to 25 million years ago). Fossils of five North American provincial mammalian ages (Arikareean, Hemingfordian, Barstovian, Clarendonian, and Hemphillian) are represented in sedimentary rocks in that formation. These terrestrial fossil remains are interlaced with marine sedimentary rocks bearing fossils of mollusks, pectens, turitellas, and oysters

3.9.1 Regional Topography

The core of the CPNM encompasses two plains: the Elkhorn and the Carrizo. The Elkhorn Plain, nearly 20 miles long and 2 miles wide, lies at the western base of the Temblor Range. Elevation ranges from 2,300 feet at the southern end and gently rises to 2,500 feet toward the north where it gradually terminates with its convergence with the Temblor Range and the San Andreas Fault. Movements of the San Andreas Fault formed the Elkhorn and Panorama Hills that separate the Elkhorn Plain from the Carrizo Plain. The Carrizo Plain, located west of the San Andreas Fault, extends to the eastern base of the Caliente Range. It occupies the central portion of the Monument and is a high-elevation internal drainage basin. The valley floor is roughly 50 miles long and 6 miles wide with an average altitude of 2,000 feet. The Caliente Range, rising to 5,106 feet, is a prominent backdrop to the west while the Temblor Range to the east rises to 4,332 feet. The southern end of the Caliente Range bends east to parallel the Transverse Ranges geomorphic province. Painted Rock, one of the most widely known landmarks within the Monument, is an isolated monolithic outcrop consisting of cemented Miocene marine sandstone of the Painted Rock member of the Vaqueros formation. Southwest of the Caliente Range, the Cuyama Valley is deeply set between the Caliente Mountains and the Sierra Madre Mountains. This valley is approximately 40 miles long and 6 miles wide. The San Emigdio Mountains trend southeastward toward Mount Pinos, part of the Transverse Ranges. East of the Temblor Mountains are a series of more or less distinct foothills leading toward the San Joaquin Valley. The community of California Valley is located immediately north of the Monument and is bordered to the west by Freeborn Mountain and the La Panza Range.

During wetter periods of recent geologic history, runoff from the Carrizo Plain drained north via the ancestral Salinas River. Since then, uplift at the north end of the Carrizo Plain has cut off this drainage, causing all runoff to drain to the lowest part of the plain into Soda Lake. More springs are found in the Caliente Range than in the Temblor Range. This may be attributed to higher precipitation on the Caliente Range, the presence of volcanic rocks or faults that act as groundwater dams forcing water to the surface, and to higher diatomaceous shale content in the Temblor Range that may be more permeable and absorptive (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

3.9.2 Geology

The geology of the Monument is the product of millions of years of erosion, sediment deposition, faulting, volcanism, and uplift. From a geological perspective, the mountains and valleys are relatively young. Most of the sediments that consolidated to form the rocks were deposited well after the extinction of the dinosaurs. See Map 3-10, Generalized Geology. The yellow and orange shades on the map represent the younger sediments while the pink represents volcanic rocks. Older sediments are shown in shades of green. Fossils are found in both the older and younger sediments (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

Marine sedimentary rock predominates in both the Caliente and Temblor Ranges. This sedimentary rock has both an inorganic and an organic origin. Inorganic sedimentary rock includes sandstone, clay-shale, and conglomerate containing boulders and cobbles. Sedimentary rock of an organic origin includes shale

composed of the remains of microscopic plants and animals with a varying component of clay. There are also some organic limestones in the Santa Margarita formation on the west side of the San Andreas Fault. Additionally, sandstones, shales, and conglomerates of marine and non-marine origin are interlayered with volcanic flows in the Caliente Range (Carter 1985; Dibblee 1962, 1973a, 1973b; Dougherty 1940; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975). The San Emigdio and Sierra Madre Ranges to the south consist of similar rock formations. However, these ranges are oriented east-west compared to the north-south trend of the Temblor and Caliente Ranges (Dibblee 1973a, 1973b; Dougherty 1940; Ryder and Thompson 1989).

About nine million years ago, the granitic northern Gabilan Range lay directly west of the present-day southern Temblor Range. Boulders, cobbles, and coarse sand eroded from this old granite block and were deposited in the area of the Elkhorn Plain. These deposits are important for understanding the history of the San Andreas Fault. Movement on the San Andreas Fault has since displaced the northern Gabilan Range 120 miles north near Hollister. This sedimentary rock is exposed in the vicinity of Cochora Ranch in the Temblor Range and is known as the Santa Margarita formation. Several endangered and threatened plant species are found on soil derived from this formation (see Section 3.2.3 Vegetation) (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

The San Andreas Fault, over 625 miles long, traverses the Monument from north to south near the western base of the Temblor Range. The surface trace of the fault is displayed by creek bed offsets and fault scarps, which are particularly well-preserved in the Carrizo Plain. In part because of the preservation of these physical features, there has been considerable academic research of the fault. The Fort Tejon earthquake of 1857, with a magnitude over 8.0 on the Richter scale, was centered in the vicinity of Parkfield, about 50 miles to the north of the Monument, and was the strongest earthquake to hit California within historic time. Surface ruptures extended a total of 220 miles and offsets of 30 feet occurred within the Monument. Future seismic activity within the Monument is highly likely (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

Research has been conducted on geological and paleontological aspects of the Monument since the 1906 San Francisco earthquake. Recent geophysical investigations measuring natural electrical current present at the earth's surface have been particularly successful due to the Monument's isolation from population centers and lack of electrical interference. These investigations provide geophysicists a passive method to determine rock types several miles below the surface to help study the geology across the San Andreas Fault. Low rainfall and sparse vegetation enhance opportunities to map geologic formations and features. Work within the Monument has enabled reconstruction of earthquake events over the last 2,000 years and has improved understanding of the San Andreas Fault (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

Unlike other Pleistocene lakes throughout the Great Basin, the shore line of Soda Lake is not characterized by strand lines. Strand lines resemble a bath tub ring of aligned cobbles, pebbles, and sand, at various lake levels. However a higher lake level can be deduced from the presence of clay dunes and "slickspots" – barren shallow depressions common to sodic soils. Cores from Soda have been sampled for a variety of analytical studies, including palynology, isotopic chemistry, environmental magnetism, and SEM-petrography. These studies provide evidence of a long-lived lake that occupied the Carrizo Plain during the Pleistocene (Rhodes et al. 1998; Negrini et al. 2007).

3.9.3 Paleontology

The Monument is distinguished for its world-class fossil assemblages (paleontology) and well-exposed rock outcrops (stratigraphy). Several rock formations were first recognized and defined within the Monument. Present within the Monument are the "type locale" (site of the first definitive published

description) of the Pattiway and Simmler formations, the Saltos Shale and White Rock Bluff members of the Miocene Monterey formation, the Soda Lake Shale and Painted Rock members of the Vaqueros formation, and the Paso Robles, Caliente, and Morales formations. These locations will be of continuing academic interest (Carter 1985; Dibblee 1962, 1973a, 1973b; Dougherty 1940; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

In the Caliente Range, the Caliente formation contains diverse terrestrial fossil remains interfingered by fossil-bearing marine sedimentary rocks. The formation records continuous deposition during the Miocene Epoch (from 13 million to 25 million years before present) and contains the original type locale for an early horse species. In addition, the Caliente and Painted Rock formations contain significant vertebrate fossil assemblages that include ancient varieties of dog, wolf, cat, mouse, rat, and other rodents (Dibblee 1962).

In the Temblor Range, there are a series of Miocene and Pliocene marine sediments that locally contain both vertebrate and invertebrate fossils (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

There have been a series of geological mapping surveys conducted in the Monument that identify the potential for paleontological resources in specific formations within the Caliente and Temblor ranges. Both invertebrate and vertebrate fossils occur in these geologic formations. Soda Lake was once much larger than it is at present, and the Pleistocene sediments around this Ice Age lake have potential for significant vertebrate and invertebrate paleontological discoveries (Dibblee 1973b).

3.10 Cultural Resources

The Monument Proclamation recognizes:

...the area is rich in human history... Bedrock mortar milling features, village middens, and elaborate pictographs are the primary manifestations of prehistoric occupation. Some of these, such as the Painted Rock and Sulphur Springs rock art sites, are recognized as world class. European expeditions through the area date back to the late 1700s, with settlement beginning in the 1850s. Livestock ranching, farming, and mining activities in the last century and a half are evidenced by numerous artifacts and historic ranch properties within the area.

Cultural resources, including both prehistoric and historic resources, represent a continuum of events from the earliest evidence of humans on the Carrizo Plain through the historic period. Recent archaeological inventory and assessment of cultural resources in the Monument by David Whitley (Whitley et al. 2004) indicates the Native American population was well-established on the Plain from 4,000 to 800 years ago. Whitley's archaeological investigations also suggest the Paleo-Indian may have initially used the Carrizo Plain approximately 9,000 to 10,000 years ago. In the geographic region encompassing the Monument, human presence begins 12,000 to 8,000 years ago with the early cultures in the nearby San Joaquin Valley (Moratto 1984).

Although there are no known documented visits by the Spanish to the Carrizo Plain, their presence is well-established in areas adjacent to the Monument. The first European expedition into the adjacent San Joaquin Valley in 1772 was led by Pedro Fages and his Spanish soldiers as they traveled through the Tejon Pass to the Valley and westward to San Luis Obispo.

Significant cultural resources in the Monument include both prehistoric and historic sites dispersed primarily along the southwestern margin of the Carrizo Plain. The cultural and traditional values associated with these resources are of interest to researchers, public visitors, and Native Americans.

Although vandalized in past years, Painted Rock is recognized internationally through conservation groups such as the Getty Conservation Institute, who conducted studies at the site (Thorn 1991). Campbell Grant, a recognized writer on Native American rock art, stated that Painted Rock once exhibited “the finest of known...pictographs” in the United States (Johnson 1985). Grant (1978) further states that Chumash rock art certainly reached its highest development on the Carrizo Plain.

There are two categories of cultural resources defined in BLM Manual 8100, The Foundations for Managing Cultural Resources (BLM 2004): cultural properties and traditional cultural properties. Cultural properties are a definite location of human activity, occupation, or use identifiable through field inventory, historical documents, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public or scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Traditional cultural properties derive significance from traditional values associated with it by a social or cultural group such as an Indian tribe or local community. Traditional values are a social or cultural group’s traditional systems of religious belief, cultural practice, or social interaction, but not always closely identified with definite locations. Some examples of traditional cultural properties could include a sacred mountain peak, archaeological site, or important plant gathering area or trail used by Native Americans (BLM 2004).

3.10.1 Prehistoric Resources

Of the 181 cultural resource sites recorded in the Monument, 132 of these sites are prehistoric, 41 are historic, and 8 are multi-component sites consisting of historic and prehistoric elements.

Evidence of archaeological resources associated with American Indian settlement, occupation, trade, and special activities in the Monument attest to cultural and traditional values associated with the Carrizo Plain landscape. There were 24 archaeological sites, including Painted Rock, listed in the National Register of Historic Places (NRHP) in 2001, as these cultural properties possess important information about the prehistory and artistic expression of the native peoples that inhabited the Carrizo Plain (Whitley 2001). In 2007, BLM, in collaboration with Whitley and the National Park Service, nominated 90 prehistoric cultural resource sites to the NRHP as eligible cultural properties for inclusion as a National Historic Landmark. Such designation recognizes the exceptional importance of cultural properties in the Monument at a national level, thereby affording greater opportunity for site protection, preservation, and educational and valid research considerations.

Cultural resource inventories completed on public and nonfederal lands in the Monument to date encompass nearly 9.7 percent of the 250,000 acres, or about 24,288 acres. Of the 132 known prehistoric sites in the Monument, common site types include rock art, most frequently in the form of pictographs; special activity areas for community and family events; rock configurations and shelters; stone flake scatters associated with the manufacture of lithic tools; camps for short- and long-term habitation; rock quarries for procurement and use of raw materials; and plant processing areas such as bedrock mortar and milling stations. An additional eight archaeological sites are multi-component, consisting of both prehistoric and historic elements. These resources and their distribution patterns suggest both seasonal and year-long occupation. Of the cultural resources recorded in the Monument, 72.9 percent are prehistoric and 4.4 percent are multi-component.

Archaeological investigations conducted by Whitley in 2001, 2003, and 2004 identified occupation by native peoples on the Carrizo Plain from at least 2000 BC to AD 1800. These studies suggest an increase in populations during times of more favorable climatic conditions on the Carrizo Plain spanning some 4,000 to 800 years ago (the Middle Period). In contrast to the dense populations found on the coast during

the Late Prehistoric Horizon (800 to 200 years ago), population in the Monument appears to have decreased during this dry climatic period.

The proximity of the CPNM to the San Joaquin Valley, where early cultures have been documented along the ancient shorelines of Buena Vista and Tulare lakes, and the presence of a significant ancient lake basin (Soda Lake) within the Carrizo Plain, suggest Paleo-Indians may have used the Carrizo Plain as early as 9,000 to 10,000 years ago. This is further supported by the presence of very old, highly oxidized soils (paleosols) at several archaeological sites that are associated with diagnostic artifacts (Whitley et al. 2004).

Painted Rock is the most visited archaeological site in the Monument. Access is restricted to guided tours from March 1 through July 15, with the majority of tours occurring when the Goodwin Education Center is open to the public from March 1 to the end of May. Access restrictions are required to protect sensitive cultural and wildlife resources during the peak period of tourist visitation. The site has self-guided access from July 16 to February 28. Painted Rock is currently managed as a point of public visitation and protection of its traditional Native American values. The Sulphur Spring archaeological site is officially closed to public visitation due to the extremely fragile nature of this rock art site. The site is managed for the purposes of protection and long-term conservation.

3.10.2 Native American and Ethnographic Resources

At the time of Euro-American contact, the Carrizo Plain was situated in the tribal vicinity of three Native American cultural affiliations: the Chumash, the Southern Valley Yokuts, and the Salinan people. Although no ethnographic villages have been confirmed on the Carrizo Plain, archaeological and ethnographic information indicates the Chumash were its primary inhabitants. Johnson (1985) states that Chumash villages are known to the west and south of the Carrizo Plain in the nearby Cuyama Valley and the San Emigdio Mountains. Kroeber (1925) is somewhat vague in his interpretation stating, "The Carrizo plains are doubtful as between Chumash and Salinans, and may not have contained any permanent villages." Other researchers have suggested that the stylistic rock art elements at Painted Rock and other sites on the Carrizo Plain indicate that it was primarily used by the Chumash and, to some degree, by other groups such as the Yokuts (Grant 1978; Lee 1984). Excavations on the Washburn Ranch identified the presence of late prehistoric artifacts characteristic of the Chumash (Finnerty 1963). Latta (1949) stated in a 1920s interview with Indian descendants from Santa Rosa Indian settlement and Tejon Canyon that the Carrizo Plain was occupied by Chumash.

The ethnographic village of K'o'owshup is mentioned in the mission documents pertaining to the Carrizo Plain but the precise location of this habitation site in the CPNM is uncertain. Whitley et al. (2004) reported that 14 individuals had been identified in the mission records as being born at this village.

It is clearly recognized that a number of different Yokuts tribelets occupied the Central Valley of California, extending from the delta south of Sacramento to the Grapevine at the southern terminus of the San Joaquin Valley. Their tribal lands also included the foothills adjacent to the west and east side of the Valley. The southeastern area of the Temblor Range falls within the CPNM and the tribal territory of the Tulamni Yokuts (Kroeber 1925).

There is no known ethnographic or archaeological evidence to support the presence of the Salinan tribal people's use of the Carrizo Plain and the adjacent mountain ranges within the Monument. However, villages attributed to the Migueleño Salinan (southern division of the Salinan, closest to the Monument) are found approximately 40 miles to the northwest of the CPNM in the Cholame Valley (Hester 1978). The stylized rock art elements characteristic of the Salinan may suggest a possible connection to the Carrizo Plain.

Both the Spanish and Mexican periods in California were marked with oppression and death as the indigenous peoples were forced into labor on missions and ranchos while falling to disease by the thousands. However, bands of Native Americans persisted in many isolated regions of California. Native Americans currently do not live on private land within the Monument. However, there are Native Americans living in the adjacent community of California Valley (located north of the Monument) and to the east of the Monument.

The Chumash, Yokuts, and Salinan people use areas in the CPNM today for traditional uses such as plant gathering and conducting ceremonial activities at Painted Rock. Under a charter agreement initiated in 1997 between BLM and representatives of the three aforementioned native peoples, a Native American Advisory Committee was established for the Carrizo Plain. This Advisory Committee actively participates in planning and project activities with the managing partners in the CPNM. The Advisory Committee was formed to encourage participation of both the federal tribes and the non-federally recognized Native Americans having ancestral cultural ties to the lands in the Monument.

BLM's California State Director and the U.S. Department of Agriculture Forest Service Pacific Southwest Region established a new policy in 2006 in coordination with the federal tribes and non-federally recognized Native Americans in California. The new policy ensures traditional native practitioners will have access to plants and that such plants are managed in a manner that promotes ecosystem health for lands managed by BLM and the Forest Service. The policy places emphasis on local collaboration, implementation of actions, and means to resolve issues. It also encourages planning to address traditional native gathering interests and to support practitioners in gathering culturally utilized plants for personal, community, or other non-commercial traditional use on lands managed by BLM and the Forest Service.

3.10.3 Historic Resources

Although there are no known documented visits by the Spanish to the Carrizo Plain, their presence is well established in areas adjacent to the Monument. The first European expedition into the adjacent San Joaquin Valley in 1772 was led by Pedro Fages and his Spanish soldiers as they traveled through the Tejon Pass to the Valley and westward to San Luis Obispo. In a later expedition in 1776, Francisco Garcés also visited the San Joaquin Valley (Wallace 1978). A closer Spanish presence in the vicinity of the Monument occurred in the expedition of 1806 when Father José de Zalvidea ventured through the Cuyama Valley, traveling from Mission Santa Ynez to Bitterwater Creek and Buena Vista Lake in the San Joaquin Valley. A diary of the expedition mentions a number of Chumash and Yokut villages encountered as they passed through Cuyama Valley on their way to Buena Vista Lake (Grant 1978).

The Carrizo Plain entered the historic period during the mid-nineteenth century when J. Garcia settled there circa 1850. According to Gardner (1967), the Garcia Ranch was named El Saucito after the little willows that grew around the spring located there. He mentions that Indian servants ran the ranch house and that numerous vaqueros attended to the large herds of cattle and sheep (Fisher 1959; Gardner 1967). According to BLM patent files, the Hanline Ranch, on the southern end of the Carrizo Plain, was originally part of a proposed Mexican land grant under the ownership of Don Cesario Lataillade. This land was subsequently transferred to Cesario C. Lataillade in 1879 as heir to the property (Wesson et al. 2005). Although this property was not established as a land grant, lands adjacent to the CPNM in Cuyama Valley were granted to Cesario Lataillade in 1846 and to José María Rojo in 1843 as two separate land grants.

After California's entry into statehood, Euro-American settlers began filtering into the Carrizo Plain to ranch, bringing more cattle and sheep to the region. During the 1860s, the Crocker brothers claimed land

on the Carrizo Plain, calling their ranch El Temblor because of the earthquake activity in the area (Morrison 1926). During these early years, James McDonald and his brother John acquired land holdings eventually totaling about 50,000 acres on the Carrizo Plain (Gardner 1967). McDonald was described as a “speculating capitalist” by writer Myron Angel (1883). On a much larger scale, Miller and Lux (circa late 1800s) acquired a great deal of land in the central portion of Carrizo Plain. In 1869 Chester Brumley, an employee of James McDonald, came to the Carrizo Plain to manage grazing leases (Eichel 1972). Brumley eventually took claim to all or part of the land formerly held by J. Garcia (Fisher 1959; Gardner 1967). Chester had his family join him in 1876 at El Saucito Ranch (Christian and McGown 1988; BLM 1991). The family lived in a small adobe house until the two-story redwood home was completed circa 1878. According to accounts about the Brumley Ranch, also known as El Saucito or Saucito Ranch, peaches, cherries, and apples were grown next to the house. An article in the *San Francisco Tribune* in December 1884 states that Brumley annually grew wheat and barley for hay with “good success” (Eichel 1972).

The first post office on the Carrizo Plain was founded in 1882 and was located at the El Saucito Ranch house. The *San Luis Obispo Evening Breeze* reported the closing of the post office in 1895. The post office was initially known as the Carisa Post Office. The Carrizo Plain as it is known today had several different spellings historically. Spellings such as Carisa, Carissa, Carriso, Carrissa, Carrisa, or Carriza are found on legal documents, maps, newspapers, and historical accounts.

By 1886 there were 60 new settlers on the Carrizo Plain (Eichel 1972). Dryland farming was introduced during this period with a primary focus on growing barley and wheat and to a much less degree oats (Christian and McGown 1988). While the soil would grow excellent grains, without good roads for transportation, getting the grain to the market was a problem. The solution came in 1890 when the county put the settlers to work building a road from McKittrick to the Carrizo Plain (Eichel 1972). It was not until 1912, with the advent of mechanized farm machinery, that large-scale farming operations became productive. This large-scale production carried through to World War II (WWII). From 1900, the trend of absentee landlords with large landholdings managed by a third party continued on the Carrizo Plain up until 1987 when the land was transferred to the federal government and the CPNM managing partners.

The El Saucito Ranch house is the only standing house in the Monument representative of the pioneer period. The house remained mostly occupied throughout its history with only brief periods of vacancy. Although the house changed ownership a number of times, the last time the house was owner-occupied was in 1966. In the years that followed, the ranch house was used by property caretakers or intermittently leased to local ranchers until the ranch was vacated in 1984. Over the history of the house, there were a number of modifications including the addition and removal of rooms. Although alterations were made to windows, doors, and the interior of the house over the years, the original two-story redwood house structure remains intact. Ranchers today use the corral at El Saucito to separate cattle and provide necessary doctoring and other needs prior to transporting the cattle to other locations. The ranch house property was transferred from private to federal ownership in 1997.

The Basque and the vaqueros were historically associated with livestock operations as cowboys for both sheep and cattle on lands within the CPNM. Descendants of the Basque families continue livestock grazing on lands in the Monument today, but to a much lesser degree than historically. Some families have federal grazing leases for cattle and others have sheep grazing operations on private lands within the Monument.

The 1853–1854 Pacific Railroad Survey depicts the Carrizo Plain on maps of territory available for potential land grants to be awarded to builders of the 35th parallel transcontinental railroad route. However, the survey did not identify the Carrizo Plain as the potential rail corridor from San Francisco to Los Angeles. The Southern Pacific Railroad and its San Francisco investors preempted the original 35th

parallel transcontinental charter between 1872 and 1876, thereby relinquishing the associated land grants. Subsequently, the Southern California railroad line was constructed through the San Joaquin Valley (Wesson et al. 2005). After the railroad withdrew their claims on the Carrizo Plain, the area was open for settlement. Later job opportunities were provided to settlers on the Carrizo Plain during the 1890s with the exploitation of sodium sulfate and phosphate on Soda Lake. This mining activity is evident today by the remaining foundations and earthen berm where the narrow gauge rail system once transported materials from Soda Lake to a connecting point at State Highway 58.

The Caliente Mountain WWII Lookout Tower is located on state school land within the Monument, and is surrounded by the Caliente Mountain WSA. This significant historic cultural property has not been maintained over the years and would need to be stabilized in the near future to prevent the wooden tower from falling to the ground. Considering there are few WWII towers remaining standing in California, this historic site represents an important part of California's heritage and its association in protecting the United States during WWII.

Components of the historic Washburn Ranch and Selby Cow Camp were found eligible for inclusion in the NRHP in 1992. Selby Cow Camp barn was stabilized and partially restored in the latter part of 2007. The Washburn Ranch continues to serve as an important historic point of interest and administrative center for BLM and the CPNM partners. The Washburn Ranch transferred from private to federal ownership in 1988.

The most common historic resources encountered in the Monument include ranch buildings, structures, or features associated with sheep and cattle livestock operations and dryland farming. To a much lesser degree, features associated with mining of sodium sulfate, phosphate, and gypsum are found in the Monument. The distribution of historic site types in the CPNM demonstrates the dominant role ranching and dryland farming played in the regional history. Of the 181 cultural resource sites recorded in the Monument, 41 of these sites are historic and 8 are multi-component consisting of both historic and prehistoric elements as noted in Section 3.10.1, Prehistoric Resources. The 41 sites, or approximately 22.7 percent of the recorded sites in the Monument, are representative of the historic period. The 8 multi-component sites represent 4.4 percent of the cultural resource baseline.

Four significant historical themes have been identified for the Carrizo Plain: the pioneer phase, the post-1900 expansion and development phase, the Depression era, and the modern phase (BLM 1991), as described below:

- Pioneer phase: The pioneer phase began in the mid 1800s and is characterized by the initial phase of settlement on the plain by pioneers as well as land acquisition by wealthy capitalist. Ranching and limited agriculture were carried out during this period. Initially, sheep were grazed primarily on the Carrizo, but by the end of the nineteenth century, cattle were prevalent.
- Post-1900 expansion and development phase: This period led to the development of a rustic vernacular architecture style. The lack of commercial building materials is evident during this time as reflected in the architecture, although an expression of the pioneer period architecture remained. Farming in part supplanted grazing by the early 1900s. Open range grazing ended with the introduction of fences on the Carrizo Plain during this phase.
- Depression era: This era is characterized by the expansion of dryland farming, the abandonment of the small and unsuccessful farms and ranches, and the consolidation of farms to create large operations such as the Washburn Ranch.
- Modern phase: This phase of development on the Carrizo Plain started in 1940 and continued to recent time. This period is characterized by further expansion of farm production in response to the demand created during WWII. During the modern phase, large corporate holdings and agribusiness

were formed on the Carrizo Plain. Additionally, use of mechanized farm equipment was noticeably increased, transportation was improved, and commerce was increased to the San Joaquin Valley and the coastal areas of California (BLM 1991). In recent years, dryland farming has nearly disappeared in the Monument and livestock operations have been reduced considerably. At least one private inholding in the Monument is used today for dryland farming of grains. TNC initiated the acquisition of lands during the 1980s for the purpose of conservation.

3.10.4 Current Management

Cultural resources in the Monument are of interest to researchers, public visitors, Native Americans, conservators, and others with varied interests. Such interest attracts more public visitation and increases demands on resources and the issues associated with managing and protecting heritage resources. To address these public demands, BLM and its CPNM partners are charged with the responsibility to find a balance, allowing the public reasonable access to appreciate these significant yet fragile and non-renewable cultural resources. The Monument Proclamation directs BLM to protect and preserve significant cultural resources in the Monument.

BLM continues coordination with the Native Americans with cultural ties to the land in the Monument and their mutual interest in the recovery of native plants in the CPNM. BLM encourages the traditional use of the native plants that are not protected and supports the annual ceremonial gatherings held at Painted Rock. BLM's efforts to implement the 2006 policy concerning native plants is incorporated in this plan to ensure traditional native practitioners have access to traditional plants of their interest and that these plant areas are managed in a manner that promotes ecosystem health for lands in the CPNM.

3.10.4.1 Carrizo Plain Rock Art Discontiguous District

Protection and preservation measures for archaeological sites in the Carrizo Plain Rock Art Discontiguous District (a three-component historic district listed on the NRHP) were initiated when the Painted Rock complex of sites was transferred to federal ownership in 1989. For an overview of the district's locations, refer to Map 3-11, National Register of Historic Places. The north-south road to Painted Rock was closed, a fence was installed, and grazing was discontinued in the Painted Rock pasture to protect a number of archaeological sites. Shooting was also banned in the same pasture for protection of the public and the rock art paintings. The road on the eastern boundary (Selby-Caliente Road) of the Painted Rock pasture was rerouted to avoid any further impact to cultural resources that were bisected by an existing roadbed prior to federal ownership. The Painted Rock Interpretive Trail and vehicle parking area, located less than 0.75 mile from Painted Rock, were developed to provide site protection by replacing vehicle access with pedestrian access to the site. Painted Rock and other cultural sites in the Rock Art Historic District continue to be monitored regularly to identify and resolve any problems that may threaten them. Painted Rock is closed to public access during the summer solstice ceremony to allow Native American religious rites. Public access is restricted to guided tours from March 1 through July 15 to protect sensitive cultural and wildlife resources during the peak period of tourist visitation. The majority of guided tours during this time are given from March 1 to May 31 when the Goodwin Education Center is open. The site is open for self-guided access from July 16 to February 28. Painted Rock is currently managed as a point of public visitation and protection for its traditional Native American values.

Based on a three-year compilation of data (2001–2003 Recreation Management Information System [RMIS]) from the BLM vehicle meter counter, trail register logs, and records from the Goodwin Education Center, Painted Rock receives an average of 3,667 visitors per year. Of these visitors, 820 individual, or 22.4 percent, are provided public access through escorted tours given by the managing partners or via group supervision. For example, on average, over this three-year period, 420 visitors were given tours by the managing partners through staff at the Goodwin Education Center, and the remaining

400 visitors were on group tours supervised by interested educational groups such as museums, schools, universities, or environmental organizations. Of the 3,667 visitors, 2,847 individuals, or 77.6 percent of the visitors per year, gain self-guided access to Painted Rock. Trail brochures, signage, and kiosk information are provided to the public to enhance site protection, preservation, and educational awareness. Cultural information, sensitivity awareness, and ethics to preserve heritage resources during site visitation are also provided at the Goodwin Education Center and site kiosk.

Natural forces such as wind and water erosion, bird excretions, rock exfoliation, dust particulates, and bee hive construction are a significant threat to rock art preservation in the Monument. It should be noted that greater than 99 percent of the human impacts to Painted Rock occurred when the site was in private ownership. An initial effort for rock art conservation at Painted Rock was implemented by the Getty Conservation Institute in 1991 in concert with BLM.

One of the most effective protective measures for cultural resources implemented in 1987 was the closure of the Painted Rock pasture to livestock use. This action alone excluded cattle from grazing on 15 cultural properties in the Rock Art Historic District. Otherwise, cattle could continue to trample cultural midden constituents and disturb rock art by rubbing against the painted surfaces. This action has not totally excluded cattle from getting into the pasture. Although infrequent, over the recent years, cattle have been able to get past the fences on occasion.

For years the Saucito Rocks archaeological site, while in private ownership, was open for ranching, agricultural use, and for oil well drilling atop the prehistoric site. After this site transferred from private to federal ownership in 1990, BLM closed vehicle administrative access to components of the site.

The Sulphur Spring archaeological site was previously closed to vehicle and pedestrian visitation as an emergency action shortly after the property was transferred from private to federal ownership in 1988. The site was subsequently identified as closed in the Carrizo Plain Natural Area (CPNA) Management Plan (BLM 1996). The site was threatened by potential impacts caused by visitors coming into physical contact with the friable rock surface at this extremely fragile rock art site. The site is managed for purposes of protection and long-term conservation. This component of the Rock Art Historic District extends further north than the site area previously closed to public access.

3.10.4.2 Additional Sites with National Register Eligibility

BLM is nominating 90 prehistoric cultural resource sites to the NRHP as cultural properties eligible for inclusion as a National Historic Landmark in 2007 (Whitley and Loubser 2003; Whitley et al. 2004). Such designation recognizes the exceptional importance of cultural properties in the Monument at a national level, thereby affording greater opportunity for site protection, preservation, education, and research. Currently, review of the nomination has been completed by the State Historic Preservation Officer, the National Park Service, BLM's Deputy Historic Preservation Officer, and peer reviewers at the University California-Los Angeles and the Santa Barbara Museum of Natural History. The nomination package has been forwarded to the National Park Service and BLM's national office in Washington, DC for final review and approval.

BLM previously assigned "use categories" to several individual cultural properties in the Monument as listed below. It should be noted that the California State Historic Preservation Officer and BLM have agreed to not assign use categories to cultural sites until an assessment of site eligibility and the potential effects the specific use category might have on the property has been determined. As cultural properties are evaluated for their appropriate use subsequent to this plan (for example, scientific, conservation for future use, traditional, public, experimental, or discharged from management), specific sites or classes of similar sites will be assigned appropriate use categories. For details, refer to Appendix G, Cultural

Resources Use Allocations. The following cultural resources, with varying NRHP eligibility, were previously assigned management use categories:

- Painted Rock site (eligible, listed): traditional use and public use.
- Sulphur Spring site (eligible, listed): conservation for future use.
- Saucito Rock Art Site (eligible, listed): conservation for future use.
- Traver Historic Ranch (not eligible, not listed): public use.
- El Saucito Historic Ranch (eligible, not listed): public use and scientific use.
- Washburn Historic Ranch (eligible, not listed): public use and scientific use.
- KCL Historic Ranch (not eligible, not listed): public use.
- Historic Selby Cow Camp (eligible, not listed): public use and scientific use.

3.10.5 Preservation Issues and Threats to Cultural Resources

Some of the greatest human threats to cultural resources in the Monument, especially prehistoric sites, are illegal activities such as artifact collecting, digging, defacement of rock art, and physical human contact with painted surfaces which accelerates surface deterioration. Physical contact with the rock art in many cases is intentional, although inadvertent contact also occurs. The Monument Proclamation prohibits all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes; however, in the recent past, OHV trespass became a problem for several cultural resources in the Monument. OHV disturbances were documented within the Carrizo Plain Rock Art Historic District in 2002 and 2003. Specifically, four-wheel drive trucks and all-terrain vehicles (ATVs) had encroached on sites within the district near Selby Cow Camp and the Painted Rock pasture. Although no significant disturbance occurred to these cultural resources, such trespass poses a serious threat to these fragile resources. Vehicle use occurring when the soils are wet, or increased use during the dry season, could adversely affect cultural sites by mixing the archaeological constituents in the midden or subsurface soils. Mixing of the soil stratigraphy could result in the loss or reduction of reliable scientific and archaeological data contained in cultural deposits, cause potential breakage of diagnostic artifacts, visually impact the cultural landscape, and displace surface cultural features. Additionally, during the dry season, dust generated from unauthorized OHV use, as well as public access on open dirt roads, could impact rock art panels and individual motifs.

The greatest human threats to historic resources such as buildings and structures are vandalism caused by gunshots and breakage of windows and doors. Other threats include the theft of historic wooden boards, artifacts, and farm equipment associated with ranching and agriculture.

Some protective efforts implemented include site patrol and monitoring by law enforcement, BLM staff, and volunteer site stewards. Additional protection for cultural resources is provided through educational and awareness efforts such trail signage, kiosks, brochures, and visitor registers; fences and cattle guards; road, shooting, and grazing closures; web pages, public presentations, and information provided at the Goodwin Education Center.

Acid rain is known to deteriorate rock art elements, especially pictographs, found at prehistoric sites. BLM recognizes acid rainfall as a potential cause of discoloration, corrosion, or other visual damage to the multiple-colored painted surfaces at archaeological sites. In general, the CPNM has fewer issues associated with acid rain than more populated areas of Southern California (see Section 3.8.2, Acid Rain), but it could still be a factor in rock art deterioration. However, no management conservation effort is

known to combat this threat. Global warming could result in less vegetation cover on sites, thereby increasing the potential for wind erosion, blowouts of loose midden soils, and abrasion of rock art motifs caused by blowing sand. Additionally, less vegetative cover on cultural sites increases the potential for illegal collection of artifacts. Such impacts would result in the loss of scientific and archaeological information pertinent to the prehistoric lifeways in the Monument.

Wildfire suppression tactics have the potential to impact cultural resources. The BLM Bakersfield Field Office completed an FMP in September 2004. Measures are identified in the plan to minimize or eliminate potential impacts to cultural resources from fire suppression activities. Any updates to the existing FMP or development of a new FMP for the Monument would address newly discovered cultural resources and additional protection measures as necessary. In regard to prescribed burns, measures are identified in project-specific *National Environmental Policy Act* (NEPA) documentation for the avoidance and protection of cultural resources as proposals are identified.

The Caliente Mountain WWII Lookout Tower has not been maintained and is in disrepair as described above in Section 3.10.3. The peak of Caliente Mountain, where the lookout is located on state property, is the final destination of many hikers that use the Caliente Mountain Trail.

3.10.6 Research and Education

Valid scientific research is encouraged to document and assess cultural resources that may be lost by either natural or human causes. Cultural studies identify and address appropriate conservation measures, identify and record sites to be added to the cultural baseline, identify site problems (human or natural impacts) and corrective actions necessary for long-term preservation, and illuminate an endless number of valid research questions pertinent to past and present human use of the lands in the Monument.

The Monument Proclamation emphasizes the important historic resources in the Monument, as well as the public and scientific interest in these resources. The managing partners continue to pursue research and educational opportunities in the CPNM in a number of ways. The Goodwin Education Center serves as the focal point for providing public educational and interpretive information about the cultural resources and natural history in the Monument. Cultural interpretive trails and information kiosks are provided at several key locations on the CPNM such as Painted Rock, Traver Ranch, and El Saucito Ranch.

3.11 Visual Resources

The CPNM encompasses a dramatic expansive landscape that is in a relatively undeveloped state. Conservation of the area's scenic attributes was an important factor in its designation as a National Monument, and was a major issue in public scoping comments for the RMP. The scenic qualities of most landscape settings in the Monument are defined by striking natural features – the vast open vistas across the plain, backed by stark mountain ridges. Structures from historic and present-day ranching operations are integral parts of a pastoral landscape on the valley floor. Seasonal landscape elements include one of California's most dramatic spring wildflower blooms. Another important component of the visual integrity of the Monument is its dark night skies. As the population of California increases, light pollution has impacted night sky viewing opportunities in many areas. There are outstanding opportunities for viewing the night sky at easily accessible locations within the Monument, such as Caliente Ridge and the Soda Lake Overlook. Astronomy classes and amateur astronomers are drawn to the Plain from as far away as Los Angeles and the San Francisco Bay area.

On-going activities to improve the scenic quality of the Monument have included efforts to eliminate unneeded facilities. These efforts have included removal of derelict equipment and debris (when not historically significant), taking out old fencing, hauling away trash, and eliminating unusable structures.

Facilities required for management purposes are designed or modified where possible to mimic historic structures, are placed in areas with natural screening, or are finished to borrow from natural landscape colors. An example is the painting of storage tanks to appear less intrusive and to better harmonize with their surroundings.

When developments complement and borrow form, line, color, and texture from existing characteristic landscape features, they minimize impacts to the landscape and retain the visual integrity of the area. BLM uses the Visual Resource Management (VRM) system as a framework to assess scenic values on public lands and to protect visual integrity and manage visual impacts from activities and projects. The visual resource inventory for the planning area used the Carrizo Plain ecological subregions as a basis (Map 3-1), since these units corresponded to landscape elements with similar character. Public lands within the CPNM were inventoried based on three factors:

- Relative levels of scenic quality: Each subregion was evaluated based on seven factors (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) and then ranked as either Scenery A (most scenic), Scenery B (somewhat scenic), and Scenery C (common or not attractive). In the CPNM, the plain and the surrounding mountains represent a vast dramatic landscape of very high scenic integrity and quality (Scenery A). The south side of the Caliente Range (Caliente Mountain South subregion), although scenic, is more typical of landscapes in the inner coast range (Scenery B).
- Level of viewer sensitivity to landscape changes: The highest viewer sensitivity occurs at popular public use areas such as scenic overlooks, recreation sites, and trail and road corridors. Areas visible from private residences also receive high sensitivity ratings. The Soda Lake Sink, Carrizo Plain North, and Caliente Foothills North subregions were rated as high sensitivity levels, while the Caliente Mountain South subregion was rated as low. The remaining subregions were rated moderate.
- Distance of an area from points or corridors of high viewer sensitivity: Even minor landscape changes are very evident when viewed in the foreground zone, but these changes become less evident with distance. The lack of natural topographic and vegetative screening makes the valley floor of the CPNM especially sensitive to any developments (Soda Lake Sink, Carrizo Plain North, and Carrizo Plain Central), with the remainder of the area moderately sensitive because of additional screening and/or further distances from popular use areas.

Based on these factors, visual resource inventory (VRI) classes were assigned to different parts of the planning area and used as a basis to consider visual values in the RMP land use allocations. For the CPNM, the inventory classes were assigned to each of the subregions shown on Map 3-1. All of the subregions were assigned a VRI Class II, except the Temblor Range and Caliente Mountain South Subregions, which were assigned as Class III. VRI Class I designations are reserved for areas with special designations such as wilderness, wilderness study areas, and designated wild and scenic river corridors where a decision has already been made to retain the natural qualities of the area. Within the planning area, lands within the Caliente Mountain WSA were given a VRI Class I designation (note that the WSA overlays the Caliente Mountain North and Caliente Mountain South subregions. The portions of these subregions within the WSA are designated as VRI Class I).

The acreages for VRI classes are as follows:

- VRI Class I: 17,984 acres (Caliente Mountain WSA)
- VRI Class II: 172,671 acres
- VRI Class III: 56,197 acres

As stated above, the inventory classes provide a basis and are only one factor used in determining visual resource management (VRM) classes in the RMP alternatives. For example, a VRI Class II area may be designated as a VRM Class III area under the plan to allow for additional recreation facility developments. In contrast, the plan could establish a long-term goal to restore some VRI Class II lands to Class I standards (where the class was based on past landscape modifications) through restoration efforts. Finally, some land use allocations, such as areas managed to protect wilderness characteristics, are automatically identified as VRM Class 1 areas.

The objectives of the VRM classes are as follows:

- Class I: The objective of this class is to preserve the existing character of the landscape. This class allows for natural ecological changes and only very limited types of management activities and uses. Any contrasts with the natural landscape must be minimal and not attract attention. This class is typically limited to designated wilderness, wilderness study areas, or wild and scenic river segments with a “Wild” classification.
- Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities and uses can be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture in the predominant natural features of the characteristic landscape.
- Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape can be moderate. Management activities and uses may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements of the predominant natural features of the landscape.
- Class IV: The objective of this class is to allow for management activities and uses requiring major modifications to the natural landscape. The level of change to the characteristic landscape can be high. Management activities and uses may dominate the view and be a major focus of viewer attention. However, every attempt should be made to mitigate the impacts of activities through careful location and repeating the visual elements of the landscape.

Each VRM class allows for projects with differing degrees of contrast with the characteristic natural landscape elements of form, line, color, and texture. As described above, the higher numbered classes allow for projects with greater contrast to the landscape. However, in all cases, projects include mitigation measures to minimize impacts on scenic quality.

When projects or actions are proposed in the planning area, a visual contrast rating is conducted to ensure that they are designed and located to meet the VRM class objectives. For example, a project to complete a prescribed burn/seeding should follow edges of natural landforms and mimic sizes and shapes found in the landscape.

3.12 Wilderness Study Area and Other Lands with Wilderness Characteristics

3.12.1 Applicable Regulatory Framework and Original Wilderness Inventory

Section 603 of the *Federal Land Policy and Management Act* (FLPMA) directed BLM to review roadless areas under its jurisdiction of 5,000 acres or more having wilderness qualities and to recommend to the President the suitability of such areas for preservation as wilderness. In determining these characteristics, the law directs BLM to use the criteria given by Congress in the *Wilderness Act* of 1964. In Section 2(c) of the Act, Congress states that wilderness is

an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

The original inventory process, initiated in 1978, examined the public lands in the planning area to determine and locate the existence of areas that met these wilderness criteria. Lands in the Caliente Mountain area met the inventory criteria and were established as the Caliente Mountain WSA (#CA-010-042). The result of the inventory process was published in *Final Intensive Inventory, Public Lands Administered by BLM California Outside the California Desert Conservation Area Wilderness* (BLM 1979). Subsequently, in 1988, BLM issued the *Final Environmental Impact Statement for the Central California Study Areas* that analyzed the impact of adding the WSA to the National Wilderness Preservation System and, in June 1991, the Secretary of the Interior sent a recommendation to the President that the area should not be designated wilderness through the *California Statewide Wilderness Study Report*.

Congress has the sole authority to designate an area as wilderness. Until Congress decides whether to designate the area as wilderness or release the area from further consideration for wilderness, BLM is required to manage the Caliente Mountain WSA so as to not impair its suitability for this designation. Commonly called the nonimpairment standard, the management framework for BLM to manage the WSA to meet this mandate is found in the *Interim Management Policy for Lands under Wilderness Review* (BLM 1995). The nonimpairment standard applies to all uses and activities except those specifically exempted from this standard by FLPMA, such as grandfathered uses and valid existing rights.

The Caliente Mountain WSA contains 17,984 acres and is located in the extreme southeastern portion of San Luis Obispo County, approximately 45 miles southwest of Bakersfield. It has a high degree of natural character and rugged topography, with steep canyons and high, sharp mountains and ridges (see Map 2-5, Lands Having Wilderness Characteristics). Elevation varies from 5,104 feet at Caliente Mountain to 2,100 feet at the mouth of Post Canyon. Vegetation varies from dense chaparral and juniper along ridgelines to scattered shrubs and annual grasses in canyon floors. The varied topography and dense pockets of vegetation in the area combine to produce outstanding opportunities for solitude and primitive unconfined recreation experiences.

3.12.2 Wilderness Characteristic Assessment in Resource Management Plans

Since the original BLM wilderness inventory was conducted in 1978-1979, there have been extensive land acquisitions within the planning area. Many of these lands have been impacted by past farming and other land uses. However, over time, some intrusions on these acquired lands, as well as on previously inventoried public lands (found not to have wilderness qualities at the time of inventory), have reverted to a more natural condition. In other areas, fences, structures, two-track roads and other imprints have been physically closed and/or removed and lands have been restored to a more natural condition.

In 1996, the State of Utah, Utah School Institutional Trust Land Administration, and the Utah Association of Counties filed suit challenging BLM's authority to re-inventory lands for possible wilderness study area designation in Utah. A settlement to this suit, as amended, was reached in April 2003 between the Department of the Interior and the plaintiffs. Consistent with BLM policies for the identification,

management, and protection of multiple uses, terms of the settlement have been applied throughout BLM. Although the settlement affects formal identification of additional WSAs, BLM may continue to inventory public lands for resources or other values, including wilderness characteristics, as a part of managing the public lands and land use planning. Through the planning process, BLM may manage these lands by identifying objectives, actions, and land use allocations to protect wilderness characteristics.

As part of the development of this RMP, lands within or adjacent to the Caliente Mountain WSA, and other lands within the Monument, have been examined to determine if they have wilderness characteristics. This acreage has been included in the plan alternatives for analysis to determine if they should be managed to protect wilderness characteristics (see Map 2-5, Lands Managed for Wilderness Characteristics, in which lands identified under Alternative 1 represent the full acreage inventoried for wilderness characteristics. Also, one small acquired inholding (approximately 40 acres) within the Caliente WSA was inventoried and found to possess wilderness characteristics. Commenters on the Draft RMP/EIS pointed out that there is limited acreage of ecosystems and landscapes like those on the CPNM Valley floor that are managed for wilderness characteristics. This prompted BLM to review the wilderness characteristics inventory for the RMP and reach a conclusion that an additional 5,398 acres of lands north of Soda Lake have wilderness characteristics. This additional acreage is considered in the PRMP/FEIS along with the other acreage originally identified as having wilderness characteristics for the Draft RMP/EIS (see Chapter 2 for proposed objectives/acreage identified for management for wilderness characteristics).

3.13 Areas of Critical Environmental Concern

Areas of critical environmental concern (ACECs) are areas of public land where special management attention is required to protect important natural and/or cultural resource values. The ACEC designation indicates to the public that BLM recognizes these significant values and has established special management measures to protect them. BLM is required to consider designation of ACECs under Section 202(c)3 of FLPMA. Areas may be nominated for consideration as ACECs by BLM, other agencies, or members of the public.

For an area to be designated as an ACEC, both of the following criteria must be met:

- **Relevance:** The area must have a significant cultural, historic, scenic, wildlife, fish, or other natural system or process.
- **Importance:** The relevant value, resource, process, or system must be distinctive and be of greater than local significance.

Areas with significant natural hazards may also be designated as ACECs, although no areas meeting this criterion are known to exist within the Monument.

The CPNA was designated as an ACEC in the Caliente RMP (BLM 1997). The boundary of the former CPNA and ACEC approximates the CPNM boundary. However, some ACEC acreage extends outside the CPNM. The ACEC was designated to protect relevant and important values including sensitive plant, animal, cultural, Native American traditional lifeway, and geologic resource values. At the time of designation (1996), the ACEC included 143,300 acres of BLM surface ownership, 10,880 acres of subsurface only, and 55,730 acres of surface only. The Monument Proclamation protects all of the relevant and important values covered under the ACEC designation. However, the ACEC designation is still in effect and those portions within the CPNM boundary are analyzed in this RMP. Those portions outside the CPNM will be analyzed in the Caliente RMP revision, scheduled for initiation in 2008.

3.14 Livestock Grazing

3.14.1 Introduction and Applicable Regulatory Framework

The Proclamation establishing the CPNM states that:

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument.

The unique and complex livestock grazing management systems used within the CPNM have evolved through time, following changes in land ownership, federal grazing regulations, and the available information on livestock management effects in the area. The designation of the Monument has also refocused the managing partners on determining the appropriate use of grazing as a vegetation management tool to meet Monument goals.

As part of all RMPs, BLM must allocate which lands under their jurisdiction will be available for livestock grazing and which land will be unavailable. There are currently 170,100 acres designated as available for livestock grazing within the Monument and 36,400 acres are unavailable (see Map 2-8, No Action Alternative: Livestock Grazing). Livestock grazing on the lands designated as available is currently administered under two separate types of authorizations utilizing different subparts of the federal grazing regulations. Approximately 55,900 acres are authorized under Section 15 (of the *Taylor Grazing Act*) livestock grazing leases, and these are located principally in the Temblor and Caliente Mountain Ranges. Livestock grazing occurring primarily on the valley floor of the Monument (approximately 114,200 acres) is currently authorized under free use grazing permits, in accordance with 43 CFR 4130.5(b)(1). Grazing permits or leases authorize grazing use on a specific management unit called grazing allotments. All grazing allotments within the Monument are depicted on Map 3-12, Grazing Allotments.

3.14.2 Historic and Current Grazing Authorizations

A brief history of grazing use authorizations in the Monument is helpful to understanding why there are currently two types of authorizations for its administration.

Prior to TNC, BLM, and CDFG land acquisitions starting in 1987, nearly all of the private lands were grazed by cattle and sheep, including the cultivated farm fields. BLM's ownership in what is now designated the CPNM was limited to original public domain lands in the Temblor and Caliente Mountain Ranges and the Soda Lake lake bed. Much of this area (excluding the area around Soda Lake) was determined to be suitable for livestock grazing under BLM planning guidance. Several grazing leases were authorized under Section 15 of the *Taylor Grazing Act*. Many of these grazing leases have been in place since the early 1930s. Six such grazing leases are currently authorized entirely or partially within the CPNM. In order to hold a Section 15 grazing lease in these areas, grazing lessees must own or control private property that acts as the base to their livestock operation, and this base property gives the lessee a priority over other applicants, especially if it is adjacent to the BLM grazing allotment or management unit.

Grazing use levels are measured in units of animal unit months (AUMs), the amount of forage needed to sustain one cow, five sheep, or five goats for one month. There are 7 grazing allotments totaling approximately 60,000 acres within the Temblor and Caliente Mountain Ranges of the Monument. Currently, one allotment is vacant, and there are five Section 15 grazing leases on the remaining six allotments. These seven allotments are the North Temblor #15, McKittrick Summit #22, Sulphur Canyon #31, Chimineas Ranch South #39 (vacant), Selby Ranch #44, Maricopa #96, and Wood Canyon #3655

(see Table 3.14-1 and Map 3.12, Grazing Allotments, for details). These Section 15 grazing authorizations are issued by BLM under the regulations at 43 CFR 4100 and are managed under the guidelines for grazing management of the Caliente RMP of 1997 and the record of decision documenting the *Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (BLM 1999), which was approved by the Secretary of the Interior in July 2001 (see Appendix E, Central California Standards for Rangeland Health and Guidelines for Grazing Management).

Table 3.14-1. Grazing Lease Allotment Acres and AUMs within the Monument

Allotment Number and Name	Authorization Number	Season of Use	Total BLM Acres in Allotment	Total BLM Allotment Acres in CPNM	Total BLM AUMs	Total BLM AUMs in CPNM
15, North Temblor	0401014	Dec–May and Mar–Feb	35,921	8,506	7,936	1,840
22, McKittrick Summit	0401021	Dec–May	160	160	40	40
31, Sulphur Canyon ¹	0401030	Dec–May	16,970	16,970	2,295	2,295
39, Chimineas Ranch South	Vacant	Dec–May	4,982	2,391	730	168
44, Selby Ranch ¹	0401030	Dec–May and Dec–Mar	26,560	26,560	3,182	3,182
96, Maricopa ²	0401080	Dec–May and Mar–Feb	5,978	1,180	939	188
3655, Wood Canyon ³	0401020	Dec–May	204	95	5	2
7 Allotments	6 leases		90,775	55,862	15,127	7,715

¹ EA.CA169.07.009

² EA.CA160.00.043

³ EA.CA160.07.061

Rangeland health assessments on all grazing allotments are completed with an interdisciplinary team that evaluates the health standards for soils, species, riparian, and water quality in the field, based on several qualitative indicators. Rangeland health assessments have been completed on all the allotments authorized by Section 15 leases, except the Chimineas Ranch South allotment (since it is currently vacant).

In 1987, TNC and BLM started acquiring significant acres of new land within the valley floor area of the CPNM. TNC purchased 82,000 acres in 1987 and BLM acquired 23,000 acres in 1988 and another 28,500 acres in 1989. With these purchases, TNC owned base property adjacent to this newly acquired BLM land and therefore also had priority for new federal grazing privileges. BLM issued TNC Section 15 grazing leases for the acquired lands, where TNC then pastured the livestock of local livestock owners.

A rest-rotation livestock grazing management program was designed and initiated on the new land acquisitions in these valley floor and foothill allotments in December 1989 to provide conditions for native perennial plant establishment while helping to reduce the competition from nonnative annual plants. In 1995, the Secretary of the Interior issued new federal regulations for grazing management that, among other things, allowed free use grazing permits to be issued by BLM for the management of vegetation to meet resource objectives other than the production of livestock forage or for conducting scientific research or administrative studies. Base property (required for a Section 15 grazing lease) is not required to hold a free use grazing permit. TNC relinquished its Section 15 grazing lease on the valley floor and foothill allotments in 1995 and BLM then issued free use grazing permits to local ranchers who, for the most part, had been using the lands prior to acquisition. The allotments that are authorized by these free use grazing permits support the grazing study and monitoring program described in the following section.

3.14.3 Grazing Studies and Vegetation Management

A grazing study and monitoring program began on the valley floor and foothill allotments in 1996 to help determine whether grazing is an appropriate tool for providing habitat suitable for long-term sustainable populations of listed species and the restoration of native communities. The study was designed to provide information about the effectiveness of livestock grazing as a tool to remove standing biomass, reduce the dominance (as defined by density, cover, and frequency) of nonnative annual species, and enhance the re-establishment of native species. The results from the Carrizo grazing study do not support the general hypothesis that livestock grazing applied in this manner is beneficial for native plant communities; specifically, it does not enhance native annual plant species, nor decrease exotic ones (Christian et. al., in prep.). See Section 3.2.3.3 for a comprehensive summary of the Carrizo grazing study. Throughout the valley floor and foothill allotments in the Monument, there are areas that are not grazed to provide controls for research and to protect sensitive areas such as Painted Rock and alkali wetlands. These 36,400 acres of non-grazed lands are designated as unavailable for livestock grazing in the Caliente RMP of 1997; see Map 2.8.

The existing grazing study and monitoring program occurs on public lands within eight grazing allotments or management units within the valley floor and foothill area, totaling approximately 114,200 acres. These allotments are the Washburn Ranch #18, Painted Rock Ranch #26, KCL Ranch #29, Goodwin Ranch #43, Saucito Ranch #46, Temblor-Caliente #53, Carrizo Ranch #70, and Phelan #92; see Table 3.14-2 and Map 3-12, Grazing Allotments. Grazing authorizations are currently issued annually on these allotments by BLM, specifically under 43 CFR 4130.5(b), the regulations on free use grazing permits, for the management of vegetation to meet resource objectives other than the production of livestock forage and/or to conduct scientific research or administrative studies. Rangeland health assessments have been completed on the Washburn Ranch and KCL Ranch allotments, and both allotments were determined to be meeting all standards of rangeland health. The remaining allotments authorized by free use grazing permits have not yet been assessed.

Livestock grazing has been applied to the pastures within the allotments under free use grazing permits (see Map 3-13, Pastures for pasture locations) based on the needs of the key resource values identified in the 2005 Pasture Matrix (see Appendix M, Pasture Matrix, No Action). This Pasture Matrix identified key resource values for each pasture and prescribed differing grazing management in support of those resources, based on our current knowledge. The managing partners have been developing a more comprehensive approach to applying livestock grazing treatments since 2005. The new approach to grazing management focuses on the objectives and needs of each resource value or conservation target and correlates those to the various management actions or treatments geared to meet those objectives. This new document is called the Conservation Target Table (see Appendix C, Conservation Target Table). A separate guideline/pasture matrix will identify the resource values or targets within each pasture and list the compiled management prescription for that pasture based on the direction from the Conservation Target Table. The locations of the key resource values and grazing management prescriptions in this matrix were developed and applied over time with input from all the managing partners and species experts and are adjusted as new information becomes available. Generally, application of livestock grazing within the pastures largely depends on yearly precipitation rates as reflected by green-up or vegetation response, the existing annual residual dry matter present, and the resultant species composition.

Table 3.14-2. Free Use Grazing Permit Allotment Acres and AUMs within the Monument

Allotment Number, Name	Authorization Number	Season of Use	Total BLM Acres in Allotment	Total BLM Allotment Acres in CPNM	Total BLM AUMs	Total BLM AUMs in CPNM
18, Washburn Ranch	vacant	See pasture matrix	6,804	6,804	3,350	3,350
26, Painted Rock	0401043	See pasture matrix	7,570	7,570	3,660	3,660
29, KCL Ranch	0401029	See pasture matrix	25,783	25,783	13,070	13,070
43, Goodwin Ranch	0401043	See pasture matrix	5,800	5,800	2,470	2,470
46, Saucito Ranch	0401025	See pasture matrix	3,757	3,757	1,950	1,950
53, Temblor-Caliente	0401051	See pasture matrix	54,244	54,244	28,375	28,375
70, Carrizo Ranch	0401078	See pasture matrix	5,477	5,477	2,750	2,750
92, Phelan	vacant	See pasture matrix	4,755	4,755	4,200	4,200
8 Allotments	8 permits		114,190	114,190	59,825	59,825

In dry years, or in years with favorable annual species composition, little or no livestock grazing may be necessary to meet resource objectives. Each year, pastures within the free use grazing allotments are evaluated based on the criteria in the current pasture matrix and grazing is applied as necessary to meet the objectives for that pasture's resources. Actual applied livestock grazing use by season and pasture since 1989 is tabulated in Appendix N, Actual Grazing Use for Vegetation Management Since 1989.

Although no authorized grazing has occurred on CDFG lands to date, livestock grazing could occur on these lands under 14 CaCR 630(b)(29)(C), entitled the Carrizo Plains Ecological Reserve, but only under permit from the CDFG. If authorized, livestock grazing would be managed consistent with the Monument grazing study and monitoring program and any other grazing prescriptions deemed necessary by the CDFG.

Unfenced private lands within the Monument may also be grazed by other private landholders, and the use of these areas may not conform to the grazing prescription placed on public lands.

3.14.4 Livestock Management Facilities

Current grazing allotments and pastures utilize many existing acquired ranch boundaries, fence lines, and water systems. Fences or other livestock management facilities have been removed to enhance wildlife movement. Over 150 miles of fence have been modified or removed by the managing partners and volunteers since 1998.

The use and development of livestock management facilities on public lands is authorized through cooperative agreements. Maintenance of these facilities is generally the responsibility of the grazing permittee or lessee. However, BLM has assumed a portion of this maintenance, including maintenance of some water systems, fence removal and modification, road and trail maintenance, and others. BLM maintains title to such range improvements (livestock management facilities) on public lands. Administrative access to these livestock management facilities is usually necessary to ensure maintenance

capabilities. Existing livestock management facilities, including access roads, corrals, barns, water pumps, water tanks, water troughs, pipelines, spring collection boxes, fences, and cattle guards are used, as appropriate. When consistent with the Monument mission, and needed to achieve management objectives, facilities may be constructed or modified to prevent or reduce livestock distribution problems or to help facilitate the grazing system.

Existing facility maintenance occurs periodically throughout the year, and may include grading, mowing, or repairing roads; repairing drainage crossings; cleaning or replacing culverts; scraping out or modifying corrals; hauling materials from existing roads to repair fences; mowing vegetation along fences; cleaning out, replacing, or moving cattle guards; repairing, removing, or replacing water tanks, their bases, and troughs; locating and repairing, replacing, or bypassing sections of buried pipeline; and locating, cleaning out, repairing, or replacing spring collection boxes.

3.15 Recreation and Interpretation

Recreational use in the CPNM is oriented toward enjoyment of the area's natural and historic resources. People visit the Monument to view wildlife and birds, to see the spectacular wildflower displays in the spring, to walk along the San Andreas Fault, to visit the pictographs at Painted Rock, and to just enjoy the solitude. Other visitors enjoy hunting opportunities in the mountains surrounding the plain, camping in the foothills, horseback riding, hiking, and various other outdoor activities.

A majority of the recreational use of the National Monument is concentrated around the Goodwin Education Center, Soda Lake, Painted Rock, Selby, and KCL campgrounds, the Caliente Mountains, and along the Elkhorn Plain (see Map 3-14, Visitor Services and Recreation). Seasonal use varies based on the wildflower bloom in a given year, weather, and the availability of upland and big game. The highest visitation occurs from December through May. The lowest visitation occurs during August, when the summer temperatures peak.

3.15.1 Current Recreation Use and Trends

The CPNM is located within a day's drive of more than 30 million California residents. However, the area receives a relatively low level of visitation. Most "destination" visitors bypass the area and head to more popular locations on the coast or in the Sierra Nevada Mountains. The area's isolation from primary travel corridors, harsh climate, and lack of facilities contribute to this low use. However, these same features also give the area its unique qualities as a scenic recreational setting, and use levels by destination visitors are expected to increase at modest rates as the area is discovered. The CPNM is also a local recreation destination for residents of Kern and San Luis Obispo counties. Approximately one million residents live within a 1-hour drive of the area. These residents make up a larger percentage of area visitors, both for touring natural and cultural attractions and for hunting.

CPNM is located within a 1- to 3-hour drive of the 1.75-million acre Los Padres National Forest, the 1.2-million acre Sequoia National Forest, and the 650,000-acre Angeles National Forest. There are an additional 300,000 acres of BLM-managed lands within the Bakersfield Field Office, excluding the Monument. These surrounding public lands offer numerous opportunities for camping, hiking, OHV riding, bicycling, climbing, hunting, shooting, viewing scenery and wildlife, and countless other recreational activities. Adjacent National Forest System lands within Kern and San Luis Obispo counties offer recreation opportunities not provided within the Monument, such as operating OHVs off-road. BLM does not allow any off-road use on public lands, but does allow target shooting.

Visitor use for CPNM has been collected and reported annually through the BLM RMIS since the 2001 Monument Proclamation. Overall use increased from approximately 24,620 visitors in fiscal year 2001 to

87,040 in fiscal year 2007. The increase has been fairly steady over the past 7 years as more and more people learn about the features of the Monument. According to RMIS data, the most popular activities at the Monument are currently driving, picnicking, viewing scenery, wildlife, wildflowers, cultural sites, interpretive exhibits, environmental education, nature study, photography, hiking, equestrian use, bicycling, use of OHVs on roads, and hunting. Most use is self-directed as there are few developed facilities or programmed activities located on the Monument.

Anecdotal observations by on-site personnel indicate that there is a trend toward more individual, family, and small group use on the Monument. A large portion of the use in the past was by large groups such as university classes or club activities.

There is also a noticeable increase in the number of OHVs visiting the area looking for riding opportunities. This estimated increase in use and interest is based on the following observations: the large number of inquiries from the public concerning if and where they can operate OHVs on the Monument; newly created (illegal) tracks from 4x4 vehicles, motorcycles, and ATVs; and the recent increase in legal operation of vehicles on roads within the Monument. BLM is addressing this increased demand within both the CPNM and Caliente RMPs so that appropriate opportunities can be provided within and outside the Monument while meeting the requirements of the Monument Proclamation to limit travel to open roads.

Recreational use on the Monument is expected to continue to increase at moderate rates similar to the increase in use experienced over the past 7 years.

3.15.2 Overview of Recreation Activities

BLM policy requires that commercial and organized non-commercial group activities obtain special recreation permits prior to utilizing the CPNM for their activities. Commercial permits are required for activities that charge a fee to participants or spectators. Non-commercial group-use permits are required for non-commercial or educational groups containing 20 or more people or 5 or more vehicles, unless BLM is a co-sponsor to the event or activity. All permittees must meet associated fee and insurance requirements. Groups under 20 people and under 5 cars are documented through a special use permit filled out by a BLM employee (for visitor use tracking purposes only; no fees are assessed).

The following restrictions on recreation apply:

- All public lands within 1/4 mile of Sulphur Spring on the north side of the Caliente Mountain range are closed to public access, except under permit from BLM, to protect sensitive resources.
- OHV use is limited to designated routes, which are defined as existing well-traveled roads that have been identified and mapped. The operation of any motorized vehicle off of designated routes of travel is prohibited. Open routes are available for use by all vehicle, bicycle, foot, and equestrian travel. All vehicle use on routes posted or designated as closed is prohibited. Except on county roads, or unless otherwise posted, the speed limit on such open roads is 25 miles per hour. Roads designated as being for administrative use only are open to bicycles and other non-motorized vehicles, pedestrians, and casual horse use unless otherwise posted.
- Operation of motor vehicles, aircraft, and boats and flotation devices of any kind are prohibited on or within Soda Lake and any adjacent stream, channel, dry lake, and body of water.

See Appendix I, Supplemental Rules for Public Use, for a full list of existing Carrizo rules.

3.15.2.1 Auto Touring and other Motorized Recreation Use

The majority of Monument visitors tour the area in cars, stopping at scenic viewpoints, interpretive overlooks, hiking trails, and other points of interest along the way. The majority of these visitors stay on Soda Lake Road. Specific attractions viewed by touring visitors are described in Section 3.15.3 below. More adventurous visitors access the back roads of the Monument with pickups and sport utility vehicles. Most of this use occurs during hunting season. ATVs, dirt bikes and other non-street legal (green and red sticker) vehicles are permitted on BLM-managed roads. Specific use estimates are not available for OHV recreation. Observations by field personnel indicate that historically most of this use has been for hunter access, although use is increasing for other forms of OHV recreation. Vehicle use is further discussed in the Section 3.18, Travel Management.

3.15.2.2 Hiking

Hiking in Carrizo is generally self-guided and takes place on roads, trails, and cross-country. There are only a few developed trails within the Monument. These include the Caliente Ridge Trail and various interpretive trails:

- Caliente Ridge Trailhead: This 7-mile long trail is accessed from a small trailhead located at the top of Caliente Ridge. The trailhead provides parking for five vehicles. There are no restrooms or interpretive facilities at the trailhead. The Caliente Ridge Trail provides panoramic views of the Carrizo Plain as well as the Temblor Range and parts of Cuyama Valley. This trail also provides excellent opportunities for wildlife viewing and bird watching.
- Caliente Mountain Trailhead: This trailhead is located 13 miles west of Cuyama on Highway 166. Wide open spaces and spring wildflowers set the stage for hiking on this 2.0-mile trail. This trail is not well defined due to recent fires. Hunters favor the trail for access to deer and quail on adjacent public lands.
- Interpretive trails: see Section 3.15.3.2 below.

3.15.2.3 Camping

In general, the CPNM is not a destination point for camping in itself. However, a significant amount of camping does occur in support of other recreational pursuits such as hunting, hiking, and group activities. There are two developed campgrounds in the CPNM with a total of 17 single-unit sites, 4 walk-in sites, and 3 group sites. All camping is currently free on the Monument.

KCL campground is a semi-primitive campground located at what was the headquarters of Kern County Land Company. It has some of the few shade trees found on the CPNM. KCL campground still has a few historic buildings used by the ranch when it was in operation. There are four developed single-unit campsites, four walk-in sites, and two group campsites. Each campsite includes one *Americans with Disabilities Act*-compliant picnic table, fire ring/grill, and lantern holder. There is one permanent double-toilet building. The group campsites are designed to accommodate equestrian user groups and include individual corrals.

Selby campground is also a semi-primitive campground equipped with 13 shade structures, picnic tables, and fire pits. There is one permanent double-vault toilet. The campground is located at the base of the Caliente Mountains. There are no shade trees; however, the campground is more secluded than KCL.

Dispersed camping is also allowed within certain areas of the CPNM. The designated dispersed camping areas encompass approximately 100,000 acres where car, tent, backpack, or horse camping is allowed. Generally, dispersed camping is permitted in the foothills and mountainous areas. Dispersed camping is

not permitted on the valley floor area to protect sensitive biological resources and to prevent obstruction of scenic vistas, nor is it permitted at Soda Lake and adjacent areas.

Overnight camping is allowed within designated campgrounds and designated camping areas. All other public lands are closed to overnight parking or camping. Camping or overnight parking is prohibited within 200 yards of any natural or artificial water source.

Overnight camping is limited to 14 days within any 30-day period, for a total of no more than 28 days within any 1-year period, except as specified in writing by the authorized officer.

Campfire permits are required for anyone who builds or maintains a campfire as well as for the operation of all charcoal grills, cooking stoves, or other open flame. There is no wood gathering on the Monument and wood is not sold anywhere on the Monument. All firewood needs to be hauled in by the user.

3.15.2.4 Hunting and Shooting

The CPNM offers a wide variety of hunting opportunities. The CPNM has populations of California quail, chukar, cottontail rabbit, deer, tule elk, and wild pigs for the hunter. Varmint hunting is legal for coyote, California ground squirrel, and black-tailed jackrabbit. Nearly all of the CPNM is open to hunting. Areas not open to hunting include a large safety zone surrounding the Guy L. Goodwin Education Center and Painted Rock; all designated campgrounds; administrative and recreational facilities including Painted Rock Ranch, Washburn Ranch, and MU Ranch; all pullouts and informational kiosks; Soda Lake; Traver Ranch; and Wallace Creek.

Tule elk and pronghorn antelope have been reintroduced into historic habitat within the CPNM. Limited hunts, previously held for both species, are now only available through the lottery process for tule elk. The pronghorn hunt has been cancelled due to a dramatic decrease in numbers within the Monument.

Hunting in the Monument is managed and regulated by the CDFG. Nothing in the Monument Proclamation affects the jurisdiction of the State of California with respect to fish and wildlife management. All sections of the CDFG Code and 14 CaCR are in effect.

The CDFG has installed many underground water devices known as gallinaceous guzzlers for supplying water to wildlife. Many of these guzzlers are maintained by various volunteers and sportsmen's groups.

There is no target shooting allowed in the Monument (see Appendix I, Supplemental Rules for Public Use).

3.15.2.5 Equestrian Use

Equestrian use is permitted on the CPNM. Trailer parking is available, but limited to already impacted areas such as campgrounds and parking areas. Equestrians are prohibited on most walking trails, including but not limited to Painted Rock, Wallace Creek, Soda Lake Boardwalk, and Overlook Hill. Portions of some walking trails are used to for equestrians to get past enclosures and enclosures as allowed and signed, such as the Caliente Ridge trail head and the Caliente Mountain Trail.

3.15.2.6 Mountain Biking

Mountain bike use is permitted on the approximately 460 miles of existing public roads on the CPNM. On the Monument, bikes are treated like vehicles and must stay on designated roads. Mountain bikes are

prohibited on most walking trails, including but not limited to Painted Rock, Wallace Creek, Soda Lake Boardwalk, and Overlook Hill.

3.15.3 Interpretation and Education

3.15.3.1 Goodwin Education Center

The Guy L. Goodwin Education Center is located 7.4 miles from the north entrance or 30 miles from the south entrance on Soda Lake Road. The center offers the visitor interpretive displays and exhibits explaining the uniqueness of the Carrizo Plain and the adjoining Elkhorn Plain. Here visitors learn about the endangered plants and animals that inhabit the CPNM, the geology of the San Andreas Fault, the human history of Painted Rock and its significance to Native Americans, and the farming and ranching history of the area. A diorama and interactive, interpretive displays are available for visitor education. A breathtaking mural of the Carrizo Plain and its animal and plant life, painted by Santa Barbara artist John Iwerks, focuses attention on the diversity and complexity of life on the Carrizo Plain.

The Guy L. Goodwin Education Center is open seasonally from the beginning of December to the end of May. Normal days and hours of operation are Thursday through Sunday, 9:00 a.m. to 4:00 p.m.

Accessible restrooms at the Goodwin Education Center are open 24 hours a day, 7 days a week, throughout the year. Informational maps and brochures are available at the front door when the center is closed. The Goodwin Education Center driveway may be closed if road conditions are too muddy for vehicles. Visitors are welcome to hike in during these times.

A wide array of merchandise is available for purchase, ranging from stickers and magnets to posters, books, and tee shirts. Also available are checklists of the flora and fauna found within the CPNM. These lists include plants, birds, mammals, as well as amphibians and reptiles. A minimal fee is charged to cover printing costs.

Seasonal tours are offered on the Monument and are coordinated through the Goodwin Education Center.

3.15.3.2 Interpretive Trails

Painted Rock Trail

The Painted Rock Trail is located 2 miles south of the Goodwin Education Center. This trail gives visitors access to the level 1.4-mile round trip trail to the Painted Rock cultural site. Painted Rock, a horseshoe-shaped monolith rock formation, stands about 55 feet tall above the high plain adjacent to the Caliente Mountain Range. The Chumash, Yokuts, and other native peoples lived, hunted, and traded in this central region of California. Painted Rock, a special place to the native peoples, is recognized as one of the most important rock painting (pictograph) sites in the United States.

The trail is open to pedestrians only (no mountain bikes, dogs, or horses). Painted Rock is closed from March 1st to July 15th to protect the wildlife and resources. During this closure, tours are available through the Goodwin Education Center.

Traver Ranch Trail

The Traver Ranch homestead has a self-guided tour of old farming equipment and discusses the history of farming on the Carrizo Plain.

Wallace Creek Trail

A self-guided 1/5 mile interpretive trail has been constructed at Wallace Creek and along a portion of the San Andreas Fault. The trail walks visitors through the geological impact of the San Andreas Fault on the CPNM over time. There are brochures available at the Education Center or at the trailhead. These brochures provide interesting information on the geology of the CPNM and the San Andreas Fault.

Soda Lake Boardwalk Trail

The boardwalk that goes along the edge of Soda Lake is located on Soda Lake Road across from Overlook Hill. This short, moderately level trail begins at Soda Lake Road, and takes visitors 0.25 miles to the edge of Soda Lake. The elevated, 800-foot-long boardwalk begins at the edge of Soda Lake and allows visitors to walk above the dry lake bed while protecting sensitive habitat. Benches are available for resting and viewing plants and wildlife. Restroom facilities are available at the Overlook Hill parking area.

Overlook Hill Trail

The Overlook Hill Trail is located off Soda Lake Road 2.1 miles inside the north entrance and provides a great view of Soda Lake and the Carrizo Plain. The trail is short but steep. At the top, visitors are greeted by wonderful views and interpretive signs informing them about the native wildlife and the surrounding mountains.

3.15.3.3 Guided Tours

All docent-guided tours are scheduled through the Goodwin Education Center or the Outdoor Recreation Planner for the CPNM.

Wildflowers and Painted Rock Tour

During the spring there are opportunities for a docent-guided tour of the wildflowers and Painted Rock. The tour begins at the Soda Lake Overlook. After an introduction and brief overview of the Carrizo Plain, the group explores Soda Lake and the Carrizo Plain's plant communities. The group then caravans to the Painted Rock parking lot and hikes approximately 0.75 miles to Painted Rock. Although the path does not have a significant change in elevation, it does not currently meet accessibility standards. Time spent within the Painted Rock alcove may be limited to protect prairie falcons or other nesting birds. The tour ends at the Goodwin Education Center.

El Saucito Ranch House Tour

The El Saucito Ranch House is the oldest standing ranch property in the Carrizo Plain, dating back to the late 1870s. The house and the surrounding buildings are currently under renovation and are open to special tours during certain times of the year. There is an informational kiosk and a 0.25-mile interpretive trail on the property.

Driving Tours

A booklet containing two self-guided auto tours is also available for purchase at the Goodwin Education Center or through the BLM Bakersfield Field Office.

3.15.4 Recreation Opportunity Spectrum

The recreation opportunity spectrum (ROS) is BLM's framework to inventory existing recreational settings and opportunities for recreation experiences within a given landscape or management area. The primary factor in determining ROS classes is the setting. This describes the overall outdoor environment in which activities occur, influences the types of activities, and determines the type of recreation that can be achieved. Activities are not completely dependent on opportunity class and most can take place in some form throughout the spectrum. However, in general, activities can be characterized for each ROS class.

The ROS continuum consists of six land classifications ranging from a primitive wilderness setting to an urban park setting, with each defined by physical, social, and managerial characteristics. In the planning process for the CPNM, three of the six land classifications were utilized: semi-primitive non-motorized (approximately 19,000 acres); semi-primitive motorized (approximately 164,000 acres); and roaded natural (approximately 65,000 acres). These classifications are further described below and illustrated in Map 3-15, Recreation Opportunity Spectrum.

- Semi-primitive non-motorized: This setting consists of lands at least ½ mile from the nearest point of motor vehicle access. The area is predominantly a natural landscape. Where there is evidence of others, interaction is low, and few management controls exist. Activities include backpack camping, nature viewing, back-country hunting (big game, small game, and upland birds), climbing, and hiking. The experience provides for minimal contact with others, a high degree of interaction with nature, and a great deal of personal risk and challenge.
- Semi-primitive motorized: This setting consists of lands within ½ mile of primitive roads and two-track vehicle trails. The area has a mostly natural landscape with some evidence of others (but numbers and frequency of contact seem to remain low) and few management controls. Activities include hunting, climbing, vehicle trail riding, back-country driving, mountain biking, and hiking. The experience provides for isolation from human civilization, a high degree of interaction with the natural environment, and a moderate degree of personal risk and challenge.
- Roaded natural: This setting consists of areas near improved and maintained roads. While these areas are mostly natural in appearance, some human modifications are evident, with moderate numbers of people, visible management controls, and developments. Activities include OHV driving, interpretive uses, picnicking, and vehicle camping. The experience provides for a sense of security through the moderate number of visitors and developments, but with some personal risk-taking and challenges.

These settings/ROS classes provide a basis for the development of Recreation Management Zones described in Chapter 2, Alternatives.

3.16 Public Safety and Emergency Services

The isolation of the CPNM complicates emergency medical response and emergency preparedness. Emergency medical transportation may take up to two hours depending on the availability of resources. The California Highway Patrol staffs a helicopter that responds to medical emergencies in the area. However, depending on the availability of the helicopter, it may be delayed. Ground ambulances are dispatched from San Luis Obispo or Kern counties depending on the location of the incident. There are no public phones located within the Monument. Cell phones are able to receive services in some locations; however, it is patchy.

Public safety and law enforcement activities are handled by specialists within BLM, the CDFG, and other law enforcement agencies. Search-and-rescue operations are handled by the San Luis Obispo and Kern County sheriffs' offices.

The CDFG has wildlife protection personnel assigned to southeastern San Luis Obispo County to provide wildlife law enforcement. Additionally, the California Highway Patrol conducts aerial patrols, and the San Luis Obispo County sheriff's office provides general law enforcement capabilities.

The CPNM is covered under mutual aid agreements with surrounding agencies for medical and fire protection.

3.16.1 Earthquake Response

In the event of a major earthquake, damage to structures, facilities, and utilities would likely be extensive. Emergency response is coordinated by the Federal Emergency Management Agency and the San Luis Obispo and Kern county's respective Office of Emergency Services. There would be extremely high interest by the geophysical community as well as the media and general public to an earthquake on the San Andreas Fault in the area. The USGS, in conjunction with other partners, have continuous monitoring devices located in the Carrizo Plain as an early warning system and to collect data on any movement along the fault.

3.16.2 Valley Fever

Coccidioides immitis, the fungus that causes valley fever, thrives in the alkaline desert soils of southern Arizona, northern Mexico, and California's San Joaquin Valley. This includes parts of the CPNM. This fungus has a complex life cycle. It grows in soils as mold with long filaments that break off into airborne spores when soils are disturbed. These spores are very small and can be carried hundreds of miles.

For more than half the people infected, this poses no problem. Their immune system effectively fights off the fungus and they never develop symptoms. Others have varying degrees of symptoms such as chest pain, weakness, fever, chills, night sweats, and joint aches. In some cases, the illness progresses to severe pneumonia or spreads beyond the lungs and may ultimately prove fatal.

In desert regions, changing rainfall patterns and extended periods of drought seem to closely correlate with an increase in valley fever cases. *Coccidioides* lies dormant during long dry spells and then blooms when it rains. It is then swept into the air by anything that disturbs the surface. This includes earthquakes, storms, farming, and construction. In California, the risk is highest during summer months, usually June through August.

The Carrizo Plain has the potential to harbor this fungus. BLM uses best management practices to minimize the chances of the release of this fungus on all projects that occur within the Monument. Both the San Luis Obispo and San Joaquin Valley air pollution control districts have regulations that govern earth-disturbing work, such as excavation and new construction. These regulations have varying requirements for dust control according to the size and scope of the work being performed.

3.17 Administrative Facilities

The CPNM has a primary administrative site known as the Washburn Ranch. This facility includes a maintenance shop, housing, office space, and meeting space. There are also historic buildings at this site that are part of a historical district. This site consists of a metal butler building (maintenance shop), a large stick-framed residence, a modular house, and a small stick-framed building to house the solar components. In the historical district, there are three barns, a washhouse, corrals, a bunkhouse, an outhouse, and a cook house. These buildings are in different states of disrepair.

Generally, the working facilities are in good condition. The ranch house was built in the 1950s and has some maintenance needs such as upgrading the wiring. The metal butler building and solar building were built in the mid 1990s. The modular house was manufactured in the late 1980s. These buildings periodically need minor maintenance.

This facility is operated by solar power, which was installed during 2000 to 2001. Generally this has proved to be reliable all year round. Due to the lack of potable water sources located near this facility, potable water is delivered to this facility.

Another administrative site known as the MU Ranch serves as housing for Monument staff, seasonal employees, and researchers. At this location, there is a modular home, built in the late 1980s, a smaller stick-framed residence, a barn, corrals, and a small garage. The wiring and plumbing for the smaller residence is currently being upgraded. This house was built in the 1960s and has a new roof and is structurally sound. After completing the upgrades, the facility will continue to be used for housing needs related to the Monument. The modular home is in good condition and houses Monument staff. The barn and corrals are used when cattle are grazing. The barn needs some repair. The garage is in good condition and has recently had the electrical wiring upgraded. Due to the lack of potable water in the vicinity of this facility, potable water is hauled in and delivered.

The Education Center is also a facility that is a focal point for the Monument and its visitors. This facility was built in the 1990s by TNC and now is managed by BLM. The wiring has been upgraded and the toilets replaced to make them conform to *Americans with Disabilities Act* requirements. Planning and analysis continue regarding installing a photovoltaic system for the Education Center and thus eliminating the need for electrical power and, potentially, a transmission line.

BLM continues to do routine maintenance and conduct condition assessments to ensure proper maintenance continues on all CPNM facilities.

3.18 Travel Management

The Monument Proclamation calls for the following travel limitations within the Monument:

For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes. . . . The Secretary of the Interior shall prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

This section discusses conditions and management of travel and access routes to and within the CPNM. Some of these routes are not under BLM's jurisdiction (county roads, state highways). Any formal planning guidance and associated decisions apply only to the routes on BLM lands within the CPNM.

3.18.1 Applicable Regulatory Framework

Comprehensive public land travel management is the proactive management of public access, natural resources, and regulatory needs to ensure that all aspects of road and trail system planning and management are considered. This includes resource management, road and trail design, maintenance, and recreation and non-recreation uses of the roads and trails. Travel activities in this context incorporate access needs and the effects of all forms of travel, both motorized and non-motorized.

BLM defines appropriate access to public lands through the RMP process. At a minimum, each RMP divides planning areas into OHV area designations that are open, limited, or closed, and includes a map of area designations. Specific criteria for open, limited, and closed designations are provided in 43 CFR 8340.0-5. Additional criteria are provided by existing law, proclamation, executive order, regulation, or policy (including the Monument Proclamation). This BLM policy clarification requires that all area designations for open, limited, and closed continue to be completed at the RMP level, and recommends that route-specific road and trail selections in limited areas be completed in the RMP whenever possible. However, where route designations cannot be completed in the RMP, this BLM policy clarification allows route designations to be completed during the implementation period following plan completion. This RMP includes proposed route designations (see Chapter 2, Alternatives).

As stated above, the Monument Proclamation prohibits all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

3.18.2 Overview of Travel System

3.18.2.1 Area Highway Access

The CPNM has two major sources of access: one from the north and one from the south. From the north, the access is via Soda Lake Road off of Highway 58. Highway 58 is a two-lane paved highway connecting to Highway 101 in the west at Santa Margarita (50 miles away) and east to Interstate 5 (43 miles to the east). The other major access is from the south via Soda Lake Road or Elkhorn Road off of Highway 33/166. Highway 33/166 is a two-lane highway connecting to Highway 101 near Santa Maria (60 miles west) and Interstate 5 (45 miles east). Although traffic volumes are higher on the Highway 33/166 corridor, the majority of visitors enter the CPNM from the north off of Highway 58 and Soda Lake Road. Most of the Monument facilities and popular attractions are more easily accessed via this route.

3.18.2.2 Road Conditions and Management within the CPNM

Many roads within the Monument have an unimproved dirt surface. During periods of rain, a number of roads become impassable. The main road, Soda Lake Road, is open year round. However, rains may make parts of Soda Lake Road slippery, muddy, and impassable at times. The Caliente Ridge Road can be especially dangerous when wet and may be closed periodically during periods of heavy rain or snowfall. In the rainy season, visitors are advised to contact BLM to find out which roads are safe to travel. All roads in the Monument may be closed periodically for safety conditions such as fire hazard, weather, or unsafe conditions.

Travel routes within the Monument and their current allowable uses are described in the following categories:

- **County:** Roads administered by San Luis Obispo or Kern County, open to street-legal vehicles, bicycles, pedestrians, and equestrians. County roads traverse BLM lands on rights-of-way and are under county government jurisdiction.
- **State of California:** Roads crossing state lands (administered by CDFG and State Lands Commission).
- **BLM open:** BLM-administered roads open to street-legal vehicles (vehicles licensed for highway travel), “green sticker” vehicles (ATVs, dirt bikes and other vehicle registered by the state for off-highway use), bicycles, pedestrians, and equestrians.

- BLM administrative: BLM-administered road open for vehicle use for administrative purposes only. Most administrative roads are also open to non-motorized public use by bicycles, pedestrians, and equestrians
- Closed: closed to all motorized and mechanized vehicles. Pedestrian and equestrian use is permitted, unless otherwise closed (for example, seasonal wildlife closures).
- Trail: BLM-administered travel route open to foot travel only.
- Private: Roads that cross privately owned property.

Based on the latest inventory, there are 587 miles of travel routes on the Monument. A summary of routes, mileages, and designations is provided in Table 3.18-1.

Table 3.18-1. Travel Routes in the CPNM

Designation	Miles
BLM Administrative	114
State of California	21
Closed	10
County	88
Foot	7
BLM Open	243
Private	104
Total	587

Note: road mileage in this table does not match mileage in the “No Action” alternative as the roads are categorized differently. This table includes road segments that are not part of the BLM-administered travel network.

3.18.2.3 Road Maintenance

BLM and the County of San Luis Obispo maintain most of the roads within and immediately adjacent to the Monument. Most of the roads within the Monument are unimproved dirt with some portions of Soda Lake Road paved.

County roads within the Monument are managed to complement the direction of the Monument Proclamation and current management plans. There are approximately 71 miles of unpaved road and 17 miles of paved road that are maintained by the county. These routes serve as primary travel corridors within the Monument and BLM coordinates with San Luis Obispo County to facilitate maintenance and ensure that it does not impact objects of the Proclamation.

The 370 miles of BLM administered roads are maintained on an as-needed basis by the BLM Bakersfield Office. Roads that give access to major recreation sites are given priority, so many lesser-used roads may go several seasons without being maintained. Maintenance activities are coordinated among CPNM staff, the BLM Bakersfield Office, and third parties lessees as appropriate.

BLM does not maintain roads on privately owned lands.

3.19 Minerals

The Monument Proclamation states that:

All Federal lands and interests in lands within the boundaries of this Monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument . . . The establishment of this Monument is subject to valid existing rights.

Based on the Monument Proclamation and associated withdrawals, only those valid leases, claims, and other rights that existed as of the date of the Proclamation, January 17, 2001, may see mineral development on federal lands within the Monument. Other laws and policies guiding the minerals management within the Monument vary by the type of mineral resource and are described in more detail below.

3.19.1 Private Mineral Estate within the Monument

Approximately 53 percent of the mineral estate within the Monument is privately owned (see Map 3-16, Oil and Gas Wells within the Carrizo Plain National Monument). If agency approval is required for mineral development on privately owned minerals, the proposal would be subject to environmental review under the *California Environmental Quality Act* (CEQA) and/or NEPA.

When federal approval is required, the proposal would be subject to review under NEPA, and compliance with other applicable laws, such as the federal *Endangered Species Act* and cultural resource protection laws. The applicant would be subject to appropriate stipulations, conditions of approval, and mitigation/compensation requirements. BLM would work with the state, county, and local agencies to ensure that the mission and purpose of the Monument is not impaired and only reasonable uses of public lands may be made to access and develop private mineral estate. In particular, compliance with the *Endangered Species Act* and laws protecting archaeological sites would be critical in a National Monument established to preserve these resources.

Private lands are not directly affected by this plan or the Monument Proclamation. However, access to non-federal minerals across federal surface may require a federal right-of-way or other federal permit, likely resulting in longer timeframes for approval and increased project costs. If consultation with USFWS is required under the *Endangered Species Act*, the delay could be as much as two years, or even longer. Holders of outstanding third-party rights where privately held mineral rights underlie surface managed by TNC, CDFG, and private parties will also be required to adhere to county regulations and CEQA requirements for surface-disturbing activities. This compliance may significantly increase the processing time and costs associated with the proposed action.

3.19.2 Mineral Resources within the Monument

The Monument contains a number of extractable minerals, that is, minerals that are removed from the land by mining, producing through a well bore, or other means. These minerals include oil and gas, sand and gravel, gypsite, phosphate, sodium sulfate, and others. These minerals are managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1980; the *Mining Law* of 1872, as amended; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987; FLPMA; 43 CFR; Onshore Orders 1-8; notices to lessees; other laws, regulations, and orders; and in accordance with all applicable state, county, and local laws and ordinances.

As of January 17, 2001, there were 19 federal oil and gas leases within the Monument. Nine of these were in producing status, either based on actual production or else due to allocated production if they were in a producing unit. Since that time, all of the leases that were not in producing status have expired or terminated because their primary term expired without production being established, or else production ceased. Of the nine leases that are still in producing status, seven are currently held by production within the CPNM; two are held by production that is in other portions of the leases that are outside the CPNM. The only production in the Monument, including both private and federal, is near the southwest boundary, virtually all within the boundaries of the Russell Ranch unit, with a very small amount from the Morales Canyon Field (see Map 3-17, Producing Oil Fields in the Carrizo Plain National Monument). Private leases are not recorded with BLM, so it is unknown whether there are private leases within the Monument (other than within the Russell Ranch Unit, a federal unit that contains both private and federal leases.)

All of the leases, both producing and non-producing, were issued with standard lease terms and conditions. Activities that are performed on these leases are subject to standard lease terms, standard engineering practices, and additional restrictions necessary to comply with specific, non-discretionary statutes (such as the *Endangered Species Act*). They are also subject to other reasonable restrictions required by the authorized officer to protect other resource values, land uses, and users.

Even though all nine federal oil and gas leases are classified as “held by production,” two of the leases (the two leases that are held by production from outside the unit) have not actually produced for several years. The term of all leases will continue so long as there is production in paying quantities or actions to restore production are undertaken within 60 days of being notified to do so by BLM. No new leasing of federal minerals will be allowed because of the Monument Proclamation and associated withdrawal.

There were no valid claims, leases, or other valid existing rights pertaining to solid minerals as of the date of the Monument Proclamation, so there will be no development of these minerals on federal mineral estate except for emergencies and administrative purposes, as described elsewhere in this document.

A description of the various mineral resources within the Monument is contained in the following sections. This is intended to provide an understanding of the potential for development on the private mineral estate (and existing valid leases) within the Monument. It is also intended to provide a more complete description of valid existing rights for each of the various classifications of extractable minerals.

3.19.2.1 Oil and Gas Resources

Minor commercial quantities of oil and gas have been located in two areas of the Monument: in the northeast part of the Temblor Range and the south side of the Caliente Range. On the south side of the Caliente Range are two minor fields and a portion of a major oil field, the Russell Ranch field. There are approximately 45 wells within the Monument boundary: 15 producing and 30 shut-in wells. Approximately half of the producing wells are federal. Current federal production within the Monument is approximately 1,200 to 1,500 barrels of oil per month (BOPM), with a current value of \$110,000 per month and \$15,000 per month royalty to the government. The non-federal production is approximately 1,000 to 2,000 BOPM. There are few active wells outside the Russell Ranch field (see Map 3-16, Oil and Gas Wells within the Carrizo Plain National Monument, and Map 3-17, Producing Oil Fields in the Carrizo Plain National Monument). Many of the shut-in wells will be required to be plugged and abandoned or else returned to production within the next 10 to 15 years.

Of the five oil fields that are partially or totally within the boundary, three of the fields, Temblor Hills, Gonyer Anticline, and Taylor Canyon, do not contain any active wells. The remaining two fields, Morales Canyon and Russell Ranch, contain a total of seven active federal leases. No commercially successful wells have been developed outside of these areas in the Monument, although indications of oil and gas are

common in the 267 wells drilled elsewhere in the Monument. Wells up to 18,000 feet deep have been drilled in the Monument without finding commercial quantities.

By contrast, the Monument is surrounded by six giant and super-giant oil fields (fields with over 100 million and 1 billion barrels of reserves, respectively) and numerous smaller productive fields. The Midway-Sunset field, the largest oil field in California and the lower 48 states, lies a few miles to the east of the Monument near Taft. With several billion barrels of oil having been produced in the general area since the late 1800s, this is one of the largest oil-producing regions in the country.

The generally unsuccessful exploration of the Monument can be attributed to the lack of a mature organic source for hydrocarbons and/or lack of a timely trapping structure (USGS 1995). Under the Monument, most of the organic-rich Monterey Formation may not have been buried deeply enough to reach threshold oil-generation temperatures and pressures. Where hydrocarbons may have existed, as in the older Soda Lake member of the Monterey Formation, trapping structures were apparently not present at the time hydrocarbons began to be expelled. Any hydrocarbons that may have existed were apparently released before the faulted structures below the Monument were in place. Older structures existed on the south side of the Caliente Range during the older phase of oil migration, as evidenced by proven hydrocarbon reservoirs. Due to the lack of recent success, exploration activities have been virtually nonexistent for decades. However, recent advances in technologies (including seismic exploration, drilling, and production technologies), along with significant increases in oil and gas prices, may result in more activity in the future.

Although the CPNM is closed to new federal leases, a full range of exploration and development activities may still occur both on existing federal leases and on private leases. This includes seismic exploration, road building, drilling new wells and re-working old wells, laying pipelines, and other activities. Although there has been no new development for the last 10 to 20 years, BLM received a request from a private mineral owner in early March 2008 to conduct seismic operations on the CPNM valley floor.

3.19.2.2 Solid Minerals

Solid minerals are divided into three categories: locatable, solid leasable, and saleable mineral materials. Laws governing the extraction of solid minerals from public land include the *General Mining Law* of 1872, the *Mineral Leasing Act* of 1920, and the *Materials Act* of 1947. Discretionary permitting and leasing of phosphate and saline minerals, which both occur within the Monument, are governed by the *Mineral Leasing Act* of 1920. Sand and gravel sales are covered under the authority of the *Materials Act* of 1947.

There were no valid claims, leases, or other valid existing rights pertaining to solid minerals as of the date of the Monument Proclamation, so there will be no private development of these minerals on federal mineral estate.

Locatable Minerals

Under the Monument Proclamation, no new mining claims are allowed. The federal lands within the Monument are withdrawn from mineral entry for the purpose of locatable mining claims. As mentioned previously, there were also no existing locatable mineral claims on the date of the Proclamation.

Gypsum in the form of gypsite has been prospected for and mined within the Monument and areas immediately adjacent from the early 1900s to the present. It is used as an agricultural soil amendment that displaces salt in alkaline soils. Known deposits are low grade and spread over large acres. The potential

for gypsite mining on non-federal lands throughout the Monument is low (Ver Planck 1962; Withington 1966).

Solid Leasable Minerals

Under the Monument Proclamation, no new solid mineral leases are allowed. The federal lands within the Monument are withdrawn from mineral entry for the purpose of solid mineral leases. As mentioned previously, there were no existing solid mineral leases on the date of the Proclamation.

Low-grade phosphate from marine shales is common within the coast ranges of California. Two areas within the Monument have been classified as prospectively valuable for phosphate, based on the existence of phosphate occurrences and similar geology. The Morales Canyon area of the Caliente Range encompasses 11 sections, or about 7,000 acres. The second area, almost 6,000 acres within 9 sections, is on the northernmost part of the Temblor Range. This area is part of a larger area that extends north to State Route 46, 30 miles to the north. Phosphate pellets also occur immediately southwest of the intersection of Soda Lake Road and Seven Mile Road. Phosphate is an essential agricultural fertilizer, but due to the low grade of California deposits, none is produced from California (Gower 1966; Roberts 1981).

In 1912, a geologist from the USGS estimated that Soda Lake contained reserves of over a million tons of sodium sulfate (Gale 1912, as cited in BLM 1996). BLM has classified Soda Lake as prospectively valuable for sodium. Commercial extraction of sodium sulfate from Soda Lake occurred intermittently from around 1900 to 1940. Sodium sulfate minerals identified in the surface crust of Soda Lake are bloedite, thenardite, and mirabilite. Bloedite is a relatively rare evaporite mineral. At the time of its identification here in 1913, it was only known in one other location in the United States. A large specimen from Soda Lake is displayed in the Los Angeles Museum of Natural History. Hobby collection of evaporite minerals at Soda Lake occurs occasionally by individuals who use hand tools to dig through the saline crust into the underlying black mud that contains crystals (Tyler 1935; Ver Planck 1957; Majmundar 1985). These crystals are renewable precipitates that form and reform during subsequent wet and dry seasons.

It is unlikely that either phosphate or sodium sulfate will be developed on non-federal mineral estate within the Monument. If development is proposed, it will be subject to appropriate environmental constraints through the CEQA and NEPA processes.

Saleable Minerals

Under the Monument Proclamation, no new mineral material sales are allowed. The federal lands within the Monument are withdrawn from mineral entry for the purpose of mineral material sales. As there were no existing contracts at the time of the Proclamation, there will be no mineral material sales from federal mineral estate.

Sand and gravel have been intermittently mined for local road repair from private and CDFG lands within and adjacent to the boundaries of the Monument. However, all such sites within the Monument are now closed and there will be no private development of these minerals on federal mineral estate.

3.19.2.3 Other Leasable Minerals

Geothermal resources are considered a type of leasable mineral. According to the California Division of Mines and Geology, the Monument is favorable for discovery of thermal water at shallow depth.

However, there are no known geothermal resource area designations, identified hydrothermal convection systems, or any warm springs within the boundary of the Monument (Muffler et al. 1979; Higgins 1980).

There were no geothermal leases at the time of the Monument Proclamation. Under the Proclamation, federal lands within the Monument are withdrawn from mineral entry and no new geothermal leases are allowed. It is unlikely that there will be development of geothermal resources on non-federal land, so geothermal exploitation is not expected to be an issue in the Monument.

3.20 Lands and Realty

3.20.1 Acquisition History and Current Land Status

In 1984, TNC and BLM agreed to explore the possibility of acquiring extensive lands in the Carrizo Plain region. This land, to be set aside for conservation and restoration, would function as a single, large macropreserve for rare and endangered San Joaquin Valley species, as well as other components of San Joaquin Valley vegetation and wildlife. Several workshops were held between TNC, BLM, the CDFG, and the USFWS to determine strategies and priorities for acquisition of these lands.

In January 1988, TNC purchased 82,000 acres on the Carrizo Plain from Oppenheimer Industries. BLM received funding from Congress to acquire 23,000 acres in 1988 and another 28,500 acres in 1989. The California Wildlife Conservation Board purchased 3,000 acres from TNC in December 1988 and 2,500 acres in 1989 to be managed by the CDFG.

As of 2003, surface and mineral ownership within the Monument is a mixture of BLM, state, TNC, and other private owners (see Table 3.20-1 and Map 3-18, Land Ownership Status).

Table 3.20-1. Surface Land and Mineral Ownership in the Monument

Land Owner	Surface Estate (Acres)	% of Total Monument Area	Mineral Estate (Acres)
BLM	206,000	83%	108,000
CDFG	9,300	4%	9,300
TNC	75	<1%	75
Other private owners	32,000	13%	130,000
Total	247,375	100%	247,375

Some of the mineral rights on the acquired lands are privately owned (split estate), allowing for the possibility of mineral exploration and production in the future. Commercial mineral development potential (particularly oil and gas) is relatively low for the foreseeable future due to a lack of proven reserves. However, the exercise of these private rights for exploration and/or production could not be abridged by BLM. Also, the increased price of oil is leading to interest in exploration of areas previously seen as uneconomical for development (see Section 3.19 Minerals for additional information).

Applications and requests for facilities and access are analyzed and authorized either under the right-of-way regulations or the minerals regulations depending on the type of use. Terms and conditions that may apply to right-of-way corridors or development areas include best management practices to minimize environmental impacts and limitations on other uses necessary to maintain the corridor and right-of-way values.

BLM continues to actively pursue acquisitions within the Monument boundary. Some of the potential sellers are expected to retain at least the oil and gas rights. In total, approximately 53 percent of the

mineral estate within the Monument is privately owned (see Map 3-19, Land Status and Withdrawals). Additional information on the mineral, oil, and gas program can be found in Section 3.19 Minerals.

Of the approximately 32,000 acres of private land remaining, the largest inholding (approximately 11,000 acres) is part of a privately owned ranch. The other 22,000 acres include many individual parcels ranging in size from approximately 0.1 acre to 2,100 acres. There are four small subdivisions covering approximately 1,700 acres. These subdivisions have parcels of 20 acres or smaller, but the majority of them are undeveloped. There are approximately 500 private land parcels remaining in the Monument.

Many of the remaining small private parcels within the Monument have title defects that would prohibit the acquisition of the parcel by BLM, such as an unprobated estate, an unlocatable partial owner, a community property question, or others. The cost for the landowner to cure such title defects through court action is usually greater than the value of the property. Thus, the landowner has little incentive to cure such defects to sell the property. Title problems compound as owners pass away, the overall ownership becomes more fractionated, and the heirs have even less incentive to correct any title problems. One solution to this issue is the use of a process called friendly condemnation. Such authority could be used to acquire parcels within the Monument where the landowners are willing sellers, but are unable to complete a sale to due to title problems. BLM cannot acquire property with title problems such as unprobated estates, unlocatable partial owners, or community property questions. The use of friendly condemnation on parcels with willing sellers but with title problems would eliminate such title problems while still providing the known landowners with a market value payment for their land. Alternate methods of land acquisition, such as donations or exchanges, do not eliminate such title problems. Friendly condemnation is the only feasible method for acquiring the private inholdings in the CPNM that have title problems. Such actions would benefit the long-term manageability of the Monument, as well as provide an opportunity for willing landowners to sell their properties in an economically beneficial manner. Use of friendly condemnation would require Congressional authorization. While the option has been explored for the CPNM, no effort has been made to date to secure local and Congressional support to move forward with the authorization process.

3.20.2 Managing Partner Coordination on Realty Issues

The managing partners recognize that management activities on their respective lands are subject to different authorities and policies, so they coordinate regularly to ensure seamless management of the Monument, including realty-based issues. The partners have shared a long-term commitment to acquiring private inholdings within the Monument, both surface lands and interests in lands, where the landowners are willing sellers. The managing partners are continuing to acquire these inholdings through purchase, donation, or exchange. Priorities for acquisition have included:

- those parcels that are available,
- special status species habitat,
- cultural resources,
- unique natural and geologic features, and
- WSA inholdings.

3.20.3 Existing Federal Withdrawals

Under the Proclamation establishing the Monument, all federal lands and interests in lands within the boundaries of the Monument were withdrawn:

from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument.

Two national cooperative land and wildlife management areas are present within the Monument: the Caliente and the Temblor National Cooperative Land and Wildlife Management Areas. These areas were withdrawn in 1961, and encompass 59,000 and 58,000 acres respectively (see Map 3-19, Land Status and Withdrawals). The withdrawal orders (Public Land Orders 2326 and 2460) segregated the BLM lands from application under the non-mineral public land laws and from disposition under the homestead, desert land, and scrip selection laws. With the issuance of the Monument Proclamation, these national cooperative land and wildlife management area withdrawals are now duplicative.

One existing BLM multiple-use classification still exists within the Monument (S 2576). This classification was established in 1970 and segregates portions of the existing BLM lands from appropriation under the agricultural land laws. With the issuance of the Monument Proclamation, this classification is now duplicative.

3.20.4 Road and Utility Easements

Two BLM-designated utility corridors currently exist in the Monument. These were adopted in the 1997 BLM Caliente RMP and are an adoption of the 1986 Western Regional Corridor Study. They are located at the northern end of Soda Lake and just south of Soda Lake (see Map 3-20, Infrastructure). They run generally east-west and are occupied only by electric power lines at present, with the northern corridor containing twin 500 kilovolt (kV) lines originating from the Diablo Canyon Power Plant on the Pacific coast. The southern corridor contains a single 70 kV line.

3.20.5 Other Rights-Of-Way and Permits

Currently, there are no realty leases or land use permits that are authorized by BLM within the Monument. There are several rights-of-way that were authorized by BLM on original public domain lands prior to the establishment of the former CPNA. These are mostly for electric power lines that have been in place for several decades. One underground communication cable runs the length of the Monument generally paralleling Soda Lake Road. Use of this cable was discontinued in 2001.

Various third-party rights exist on the acquired lands, such as road and utility easements and mineral rights. These rights are infrequently exercised, but are allowed since BLM acquired the lands subject to these rights. BLM maintains records of third-party rights. The other managing partners maintain separate records of third-party rights that affect their respective properties.

Almost all of the mineral rights on the acquired lands are privately owned (split estate), allowing for the possibility of mineral exploration and production in the future. Commercial mineral development potential (particularly oil and gas) is relatively low for the foreseeable future due to a lack of proven reserves. However, as stated above, the exercise of these private rights for exploration and/or production could not be abridged by BLM.

A permit is required for all commercial filming activities on public lands. Commercial filming is defined as the use of motion picture, videotaping, sound recording, or other moving image or audio recording equipment on public lands that involves the advertisement of a product or service, the creation of a product for sale, or the use of actors, models, sets, or props. Commercial filming does not include activities associated with the broadcast of journalistic news programming. For purposes of this definition,

“creation of a product for sale” includes a film, videotape, television broadcast, or documentary of participants in commercial sporting or recreation events created for the purpose of generating income.

A permit is not be required, nor is a fee assessed, for still photography on public lands if such photography takes place where members of the public are generally allowed, except when one or both of the following situations apply:

- photography that includes the use of models or props that are not a part of a site’s natural or cultural resources or administrative facilities, or
- photography that takes place at locations where members of the public are generally not allowed, or occurs where additional administrative costs are likely.

BLM field offices generally no longer require permits for still photography unless one or more of the above conditions exist. However, additional permit requirements may be applied to meet specific objectives of an RMP.

3.21 Social and Economic Conditions

This section discusses the current social and economic context of the CPNM. It describes the communities of place (those in proximity to the CPNM and surrounding region) that form the geographical and social framework within which the Monument is set. It identifies communities of interest (those who live and work in the CPNM area and those who access or use CPNM resources in the course of their work or avocations) whose social or economic interests are tied to the Monument. Native American groups are highlighted in light of the cultural and historical significance of Monument lands in their history and traditional practices. The region’s minority and low-income populations are also considered within the context of Monument management.

Significant non-market values characterize and define the value of the CPNM for management as a National Monument. These values are discussed in this section as they have served as touchstones in the development of the alternatives. It further identifies existing and potential economic activities within the CPNM and the surrounding area that may be affected by management of the Monument.

The information presented herein has been researched and validated through a variety of sources, including literature review of published and unpublished historical, economic, and social system documents that discuss the planning area; review of data from BLM, partners, and other state and federal agencies; statistical data sources; and responses received through the public scoping process.

3.21.1 Current Social and Economic Context

The existing social and economic context of the CPNM consists of and is influenced by the communities of place and communities of interest in the CPNM and vicinity. The attitudes and beliefs of those responding to public scoping are also a part of this context. Commenters during scoping meetings included a broad array of local or regional community members or members of local agencies and organizations. The issues and planning themes the public identified are summarized in Chapter 1, while the scoping and outreach process itself is described in Chapter 5.

3.21.1.1 Communities of Place

Geographically, the Monument is situated in a remote and sparsely populated area in the eastern Coast Range Mountains and west of the San Joaquin Valley, which crosses Kern County. Most of the CPNM is located within southeastern San Luis Obispo County, with portions in western Kern County. The

Monument borders Santa Barbara and Ventura Counties to the south and southeast, respectively. The closest major cities are San Luis Obispo, population 44,326 (in 2006), approximately 54 miles to the west, and Bakersfield, population 306,137 (in 2006), approximately 63 miles to the east.

The region, although not on any major travelways, is easily reached via U.S. Highway 101 to the west, and from U.S. Interstate 5 to the east. The CPNM is accessible to travelers to and from major metropolitan areas, including several international and regional airports. It is within easy driving distance of the Los Angeles metropolitan area, approximately 150 miles to the southwest, and within about a half-day's drive, or approximately 300 miles, from the San Francisco area to the northwest. It is centrally located to residents from central coast communities to the west, and those along the Interstate 5 corridor to the east.

Within an approximately 10-mile radius of the Monument there are several small towns and cities, which are referred to herein as the "Carrizo Trade Area." The communities of California Valley and McKittrick are located to the northwest and north, respectively, along Highway 58. The communities of Derby Acres and Fellows are located to the northeast, along Highway 33 and north of the City of Taft. Maricopa is located to the east/southeast near the junction of Highways 33 and 166, with Cuyama and New Cuyama to the south along Highway 166. The largest of these is Taft, which in 2006 had a population of approximately 9,152 and Ford City, population 3,512 (2000, most recent available data). Maricopa's population was approximately 1,137 in 2006, while all of the other communities listed above had populations of 500 or fewer persons (U.S. Census Bureau 2000, 2006).

Given the remote and undeveloped character of the Monument itself, visitors to the Monument who need lodging, food, and other goods and services must obtain them outside the CPNM. This provides an economic and tourism opportunity for communities near the Monument, while other communities located along access points to the region may also serve visitors traveling to and from the CPNM. For travelers coming from the northwest or southwest, these communities include Santa Margarita, located near the junction of Highway 101 and State Route 58, northwest of the Monument. The City of Atascadero is located further north on Highway 101. San Luis Obispo, as noted above, is further south along Highway 101, with a number of smaller towns along Highway 101 south to State Highway 166. Santa Maria is located near the junction of Highway 101 and State Highway 166. Visitors approaching from the east may pass through Lost Hills along Interstate 5 to the northeast and the community of Buttonwillow, at Interstate 5 and State Highway 58, and Tupman, further to the south.

3.21.1.2 Communities of Interest

In addition to those living near the Monument, there are a number of other groups and individuals who would be considered to have an interest in its management. These include Native American peoples, private landowners or owners of mineral estates within the CPNM, ranchers, non-owner residents of the Monument, and holders of grazing, oil and gas, or mineral leases in the CPNM. People with occupations or avocations that bring them to study and/or utilize the Monument's resources are a diverse and important group. This group includes researchers as well as active and passive recreational visitors and is further discussed below.

Native Americans

There are two Native American groups who have historically inhabited the area (Chumash, Southern Valley Yokuts). Also, the Salinan tribe occupied the area immediately north of the Carrizo. The cultural significance of the CPNM and its context as an undeveloped remnant of Native American ancestral territory cannot be overstated. The CPNM harbors some of the most significant examples of Native American rock art still extant, as well as numerous other sites of considerable cultural significance. These

native groups consider the lands within the Monument to be sacred and use areas within the CPNM for plant gathering and ceremonial activities.

The Native American Advisory Committee, chartered by BLM and representatives of these three native peoples in 1997, participates in planning and project activities with the managing partners in the CPNM. Members of federally recognized and non-federally recognized Native American groups are invited to be part of the Advisory Committee and are actively involved in conferring with BLM regarding resource management on Monument lands.

Monument Visitors

Based on BLM estimates, approximately 38,700 persons visited the CPNM in year 2002 and 87,040 in 2007, reflecting a substantial increase. Data regarding these visitors' place of residence are limited to those who visited the Goodwin Educational Center and signed the visitor's register. However, based on available information, the largest percentage was from the Central Coast region of California. Use patterns and visitor data are further discussed in Section 3.21.3.3 below.

Visitors come to the Monument for a variety of reasons. Researchers and students come to study the unique biological and paleontological resources or to investigate geological conditions. These resources make the CPNM a valuable educational laboratory to those outside the scientific and academic community as well. The relatively wild and pristine nature of the Monument provides a window into conditions that would have existed in the San Joaquin Valley before the encroachment of extensive human activity. The Monument also attracts active and passive recreational visitors who hunt game or simply observe or photograph the many species of birds that inhabit or use the Monument. Following winter rains, wildflowers abound for the enjoyment of visitors, and the Monument affords an abundance of wildlife viewing opportunities. Hiking, horseback riding, and camping facilities are also provided and enjoyed by Monument visitors.

Private Land and Mineral Estates Owners

Approximately 32,000 acres, or 13 percent, of surface lands within the CPNM are privately owned. Of these privately owned surface lands, approximately 11,000 acres are held by one ranch. The balance is held in parcels ranging from 0.1 to 2,100 acres, including 4 small subdivisions totaling approximately 1,700 acres. The majority of parcels in these subdivisions are undeveloped. There are approximately 130,000 acres of subsurface, or mineral, estates held by private owners. Of these, many underlie surface holdings of BLM or another of the managing partners. Land ownership history and current use are further discussed in Section 3.20, Lands and Realty.

Ranchers and Farmers

The Carrizo Plain region and lands within the present-day Monument area have been used for cattle and sheep ranching since about the 1850s, with the establishment of the Garcia Ranch (El Saucito). Other ranches in the region included the Hanline Ranch, El Temblor Ranch, and the Washburn Ranch, the site of the current day BLM CPNM administrative center. Among those associated with the sheep and cattle operations on the Plain were Basque and Spanish-speaking vaqueros who worked as cowboys. As noted above, the largest private holding within the CPNM is an 11,000±-acre ranch. USDA National Agricultural Statistics Service data for livestock inventories show that cattle inventories have decreased by 36 percent in San Luis Obispo County over the past two decades, from 121,000 head in 1988 to 77,000 head in 2007. The same indicator in Kern County shows inventories fluctuating over that period, with an average increase of only 4.40 percent. Data for sheep inventories were available only through 1992; however, the trend for both counties during the four-year data period (1988 to 1992) was downward, with

a 27 percent decrease in San Luis Obispo County and an 18 percent decrease in Kern County (USDA 2007). Based on these data, ranching and grazing operations in the region appear to have diminished overall in the two-decade period. Nonetheless, these operations continue to be an important local economic activity in the region and in the CPNM area. This is further discussed in Section 3.21.4.3 below.

Dryland farming was introduced during the 1880s, primarily for grain crops such as barley, wheat, and to a much lesser degree oats. Orchards and vineyards were also established in some areas. Agriculture in the CPNM expanded during the early part of the 20th century and continued to flourish through World War II. Although there is currently very little if any crop cultivation within the CPNM, farming is to some extent still an important part of the regional economy, particularly in Kern County and parts of San Luis Obispo, Santa Barbara, and Ventura counties.

Leaseholders

There are two major types of resource leases held by private individuals or organizations: grazing leases and mineral leases.

Grazing permits and leases are authorized within specified areas of the Monument and levels of use are variable based on the purpose of the authorization and the current resource conditions. Grazing use levels are measured in AUMs. In the CPNM, grazing is authorized under two programs: traditional grazing leases under Section 15 of the *Taylor Grazing Act*, primarily located on the mountains surrounding the plain; and grazing that is authorized under free use grazing permits for vegetation management, primarily on the valley floor/foothill region of the plain. See Section 3.14, Livestock Grazing, for a more complete description of the types of authorizations and also Section 3.21.4.3 below. Within the Section 15 leases, approximately 8,634 AUMs are available, with 8,466 AUMs currently authorized under 5 leases (see Tables 3.14-1 and 3.14-2 in Section 3.14, Livestock Grazing). There are currently five ranchers with free use grazing permits and cooperative grazing agreements in the valley floor/foothill region of the Monument. AUMs used in these permits have varied from no use in some years, to a high use of 40,705 AUMs the 1999–2000 grazing season. See Appendix N, Actual Grazing Use for Vegetation Management Since 1989.

Mineral estate leases cover the various extractable minerals found within the Monument, including oil and gas. There are nine currently active oil and gas leases on the Monument, of which only one is in production (see Section 3.19.2).

Monument Residents

A very small number of people actually live and work in the Monument. There are only about 12 structures within the Monument boundaries; some of these are inhabited permanently while others are inhabited for shorter periods of time during the year. The majority of residents are involved with managing the lands or conducting research. Some are associated with ranching operations.

3.21.2 Regional Demographics and Environmental Justice

The following subsections present demographic information from several sources, including economic profiles for the counties of Kern, San Luis Obispo, Santa Barbara, and Ventura, compiled by the Sonoran Institute's Headwaters Economics Economic Profile System, U.S. Census Bureau data and estimates for multiple years, county general plans, county business patterns, Bureau of Labor Statistics data, and the Regional Economic Information System of the Bureau of Economic Analysis of the U.S. Department of Commerce. Specific demographic and economic data have been prepared for the "Carrizo Trade Area"

surrounding the Monument. This trade area consists of the area within an approximately 10-mile radius of the Monument. Cities and communities within that radius include California Valley, McKittrick, Valley Acres, Derby Acres, Fellows, Ford City, Taft, Maricopa, New Cuyama, and smaller communities falling within this range but not specifically identified. In the following tables, these data are generally aggregated and, where available, data for individual communities have been cited.

3.21.2.1 Population

Population growth over the past three decades has been consistent and has ranged from somewhat to very rapid for Kern, San Luis Obispo, Santa Barbara, and Ventura counties. Population growth in all of these counties has been faster than the rest of the U.S. and, for all except Santa Barbara, has outpaced growth in the State of California as a whole. Table 3.21-1 shows populations for the counties surrounding and including the CPNM from 2000 to 2006, as well as the communities within the Carrizo Trade Area for which data were available. As of 2006, the population in all four counties totaled 2,237,177. The year 2007 population of the Carrizo Trade Area is estimated at 16,736 (Claritas, Inc. 2007a).

3.21.2.2 Age

The median age of residents in the four counties ranged from 30 years in Kern County to 38.5 years in San Luis Obispo County. Table 3.21-2 shows the age structure for each county.

3.21.2.3 Race/Ethnicity

Table 3.21-3 shows that Kern County has a higher percentage of persons identifying themselves as of Hispanic or Latino origin than the other counties. San Luis Obispo County's population predominantly consists of those identifying themselves as white, whereas in other counties this group comprises approximately half the total population. All counties had relatively low populations of those identifying themselves as Black or African American, and American Indian and Alaska Native.

3.21.2.4 Number of Households, Household Size, and Income

Average household size has decreased slightly in Kern County since 2000, increased in San Luis Obispo and Santa Barbara counties, and remained constant in Ventura County. Median housing values for owner-occupied units have risen dramatically in all counties, with the largest percentage increase in Kern County (63.4 percent). The number of housing units has increased in each of the four counties, again with the largest increase in Kern County, at 31,087, and the smallest in Santa Barbara County, with 7,979.

Median household income ranged from \$35,160 in the Carrizo Trade Area to \$72,107 in Ventura County. Per capita income followed a similar pattern. The Carrizo Trade Area also had the highest percentage of families with income below the poverty level at 18.3 percent, with Kern County at 17.1 percent, Santa Barbara County at 9.5 percent, and San Luis Obispo and Ventura counties at 6.2 and 6.4 percent, respectively. These figures compare with 9.8 percent for the nation as a whole, and 9.7 percent over the entire State of California.

Table 3.21-1. Surrounding Counties and Communities Population, 2000–2006

County	Population Growth						Avg Annual Increase		Avg Annual Percent Increase
	2000	2001	2002	2003	2004	2005	2006	2000	2006
County									
Kern	661,645	6,466,397	663,106	680,804	702,855	724,206	780,117	19,745	2.82%
San Luis Obispo	246,681	252,149 ^a	237,709	237,757	238,502	239,638	257,005	1,721	0.76%
Santa Barbara	399,347	382,925	386,844	386,308	385,238	383,393	400,335	165	0.07%
Ventura	753,197	765,300	779,400	796,165	796,165	783,000	799,720	7,754	1.01%
Total	2,060,870	2,037,240	2,058,317	2,083,234	2,111,280	2,129,996	2,237,177	29,385	1.169%
Surrounding Cities or Places^b									
California Valley	--	--	--	--	--	--	--	--	--
Cuyama/New Cuyama	--	--	--	--	--	--	--	--	--
McKittrick	160	--	--	--	--	--	--	--	--
Derby Acres	376	--	--	--	--	--	--	--	--
Valley Acres	512	--	--	--	--	--	--	--	--
Fellows	153	--	--	--	--	--	--	--	--
Ford City	3,512	--	--	--	--	--	--	--	--
Taft	8,811	8,900	8,950	9,025	8,950	--	9,152	--	--
Maricopa	1,111	1,120	1,130	1,140	1,140	--	1,137	--	--
Total	14,937	--	--	--	--	--	--	--	--

-- No data available.

Sources: U.S. Census Bureau 2000, 2001, 2002, 2003, 2004, 2005, 2006; California Department of Finance 2007a.

^a No U.S. Census Bureau data available. Source: San Luis Obispo County Association of Governments, 2007.

^b Cities and census-designated places within 10 miles of the CPNM (Carrizo Trade Area).

Table 3.21-2. Estimated Age of Population

County ^a	Age Range						Median Age
	Under 19	20 34	35 44	45 64	65 84	85+	
Kern	255,841	191,542	108,761	155,811	61,762	6,400	30.0
San Luis Obispo	60,579	58,006	34,793	66,665	30,324	6,638	38.5
Santa Barbara	115,677	90,198	52,169	90,908	43,785	7,598	33.8
Ventura	238,154	158,002	116,707	200,614	76,102	10,141	35.4
Carrizo Trade Area ^b	5,457	3,604	2,195	3,585	1,614	281	32.1

^a County data from U.S. Census Bureau 2006.

^b Carrizo Trade Area from Claritas, Inc. 2007a.

Table 3.21-3. Population by Race/Ethnicity

Total Population ^a	Counties				Carrizo Trade Area
	Kern	San Luis Obispo	Santa Barbara	Ventura	
Hispanic or Latino ^b	352,415	46,924	152,743	292,063	4,266
	45.2%	18.3%	38.2%	36.5%	25.5%
<i>Not Hispanic or Latino, by Race</i>					
White	332,981	189,926	212,742	420,664	12,910
	42.7%	73.9%	53.1%	52.6%	77.1%
Black or African American	41,379	3,864	7,498	14,469	276
	5.3%	1.5%	1.9%	1.8%	1.1%
American Indian and Alaska Native	4,285	1,010	1,222	3,047	220
	0.5%	0.45%	0.3%	0.4%	1.5%
Asian	29,728	7,686	16,982	51,636	212
	3.8%	3.0%	4.2%	6.5%	0.8%
Native Hawaiian and Other Pacific Islander	1,030	96	691	1,631	144
	0.1%	0.04%	0.2%	0.2%	0.3%
Other (including those of two or more races)	18,299	57,499	8,457	14,210	2,974
	2.3%	2.9%	2.1%	1.8%	62.6%

^a Sources: County information—U.S. Census Bureau 2006; Carrizo Trade Area—Claritas Inc. 2007a.

^b Latino and Hispanic are ethnic origins. Therefore, persons identifying themselves as having these origins may also be included in data for any of the other race categories.

Table 3.21-4 summarizes the data on households and income distribution, and provides comparisons with year 2000 figures where available.

Income sources for the four counties are shown in Table 3.21-5. These data are not available for the Carrizo Trade Area. In 2004, 32 percent of all personal income in Kern and San Luis Obispo counties was derived from non-labor sources, as compared with 25 percent in Ventura County and 36 percent in Santa Barbara County. Dividends, interest, and rent accounted for 13 percent of non-labor income in Kern County, and 15 percent in San Luis Obispo County, whereas in Santa Luis Obispo and Santa Barbara counties these categories were 23 percent and 24 percent, respectively.

3.21.2.5 Education

Table 3.21-6 shows the level of educational attainment for the population aged 25 and over. All four counties and the Carrizo Trade Area have high percentages of persons having achieved a high school diploma or equivalent. Kern County and the Carrizo Trade Area are notably lower for persons holding bachelor's degrees or higher.

3.21.2.6 Employment of Residents

Employment patterns are shown for the four counties in Table 3.21-7. Data for the Carrizo Trade Area are based on 2007 estimates and are not available for all categories. Based on available data, however, it is estimated that there are 12,594 persons age 16 and over in the Trade Area. Of these, 6 are in the Armed Forces, 5,824 are in civilian employment, and 807, or 6.4 percent, are unemployed. There are approximately 5,957 persons not in the labor force.

Census data regarding employment by occupation of residents in each of the four counties for 2006 are also shown in Table 3.21-7. Based on these data, the largest sector for employment for residents of all

Table 3.21-4. Households and Income Distribution

		County				
		Kern	San Luis Obispo	Santa Barbara	Ventura	Carrizo Trade Area
Average Household Size (number of people)	2006	3.13	2.35	2.68	3.04	2.78
	2000	3.03	2.49	2.8	3.04	--
Median Value of Owner-Occupied Housing	2006	\$255,100	\$581,000	\$685,700	\$648,000	\$154,755
	2000	\$93,300	\$230,000	\$293,000	\$248,000	--
Total Housing Units	2006	262,651	114,213	150,880	270,664	6,559
	2000	231,564	102,275	142,901	251,712	--
Occupied Housing Units	2006	238,229	102,007	140,752	259,093	5,780
	2000	208,652	92,739	136,622	243,234	--
Vacant Housing	2006	10.3%	12.0%	7.2%	4.5%	11.9%
	2000	9.9%	9.3%	4.4%	3.4%	--
Owner Occupied	2006	61.9%	59.5%	53.3%	68.7%	61.9%
	2000	62.1%	61.5%	56.1%	67.6%	--
Income						
Less than \$10,000		17,236	8,092	7,423	9,314	-- ^a
\$10,000–\$14,999		19,082	6,513	6,850	8,719	1,208
\$15,000–\$24,999		30,096	10,418	15,272	20,983	913
\$25,000–\$34,999		29,154	10,075	15,856	19,562	759
\$35,000–\$49,999		37,736	15,682	19,380	28,553	983
\$50,000–\$74,999		41,904	20,528	27,952	47,231	1,029
\$75,000–\$99,999		27,674	10,802	16,298	38,644	411
\$100,000–\$149,999		22,622	11,808	18,252	48,050	368
\$150,000 +		12,725	8,089	13,469	38,037	110
Total Households		238,229	102,007	140,752	259,093	5,781
Median Household Income	2006	\$43,106	\$50,209	\$53,477	\$72,107	\$35,160
	2000	\$35,446	\$42,428	\$46,677	\$59,666	--
Per Capita Income	2006	\$19,132	\$27,506	\$27,476	\$30,517	\$16,993
	2000	\$15,760	\$21,864	\$23,059	\$24,000	--
Persons Below Poverty Level	2006	20.60%	13.60%	16.30%	8.90%	--
	2000	20.8%	12.8%	14.4%	9.2%	--
Families Below Poverty Level	2006	17.1%	6.2%	9.5%	6.4%	18.30%
	2000	16.8%	6.8%	8.5%	6.4%	--

^a For Carrizo Trade Area, households with income less than \$10,000 are aggregated with those earning less than \$15,000.
Sources: County information—U.S. Census Bureau 2006, Carrizo Trade Area information—Claritas, Inc. 2007a.

Table 3.21-5. Labor vs. Non-Labor Income

	County								
	Year	Kern		San Luis Obispo		Santa Barbara		Ventura	
		Total	% of Total ^a	Total	% of Total ^a	Total	% of Total ^a	Total	% of Total ^a
Total Personal Income (2004 dollars)	2004	17,864	100%	8,188	100%	14,493	100%	30,047	100%
	1994	13,537	100%	5,689	100%	12,093	100%	22,164	100%
	1974	6,329	100%	1,932	100%	6,237	100%	7,799	100%
Labor Sources^b	2004	12,212	68%	5,185	63%	9,288	64%	22,399	75%
	1994	9,088	67%	3,318	58%	7,065	58%	16,308	74%
	1974	4,858	77%	1,279	66%	4,274	69%	6,159	79%
Non-Labor Sources	2004	5,651	32%	3,002	32%	5,205	36%	7,648	25%
	1994	4,449	33%	2,370	42%	5,028	42%	5,856	26%
	1974	171	23%	653	34%	1,964	31%	1,640	21%
Dividends, Interest, and Rent	2004	2,295	13%	1,891	23%	3,511	24%	4,467	15%
	1994	2,010	15%	1,521	27%	3,697	31%	3,609	16%
	1974	741	12%	382	20%	1,441	23%	1,018	13%
Personal Current Transfer Receipts ^c	2004	3,356	19%	1,112	14%	1,694	12%	3,082	10%
	1994	2,438	18%	849	15%	1,332	11%	2,247	10%
	1974	730	12%	271	14%	522	8%	622	8%

Sources: Sonoran Institute, 2007a through d.

^a Percentages do not add to 100 because of adjustments made by Bureau of Economic Analysis, U.S. Department of Commerce.

^b Wages, salaries, employee contributions to deferred compensation programs such as 401(k) plans, and other labor income.

^c Payments from governments to individuals, such as age-related payments, as well as disability insurance and retirements.

Table 3.21-6. Educational Attainment

Educational Attainment ^a	County				
	Kern	San Luis Obispo	Santa Barbara	Ventura	Carrizo Trade Area
< 9 th Grade	66,549	6,781	30,369	48,815	1,009
Grades 9–12	62,154	14,409	19,200	41,526	--
HS diploma or equivalent	133,431	37,331	48,613	109,901	3,246
Some college, no degree	96,318	41,194	51,445	113,015	2,537
AA or AS	34,012	16,888	21,288	41,857	779
BA or BS	44,617	35,899	47,158	97,934	575
Graduate/professional degree	21,590	16,642	27,458	52,739	256
% HS graduate or higher	71.9%	87.5%	79.8%	82.1%	72.1%
% BA/BS or higher	14.4%	31.1%	30.4%	29.8%	8.1%

^a Population aged 25 years or over.

Sources: County information—U.S. Census Bureau 2006; Carrizo Trade Area information—Claritas, Inc. 2007a.

Table 3.21-7. Employment Characteristics for Counties

	County							
	Kern		San Luis Obispo		Santa Barbara		Ventura	
Civilian labor force	338,400		133,900		214,200		425,400	
Civilian employment	312,800		128,600		205,500		407,100	
Civilian unemployment rate	7.6%		3.9%		4.1%		4.3%	
Sector	Employees	%	Employees	%	Employees	%	Employees	%
Total agricultural	44,600	16.1%	4,300	4.0%	15,500	8.2%	22,800	7.1%
Natural resources, mining, and construction	29,300	10.6%	8,100	7.5%	11,600	6.2%	21,700	6.8%
Manufacturing	12,900	4.7%	6,400	5.9%	13,700	7.3%	38,000	11.8%
Transportation, warehousing, and utilities	9,300	3.4%	3,800	3.5%	3,100	1.6%	6,200	1.0%
Wholesale trade	7,500	2.8%	2,600	2.4%	5,000	2.7%	12,600	3.9%
Retail trade	29,200	10.5%	14,300	13.3%	20,300	10.8%	37,000	11.5%
Information	2,600	0.9%	1,600	1.5%	4,100	2.2%	6,100	1.9%
Financial activities	9,000	3.2%	4,900	4.6%	8,800	4.7%	25,000	7.9%
Professional and business services	25,000	9.0%	9,500	8.8%	22,100	11.7%	39,600	12.3%
Educational and health services	22,900	8.3%	10,700	9.9%	19,400	10.3%	28,900	9.0%
Leisure and hospitality	20,700	7.5%	14,900	13.8%	23,000	12.2%	30,200	9.4%
Other services	6,900	2.5%	4,300	4.0%	5,800	3.1%	10,300	3.2%
Government	57,300	20.7%	22,200	20.6%	35,600	19.1%	42,500	13.2%
Total	277,200	100%	107,600	100%	188,400	100%	320,900	100%

Source: California Department of Finance 2007b.

counties was government, followed by retail trade and agriculture in Kern County, leisure and hospitality in San Luis Obispo County, professional and business services in Santa Barbara and Ventura counties, and manufacturing in Ventura County.

3.21.2.7 Environmental Justice

Minorities and Minority Populations

The social and economic context within which the Monument is located is relatively diverse and varies among the four counties and the Carrizo Trade Area. Table 3.21-3 describes the estimated 2006/2007 racial composition of the region. The data indicate that the majority of residents categorize themselves as white, ranging from 42.7 percent in Kern County to 77.1 percent in the Carrizo Trade Area. Other races represent a significantly smaller segment of the population. A substantial portion (45.2 percent) of the population in Kern County identify themselves as Hispanic or Latino origin in combination with other races, with 38.2 and 36.5 percent in Santa Barbara and Ventura counties, respectively. In San Luis Obispo

County and in the Carrizo Trade Area, only 18.3 and 25.5 percent of the population identify themselves as being of Hispanic or Latino origin.

Approximately 67,486 persons, or about 11.6 percent of the total population, identified themselves as Black and African American. Fewer than 10,000 persons, or approximately 3.1 percent of the total population, identified themselves as American Indian and Alaska Native.

Low Income Populations

A diverse range of incomes also characterizes the regional and local population. As may be seen from Table 3.21-4, median incomes per household range from \$35,160 in the Carrizo Trade Area to \$72,107 in Ventura County. In Kern County, median income is \$43,106 per household, and in San Luis and Santa Barbara counties, it is \$50,209 and \$53,477, respectively. Based on U.S. Census Bureau estimates, approximately 18.3 percent of families in the Carrizo Trade Area have an income that is below poverty level. For Kern County as a whole, this figure is 17.1 percent, while Santa Barbara County more closely matches the national average, at 9.5 percent. San Luis Obispo and Ventura counties are estimated to have 6.2 and 6.4 percent families living below the poverty level, respectively.

Native American Populations

Data in Table 3.21-3 indicate that individual Native Americans (and Alaskan Natives) account for a small percentage of the regional population. Federally recognized groups occupy the Santa Ynez Band of Mission Indians (Chumash) reservation in Santa Barbara County, located many miles southwest of the Monument, near Santa Ynez. Other federally recognized groups include residents of the Tule River Reservation near Porterville, to the northeast, and the Santa Rosa Rancheria near Lemoore, to the north; both are Yokuts reservations. There are also a number of non-federally recognized groups of Chumash, Yokuts, and Salinan. These groups have characteristically expressed an active interest in the management of the Monument and are represented on the Advisory Committee (see Section 3.21.1.2).

People of the Chumash tribe, as well as Yokuts and Salinan, utilize areas within the Monument for traditional uses including plant gathering and ceremonial activities. Policies established by BLM and the Forest Service Pacific Southwest Region in 2006, in coordination with federal tribes and non-federally recognized Native Americans in California, ensure access by traditional native practitioners to plants. The policy also ensures that management of these plants promotes ecosystem health for BLM- and Forest Service-managed lands. BLM management units are encouraged to support and incorporate into their planning traditional native and native practitioner plant-gathering of culturally utilized plants for traditional use.

3.21.3 Local Economic Activity Affected by CPNM Management

This section discusses potential economic activity within the four counties and the trade area surrounding the CPNM that may be affected by CPNM management. It considers non-market economic values, which yield direct and indirect benefits to the local and regional economy. It discusses commodity values wherein land uses have potential to yield direct economic benefits.

3.21.3.1 Non-Market Values

The most important socio-economic factors associated with the CPNM are the non-market values offered by the conservation and management of the Monument's lands as a pristine and remote undeveloped area, with unique and sensitive natural and cultural resources. Non-market values are those that enhance quality of life and the enjoyment of place, and thereby improve regional and local economic conditions, such as

proximity to undeveloped natural lands and the resources they harbor, scenic vistas, recreational and wildlife viewing opportunities, and others. In recognition of the value of the abundant natural resources of the Carrizo Plain, the Monument was established by Presidential Proclamation in 2001. The Monument Proclamation cited the unique and sensitive biological, paleontological, geological, and historical resources encompassed by the Monument. It recognized the critical importance of these lands to the region's biological diversity through the preservation of the largest undeveloped remnant of the grassland ecosystem of the San Joaquin Valley, noting that the Monument provides "critical habitat for the long-term conservation of the many endemic plant and animal species that still inhabit the area." The Monument Proclamation acknowledged the unique landforms and geological features of these lands, including Soda Lake (the largest remaining natural alkali wetland in Southern California), and the well-preserved and visible effects of seismic fault slip, folding, and warping associated with the San Andreas Fault. It cited the noteworthy fossil assemblages associated with the Caliente formation and the significant pre-historic and historical artifacts.

During the public scoping process conducted by BLM in 2007, many of the respondents cited these same values, characterizing the area as "open, expansive, undeveloped, wild, remote, pristine" and expressing their regard for the "sense of freedom" and "a chance for solitude and quiet" that the Monument offers. The CPNM affords visitors with plentiful opportunities to view wildlife, including migratory birds and the often-lavish seasonal wildflower displays that occur after winter rains.

These significant diverse biological and cultural resources, and well-preserved and observable geological conditions and paleontological resources provide a natural classroom in which researchers and students can better understand the history of the region and the forces that have shaped the present-day landscape. As noted by the public scoping responses, the Monument's wild and remote nature invites its use for various recreational activities. The Monument represents an oasis of expansive and relatively undisturbed open space located at the confluence of the southern California, central coast, and central valley regions, which are typically characterized by intense development, dense population centers, and often-congested roadways. It affords visitors an opportunity to connect with nature, enjoy clean air, solitude, and uninterrupted views of mountains, valleys, and grasslands. In short, it allows for a singular experience of the natural environment that stands in marked contrast to the much of the contemporary urban world.

3.21.3.2 Land Value and Income Enhancement Values

In addition to the quality-of-life values cited by the scoping respondents, these non-market resources enhance the value of other land in the region. Although difficult to quantify, this value-added has been established through various empirical studies. Open space is generally seen as an enhancement value, especially if the open space lands are not intensively developed for recreation purposes (Fausold and Lilieholm 1996). A study conducted in Boulder, Colorado indicated that property values near open space increased property tax revenues to the city approximately \$500,000 annually. In Salem, Oregon, lands adjacent to open space were valued at approximately \$1,200 more per acre than lands more removed from greenbelts. The National Association of Homebuilders (Caputo 1979, as cited in Miller 1997) has estimated that proximity to parks in urban areas accounts for up to 15 to 20 percent of a property's value (Miller 1997). While these studies have focused on more urbanized areas and more localized impacts than those associated with the CPNM, they provide evidence that property owners and local governments can expect to derive economic benefit from the presence of open space lands in a community or region.

Research conducted by the Sonoran Institute shows that individual income growth benefits from the presence of publicly owned lands. In counties with more than 60 percent of lands managed by federal agencies such as the Forest Service, BLM, and National Park Service, personal income has grown at a faster rate than in counties where less than 10 percent of lands are publicly owned. This trend is even more notable in rural counties where public lands are conserved and protected from development. In

counties with more than 60 percent of federal lands designated as wilderness, national parks, wildlife refuges, national Monuments, or other protected status, data show there was a 66 percent increase in average annual income growth over the 30-year period from 1970 to 2000 (Sonoran Institute 2006; Rasker et al. 2004).

The Sonoran Institute summarized the factors that were correlated with personal income growth over these 30 years (Rasker et al. 2004):

- How public lands are managed: unprotected lands that are distant from protected areas are more likely to be used for resource extraction and have the least potential to boost economic growth. Protected lands, or lands in proximity to those that are protected, are the most likely to correlate to increase personal income.
- A higher proportion of workers within a county that are employed in the high-wage producer services, such as engineering, architecture, design, management, and finance correlates with faster economic growth.
- Other important factors that showed a positive correlation are education levels, the presence of an airport, a ski area, and the percent of persons employed in the arts, entertainment, recreation, accommodation, and food services.
- The presence of mountains is considered a positive factor for economic growth.
- Factors that generally result in slower or declining growth include distance to larger markets; lack of economic diversity; reliance on resource extractive industries including agriculture, mining, and manufacturing; and counties where a high percentage of residents are native-born and which do not attract newcomers.

3.21.3.3 Monument Visitor Use Patterns

Estimates of visitorship to the Monument are based on records of visitors to the visitor's center, as well as on traffic data collected at the primary entrances to the Monument and extrapolated using an average per vehicle occupancy of 2.5 persons. Based on these data, BLM estimates that an average of 38,700 persons visited the CPNM in 2002 and 2003, of which an average of 3,372 stopped at the visitor's center. Visitorship to the Monument increased to 87,040 in 2007.

For visitors who signed the registry in 2002–2003, about 34.7 percent identified their place of residence as the Central Coast; BLM estimates that about one-half of these were from San Luis Obispo County. Another 20.5 percent came from northern California, while 17.8 percent came from Bakersfield and the Central Valley. Visitors from southern California accounted for another 17.9 percent, and out of state or foreign visitors represented about 9.0 percent. Visitorship is typically highest during March and April, during wildflower season, with about 56 percent of visitors counted at the visitor's center during those months (B. Wick, BLM, personal communication, 2007).

3.21.3.4 Biological, Cultural, and Physical Resources

Biological Resources

As described in detail in the other sections of this chapter, the CPNM abounds with a variety of wildlife, bird, reptile, and insect species, as well as plant communities and habitat. These resources constitute a significant non-market value wherein the CPNM is recognized as a place where recovery of threatened and endangered species is succeeding. The value of the CPNM as a natural classroom for biologists and students as well as a prime location for wildlife viewing also serves to enhance land values in the region.

Cultural, Paleontological, and Physical Resources

The CPNM contains more than a hundred recorded pre-historic sites, over 40 historic sites, and several multi-component sites (consisting of historic and pre-historic elements), many of which are listed or have been nominated for listing on the NRHP. These valuable cultural and historical resources, as well as the well-preserved paleontological deposits and formations that are present in the CPNM, further define the unique and valuable place that the CPNM holds in the region's social and economic context.

The distinctive and exceptionally well-preserved geological features attract the study of geologists, seismologists, and students. The value of these features to the academic world and body of knowledge lend a sense of place and uniqueness and add to the distinctive character of the CPNM. Over the last century the Carrizo Plain has been the subject of numerous geotechnical, soils, paleontological, and paleoclimatic studies. A permanent GPS station is located near the visitor's center to gather data regarding earthquakes as part of a network jointly funded by a scientific consortium that includes the U.S. Geological Survey (USGS) and others (BLM 2007e).

The natural setting of the CPNM lends itself to expansive vistas of dramatic and varied landforms and offers ample opportunities to view wildlife and spring wildflower displays. Comments received during the public scoping noted that the absence of ambient light from urban areas provides for optimum views of night skies. These resources constitute an important and noteworthy non-market value worthy of protection, and which ultimately enrich and inform the present-day culture.

3.21.3.5 Recreational Resources

As discussed in Section 3.15, Recreation and Interpretation, there are many recreational resources and facilities in the Monument. National trends in tourism that indicate a likely increased interest over the planning period in the CPNM's opportunities are described in the following paragraphs.

Recreation and Tourism

Recreation and tourism activities within the Monument include hunting, bird and wildlife viewing, photography, hiking, camping, and horseback riding. The 2000 National Survey on Recreation and the Environment (USDA 2000), primarily sponsored by a consortium of federal agencies, has provided information regarding recreation trends among American adults. The survey shows that approximately 88.6 percent of Americans aged 16 and older participate in trail/street/road activities. Walking outdoors ranks as the most popular such activity in the U.S., and biking, backpacking and camping are also popular activities. Approximately 32.8 percent of those sampled have visited a wilderness or primitive area. Approximately 69.6 percent reported they have engaged in viewing and photographing activities, such as bird watching and viewing other wildlife, wildflowers, and natural vegetation or scenery. The five most popular individual activities among U.S. adults, as indicated by the survey, are walking; family gathering; viewing natural scenery; visiting a nature center, nature trail, or zoo; and picnicking.

In 2006, approximately 13.3 million persons visited parks or other public areas to view wildlife (USFWS 2007c). Expenditures for wildlife-watching activities in California accounted for approximately \$4.6 billion in 2006, of which approximately \$2.1 billion was trip-related (USFWS 2007d).

Cultural tourism aims at experiencing cultural, historic, and natural resources. While many travelers choose to combine cultural tourism with recreation tourism (for entertainment or escapism), approximately 88 percent of U.S. tourists in a 1998 survey indicated that understanding culture was a primary motivation for travel. Approximately 73 percent chose a location with natural beauty, and 50 percent visited cultural, historical, or archaeological treasures (Lord 1999). Data indicate that cultural

tourists have higher incomes and spend more money on vacation, are more likely to stay at hotels or motels, are more likely to shop, and spend more time in an area on vacation. Approximately 46 percent of U.S. travelers indicate they include a cultural activity while on a trip, and a third of that group added extra time to their trip to accommodate more cultural activity.

Eco-tourism, a subset of cultural tourism, is travel to destinations where natural resources and cultural heritage are the primary attractions, and usually involves safe, moderate forms of exercise such as hiking, biking, sailing, and camping. Important elements in responsible eco-tourism include minimizing impacts on the natural environment, enhancing the cultural integrity of local people, providing for positive experiences for visitors and hosts, and providing direct economic benefits for conservation and the local population (International Ecotourism Society 2003). Eco-tourism is considered the fastest growing tourism market. The World Tourism Organization (as cited in Global Development Research Center 2003) estimates this market represents 11.4 percent of all consumer spending, and is growing at an annual rate of 5 percent worldwide. Of those surveyed, top-ranked activities included visiting parks, hiking, exploring a preserved area, wildlife viewing, following nature trails in ecosystems, participating in environmental education, and bird watching (Global Development Resource Center 2003).

3.21.3.6 Hunting

Hunting is permitted within most areas of the Monument, as discussed in more detail in Section 3.15.2.4. Based on a cursory review of available literature, it is unclear whether or to what extent the local hunting population would consider hunting in the Monument a subsistence use. It is generally characterized as recreational, and therefore is considered in that light herein. Recreational hunting generates fees to the state and other revenues to the local and regional economy.

CDFG collects \$37.30 per annual hunting license for state residents over age 16. Non-resident licenses cost \$129.40 per person annually. Lifetime bird hunting privileges and lifetime hunting licenses are available to residents and range from around \$240 for bird hunting to nearly \$700 for a hunting license, depending on the age of the applicant. There are also a variety of entry fees, validation stamps, per-species tag applications, and duck and game bird stamps that may also be required (CDFG 2007b).

In California, hunting expenditures in 2006 totaled \$732,427,000, of which \$216,677,000 was trip-related. Food and lodging expenditures accounted for \$90,193,000, and equipment for about \$192,644. This represents a nearly 50 percent increase in total hunting expenditures since 2001, and an approximately 12 percent increase in trip-related expenditures.

Although local expenditures associated purely with hunting have not been quantified herein, for the Carrizo Trade Area, consumer expenditures in sporting good stores have accounted for \$646,839 for year to date 2007 (Claritas, Inc. 2007b). This represents approximately 0.55 percent of total consumer expenditures in the trade area for this period. It should be noted that these expenditures do not account for sporting goods sold in department or other stores which sell these products, nor does it quantify how much of these goods sold are specifically hunting equipment or supplies. It also does not account for other expenditures that may be associated with hunting or hunting trips, such as food, lodging, transportation, or other trip expenditures.

3.21.4 Market and Commodity Values

3.21.4.1 Land Use and Development

Land uses within the four-county area that define the social and economic context of the Monument are varied. Within portions of each of the four counties, there are high-density urban and suburban residential

developments, and commercial and industrial centers. The nearest urbanized areas are Bakersfield, approximately 75 miles to the east, and San Luis Obispo, approximately 60 miles to the west.

As shown by the demographic data in Section 3.21.2, within an approximately 10-mile radius of the Monument itself, total population has been estimated at approximately 16,736 persons, with the largest concentrations in Taft, Ford City, and Maricopa (Claritas, Inc. 2007a). Land uses in this area are primarily single-family residential development, agricultural and ranching operations, and energy production, primarily oil and gas fields. Agriculture and oil and gas production are among the primary economic activities of the area, further discussed below. The Kern County General Plan designates a total of 3,568,697 acres, or approximately 67 percent of land designated under the plan, with the “Resource” designation, which includes petroleum and wind (Kern County 2005).

Development constraints in the area surrounding the Monument have historically included remoteness, availability of water, and, to some extent, access (San Luis Obispo County 1980). Emerging issues include potential conflicts related to conversion of agricultural lands to non-agricultural uses and land use compatibility issues associated with these conflicts (Kern County 2005). Topography and risk from seismic activity may also serve as constraints in some areas.

Lands within the Monument are primarily undeveloped and vacant, with limited paved public roads. There are fewer than 15 structures over the total Monument area, including historic ranch buildings and the Goodwin Education Center. These lands are also used for livestock grazing, mineral extraction (to a limited extent), and recreational uses.

As previously discussed, it is well understood that the presence of conserved open space lands, especially those under federal management, enhances the value of nearby lands. The non-market values described above distinguish the CPNM as a vital regional and local natural asset. The success of conservation efforts such as the San Joaquin Valley Recovery Plan depends on the continued protection of the sensitive biological resources found in the Monument. Based on the trends and patterns discussed in Section 3.21.3, the preservation of the CPNM’s remote and pristine nature may well be considered as a potential growth attracter, albeit indirectly, to developable lands in neighboring valleys, and may also provide a context for development planning on those lands. Safeguarding the CPNM’s abundant natural riches is therefore an important component in the future economic well-being of the region. Equally important is the wise and thoughtful management of development of areas surrounding the Monument, in recognition that the health of each of these disparate yet inter-related pieces is dependent on the other.

3.21.4.2 Mineral Estates

As noted above, oil and gas production has historically been one of the primary economic activities in the Monument area. There are six giant (over 100 million barrels of reserves) and supergiant (over one billion barrels of reserves) oil fields on lands near the Monument, including the largest in California and the lower 48 states, the Midway-Sunset Field. There are also a number of smaller oil fields in the vicinity (BLM 1996).

The portions of the Monument and surrounding area that are within Kern County are within the Westside Sub-Area as designated by the Kern County General Plan. The plan characterizes the economy of this sub-area as resource based, with oil exploration and production providing a large segment of the employment base. Clay mineral extraction also occurs. As of 2004, oil wells in Kern County provided approximately 68 percent of all the crude oil produced in California and accounted for 77 percent of California’s onshore production (Sheridan 2006). Through the use of steam cogeneration in the production process, many of these wells also generate electricity that is delivered to other areas within the

state, including Los Angeles. More electricity is produced from cogeneration in Kern County than any other county in California (Kern County 2005).

Some oil and gas production occurs within San Luis Obispo County, although to a lesser extent than in Kern County. For 2003, the California Employment Development Department estimated that 6.7 percent, or 6,800 employees in San Luis Obispo County, were employed in natural resources, mining, and construction.

Within the Monument, approximately 56 percent of the mineral estate is privately owned. Valid leases, claims, and other rights that existed as of January 17, 2001, may be developed, and any proposed activities would be subject to applicable CEQA and NEPA environmental processes, as appropriate. There are currently nine active oil and gas leases. Currently there is only one active production area, located near the southwest boundary of the Monument, and test wells have indicated limited potential for commercial quantities of oil elsewhere in the area. However, with the skyrocketing price of oil, reserves that are currently considered uneconomical may become economically viable for future development (BLM 1996; personal communication, J. Prude, BLM petroleum engineer, 2008).

3.21.4.3 Agriculture

Agriculture has historically been and currently is a primary and vital economic activity in the region (Kern County 2005). In 2006, 44,600 persons, or 16.1 percent of the civilian labor force in Kern County, were employed in agriculture, while in Santa Barbara and Ventura counties there were 15,500 and 22,800 persons employed in agriculture, respectively. In San Luis Obispo County, this industry accounted for only 4,300 people in the civilian workforce, or 3.2 percent (California Department of Finance 2007b).

Livestock grazing and ranching have been of particular importance in the region. Based on U.S. Census Bureau agriculture data for 2002, there were about 2.7 million acres in farms in Kern County, of which 1.6 million acres were in pastureland and rangeland. For San Luis Obispo, there were 1.3 million acres in farms and 1.0 million acres in pastureland and rangeland (USDA 2002). Cattle sales in Kern County in 2002 yielded approximately \$88.3 million in revenues, as compared with approximately \$21.7 million in San Luis Obispo County in the same year (USDA 2002).

Within the CPNM, there are approximately 60,000 acres available for grazing authorizations in the Section 15 grazing lease areas. Current active Section 15 grazing leases occupy about 58,000 acres. In the valley floor/foothill region, there are about 115,000 acres that may be included in free use grazing permits. See Tables 3.14-1 and 3.14-2 in Section 3.14, Livestock Grazing.

As previously discussed, grazing authorizations and livestock uses are measured in AUMs. An AUM is the amount of dry forage required to sustain one “animal unit” for one month; this equates to a forage allowance of 26 pounds per day. For authorization calculation purposes, an animal unit is one cow and her calf, one horse, or five sheep or goats. Depending on the composition and weight of animals in the herd, actual forage use may vary. Currently, 5 ranchers have Section 15 grazing leases with up to 8,466 AUMs available to them annually. Five additional ranchers have free use grazing permits with variable AUMs available for their use, depending on vegetation management needs in the valley floor/foothill regions of the Monument. See Appendix N, Actual Grazing Use for Vegetation Management Since 1989.

Grazing Fees and Contributions

BLM calculates federal grazing fees in March of each year, based on a formula that is calculated using the 1966 base value of \$1.23 per AUM for livestock grazing on public lands in western states. Annual adjustments are based on three factors: current private grazing land lease rates, beef cattle prices, and the

cost of livestock production. The grazing fee rate was \$1.79 per AUM in 2005 (BLM 2005), \$1.56 per AUM in 2006 (BLM 2006), and was at its minimum value of \$1.35 per AUM in 2007.

In compliance with the *Taylor Grazing Act* (Section 10), BLM shares grazing receipts from Section 15 grazing leases equally with local governments where they are collected. For the state fiscal year 2003–2004, Kern County received \$7,347 in Section 15 lease fees, and San Luis Obispo County received \$3,208. For fiscal year 2004–2005, Kern County reported \$6,996 and San Luis Obispo County \$5,081. These figures increased in 2005–2006 to \$7,603 for Kern County, and decreased for San Luis Obispo County, to \$4,266. It should be noted that these revenues come from all BLM Section 15 grazing leases in these counties, not only those within the CPNM (K. Doran, BLM, personal communication, 2008).

There are no direct grazing fees associated with the free use grazing permits on the valley floor/foothill region of the Monument. Permittees under these authorizations have agreed to voluntarily contribute to a BLM fund for the construction and maintenance of range improvements or facilities to support the vegetation management program within the Monument. Contributions to the Carrizo Grazing Facility Fund are determined by actual AUMs of livestock use and AUM rates are based on a modified federal grazing fee structure. These contributions are variable per year based on how much pastureland is available and conditions in the region. Contributions to the fund in fiscal year 2003–2004 were approximately \$2,629.27, in fiscal year 2004–2005 were \$0.00, and in fiscal year 2005–2006 were approximately \$5,585.29.

Grazing Permit and Real Estate Value

Generally, there is a correlation between ranch land values and federal grazing permits, with ranches that hold such permits having a higher value. This value is based on the premise that the permit's value reflects, to some extent at least, the capitalized difference between the grazing fee and the competitive market value of federal forage. It also reflects the requirement for the permittee to hold private base property to which the federal permitted use is attached, giving the base property holder priority for renewal over other potential applicants. This value is recognized by lending institutions during a loan process and by the Internal Revenue Service when a property transfer occurs.

Permit values fluctuate based on market forces but generally depend on the number of AUMs and other terms of the lease or permit. Permit values may vary widely, depending on the location and the estimated average value of replacement forage. The 2006 average fee per AUM on private lands ranged from a low of \$8.00 to \$22.50 over 16 western states, with an average of \$13.34. The rate assessed in California in 2006 was \$15.40 per AUM. This is also the rate assessed by BLM for non-willful unauthorized grazing use in the state (BLM 2006). This figure is used here to estimate a conservative value of all Section 15 leases in the CPNM. Based on 8,634 AUMs, the total annual grazing value of all traditional leases in the CPNM would be \$132,964. It should be noted that the issuance of a grazing permit or grazing lease does not create any right or title to U.S. interests for the permittee or lessee.

Although not attached to private land base properties like Section 15 grazing leases, free use grazing permits, such as those on the valley floor/foothill regions of the Monument, have capital value that allows ranchers to use permits as a form of collateral. Counties also assess the value of these permits for collecting possessory interest tax, discussed further below.

3.21.4.4 Local Government Revenues

Private landowners in the CPNM pay property tax to the county within which their holdings lie, with San Luis Obispo County receiving the most property taxes annually. Revenues from public lands in the Monument are paid to each county through payments in lieu of taxes (PILT) and possessory interest tax.

Payments in Lieu of Taxes

PILT are paid by federal agencies to local governments to compensate for the nontaxable federal lands that occur in their boundaries. These funds are appropriated annually by Congress to BLM, which then allocates payments according to a formula established in the *Payments in Lieu of Taxes Act*. These payments account for population, receipt-sharing payments, and the amount of federal land in a county. PILT payments are transferred to state or local governments, as applicable, and are in addition to other federal revenues, including those from grazing fees. For San Luis Obispo County, PILT receipts for fiscal year 2005–2006 were \$617,106, and for fiscal year 2006-2007 were \$619,602. For Kern County for the same years, PILT receipts were \$1,390,889 and \$1,383,581, respectively (USDI 2008).

Possessory Interest Tax

Federal grazing permits and leases in California are subject to possessory interest tax. State and local jurisdictions do not receive property tax revenues on public lands, as they do on private lands. However, free use grazing permits and Section 15 grazing leases, as well as mining claims and other permits that allow private citizens to use resources on publicly owned lands, are considered as the private right to the possession and use of those lands. These “rights” are taxed by the county in which the lands are located. The base rate is determined by each county’s assessment of the permit value. San Luis Obispo County and Kern County assess this tax at a base rate of approximately 1.1 percent of the assessed value of the permit (C. Dines, County of San Luis Obispo Auditor/Controller’s Office, personal communication, 2008; D. Stevenson, Kern County Administrative Office, Budget and Finance, personal communication, 2008).

3.22 Solid and Hazardous Waste

Solid and hazardous waste management practices on BLM lands are regulated under the following U.S. laws, with implementing regulations in the identified sections of the CFR:

- *Clean Air Act*, as amended (40 CFR 50-80, 61)
- *Clean Water Act* (40 CFR 110-140, 400-470)
- *Safe Drinking Water Act* (40 CFR 140-149)
- *Toxic Substances Control Act* of 1976 (40 CFR 700-750, 760s, 790-799)
- *Federal Insecticide, Fungicide and Rodenticide Act* (40 CFR 150-186)
- *Resource Conservation and Recovery Act* (40 CFR 260-263, 264-270)
- *Hazardous Materials Transportation Act* (49 CFR 170s)
- *Occupational Safety and Health Act* (29 CFR 1910)
- *Asbestos Hazards Emergency Response Act* of 1986 (40 CFR 763)
- *Comprehensive Environmental Response, Compensation, and Liability Act*, as amended (40 CFR 300)
- *Superfund Amendments and Reauthorization Act* of 1986 (SARA)
- *Emergency Planning and Community Right-to-Know Act* of 1986 (SARA Title III) (40 CFR 350, 355, 370, 372)
- *Federal Food Drug and Cosmetic Act* of 1938
- *Pollution Prevention Act*
- NEPA
- any other relevant federal, state, or local laws or regulations

BLM currently complies with the pertinent laws and regulations regarding solid and hazardous waste disposal within the Monument. Non-hazardous solid waste is routinely collected from receptacles and facilities by BLM personnel or contractors and transported to a properly licensed and operated waste transfer station. BLM does not burn waste or dispose of waste on-site. Occasionally, illegal dumping occurs on public land within the Monument. This illegal waste is disposed properly by BLM and, when feasible, the responsible party is identified and legal remedies are sought.

The military installation known as the Soda Lake Air to Ground Gunnery Range (AGGR) consists of 15 sections of BLM and private land (approximately 9,600 acres) in the northern part of the CPNM. These lands were withdrawn by the U.S. Department of Defense in 1944 for use as air-to-ground strafing and bombing training targets. Used only for a few years, these 15 sections of land were transferred back to BLM and the private land owners by the Department of Defense in 1947. BLM has since purchased the private lands in the former Soda Lake AGGR, and all 15 sections of the former Soda Lake AGGR are now owned as public land and managed by BLM as part of the CPNM.

The Soda Lake AGGR was composed of one strafing range, one skip bomb range, and one bomb target range. The U.S. Army Corps of Engineers has conducted two on-site reconnaissance surveys of this withdrawn facility. The first was conducted in 1996 to survey the site for unexploded ordnance, and second was in September 2007 to sample the AGGR for chemical contamination. Small arms ordnance and practice bombs have been identified on the ground at all three ranges. As with all former target ranges, there is a potential for the continued presence of unexploded ordnance and chemical contamination.

If and when ordnance or chemical hazards that endanger the public are identified, normal and appropriate emergency response actions would immediately be taken in accordance with the policies of BLM and San Luis Obispo County (such as closure of hazard area, public notification, removal of hazard). Since the need for or specific details of such actions are speculative, they are not discussed further in the RMP; however, an appropriate level of NEPA review would be undertaken if the need for a response action is identified.

No landfills or other hazardous waste sites are known to occur on public lands in the CPNM. Currently, the volume of hazardous waste that is generated in the CPNM does not exceed the threshold allowed for a conditionally exempt small quantity generator. The small volume of hazardous waste that is generated at the CPNM is either recycled or disposed through San Luis Obispo or Kern County's Small Quantity Generator Program. The hazardous waste stream consists of used motor oil and occasional expired or obsolete hazardous materials such as paint, solvents, batteries, and lubricants. These hazardous materials are recycled using best management practices, when possible.

Personnel associated with the CPNM continue to identify less-toxic alternatives to hazardous materials that have been used traditionally. As required by the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200), material safety data sheets are obtained and made available where potentially hazardous chemicals are used or stored.

Non-hazardous waste streams (such as paper, aluminum, and glass) are recycled when it is economically feasible. However, most CPNM public facilities are not currently equipped with receptacles for recyclable materials. In summary, the hazardous and solid waste management program at the Monument is implemented following standard federal and state policies, and there are no issues that are within the scope of the RMP. Therefore, hazardous and solid wastes are not addressed further under the RMP alternatives or impact discussion.

Chapter 4. Environmental Consequences

4.1 Introduction

This chapter evaluates potential environmental impacts to the natural and human environment from implementing the proposed resource management plan (PRMP) for the Carrizo Plain National Monument (CPNM). An impact is defined as a modification of the existing environment that is brought about by an outside action. Potential impacts considered in this chapter include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, social, and health impacts (40 Code of Federal Regulations [CFR] 1508.8). This chapter is organized by resource topic and contains potential impacts that could result from implementing the objectives, allowable uses, and management actions under the proposed plan. Topics are presented in the same order as in Chapter 3. The baseline information used for determining the potential impacts are the current resource conditions described in Chapter 3.

Administrative actions that are often office or monitoring-oriented, not ground-disturbing, and are actions and activities associated with ongoing program administration, are not addressed in this chapter even though some of the actions above are included in Chapter 2 to provide context for the overall management program (highlighted with an “S” in the Chapter 2 action identification numbers). Such actions and activities could include but are not limited to:

- Identification of sensitive plant and animal species, paleontological zones and fossil locations
- Identify baseline data and monitor for disturbances of species and zones.
- Encourage valid research and volunteer partnership opportunities associated with Monument areas.
- Encourage valid research and volunteer partnership opportunities to locate fossil, collect specimens, interpret finds, evaluate their significance, and preserve representative fossil formations and localities.
- Interpret, identify, and compile existing research maps and professional reports pertinent to the Monument.
- Use geographic information systems (GIS) and geographic positioning systems (GPS) to track and map data.
- Maintain baseline data in hard copy and electronic GIS format.
- Create geological maps depicting sites of geological and paleontological significance.
- Maintain and enhance the Goodwin Education Center.
- Display resource information at on-site or adjacent locations.
- Provide brochures for guided and self-guided trips.
- Focus interpretative information throughout the Monument.
- Research data collection methods to best suit the Monument.

Impacts from the proposed plan (Alternative 2), Alternative 1, Alternative 3, and the No Action Alternative are presented in detail in this chapter. The Impacts Summary Table at the end of Chapter 2 provides an overview of the impacts of each alternative. Some of the discussion in this chapter relates impacts from the proposed plan to those from Alternative 1, Alternative 3, or the No Action Alternative. The PRMP and final environmental impact statement (FEIS) has been reformatted from the Draft RMP/EIS so that the proposed plan alternative is described first. For the convenience of the reader, “reference boxes” have been included that contain the relevant text from the other alternatives where they are referenced in regard to impacts of the proposed plan.

4.1.1 Approach to the Analysis

The detailed impact analyses and conclusions are based on the Bureau of Land Management’s (BLM’s) knowledge of resources and the project area, reviews of existing literature, and information provided by

experts in BLM, other agencies, interest groups, and concerned citizens. Data from field investigations were used to quantify effects where possible. However, in the absence of quantitative data and qualitative information, best professional judgment was used. Acreage calculations, projected use levels, and other numbers used in this analysis are approximate and provided for comparison and analytic purposes; they do not reflect exact measures of on-the-ground situations. Mitigation measures designed to avoid or reduce impacts were incorporated into the management alternatives and supporting information in the appendices, so impacts in this chapter are considered unavoidable and would result from implementing the management actions and mitigation. If an activity or action is not addressed in a given section, no impacts are expected or the impact is expected to be negligible, based on existing knowledge.

4.1.2 Impact Analysis Terminology

The analysis considers the context, intensity, and duration of an impact. The impacts consider a variety of contexts such as the affected region, the affected interests, the locality, and the broader society. Intensity refers to the severity of the impact—that is, the degree to which the action affects public health or safety or sensitive environmental resources. Duration refers to the permanence or longevity of the impacts, which is depicted as short term or long term. The terminology below is used in the analysis to help describe the relative level of impacts. Unless otherwise stated, the standard definitions for these impact-related terms are as follows:

Direct Impact: These are effects that are caused by the action and occur at the same time and place. Examples include elimination of original land use through erection of a structure. Direct impacts may cause indirect impacts, such as ground disturbance resulting in particulate matter emissions (dust).

Indirect Impact: These are effects that are caused by the action but occur later in time or are farther removed in distance but are still reasonably foreseeable and related to the action by a chain of cause-and-effect. Indirect impacts may reach beyond the natural and physical environment (for example, environmental impact) to include growth-inducing effects and other effects related to induce changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems (BLM 2008a).

Negligible Impact: The impact is at the lower level of detection; there would be no measurable change.

Minor Impact: The impact is slight but detectable; there would be a small change.

Moderate Impact: The impact is readily apparent; there would be a measurable change that could result in a small but permanent change.

Major Impact: The impact is large; there would be a highly noticeable, long-term, or permanent measurable change.

Localized Impact: The impact would occur in a specific site or area. When comparing changes to existing conditions, the impacts would be detectable only in the localized area.

Short-Term Impact: The effect would occur only during or immediately after implementation of the action/allowable use, and would be reduced to no or negligible levels over the long term.

Long-Term Impact: The effect could occur for an extended period after implementation of the action/allowable use. The effect could last several years or more.

Impacts presented are direct, broad (occurring within the planning area), and long term, unless otherwise noted as indirect, localized, or short-term/temporary. Impacts from implementing the plan include both negative and beneficial impacts to the natural and human environment. As impacts may be perceived as beneficial (positive) or adverse (negative) by different readers, these descriptors are qualified when used in defining impacts. However, in general, an RMP action is considered to be beneficial when it is contributing to the protection or restoration of the objects identified in the Monument Proclamation (Appendix A), which include but are not limited to the geologic features such as the San Andreas Fault; Soda Lake; the diverse fossil assemblages; the biological aspects such as the San Joaquin kit fox, blunt-nosed leopard lizard, giant kangaroo rat, California jewelflower, Hoover's woolly-star, San Joaquin woolly-threads, and forked fiddleneck; and the rich human history of the Carrizo.

4.1.3 Cumulative Impacts

The *National Environmental Policy Act* (NEPA) requires evaluation of an action's potential to contribute to "cumulative" environmental impacts. A cumulative impact is defined as: "The impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts can result from similar projects or actions, as well as from projects or actions that have similar impacts" (40 CFR 1508.7).

The objective of cumulative impact analysis is to evaluate the significance of the proposed action's contribution to cumulative environmental impacts. It is accomplished in three steps:

- Step 1: Identify the cumulative impacts assessment area for each resource evaluated. The assessment area will vary by program. For example, for air quality it would be the local air basin, while for water quality it would be the area watershed(s).
- Step 2: Identify and describe past, present, and reasonably foreseeable future actions in the cumulative impact study area that are similar to the proposed action or have substantial impacts to which the proposed action would contribute. The past and present actions are discussed in Chapter 3, Affected Environment, while the future actions are discussed in this chapter.
- Step 3: Evaluate the interaction of the RMP actions with these other past, present, and reasonably foreseeable future actions to contribute to cumulative environmental impacts.

4.1.4 Assumptions for the Analysis

Assumptions are made in the analysis regarding level of land use activity, resource condition, and resource response. Potential impacts are determined partly based on these assumptions. The following assumptions were used in the overall analysis; additional assumptions are presented under each resource or use topic.

- Management actions proposed in the alternatives apply to public lands only. However, cumulative impacts analyses consider potential actions by individuals or entities other than BLM.
- The alternatives would be implemented in accordance with all laws, regulations, and standard management guidelines/best management practices.
- Funding would be available to implement the alternatives, as described in Chapter 2.
- The level of activity on BLM-administered land is expected to increase, based on historical trends, population increases, and statements of interest in land use by individuals and industry organizations. This includes ongoing reasonable access to private land or interests.

Global climate change will affect the planning area and likely result in warmer and drier conditions. Note that the anticipated influence of climate change on the resource values of the planning area was included in this chapter in the Draft RMP/EIS. However, this information has been moved to Chapter 3 (Affected Environment) in this PRMP/FEIS to better reflect current guidance for NEPA analysis of climate change, that is, that climate change be considered as a dynamic component of the affected environment discussion.

4.1.5 Availability of Data and Incomplete Information

The best available information that is pertinent to management actions was used in developing this RMP/EIS. However, certain information was unavailable; each resource discussion identifies this incomplete information in the introduction. The unavailable information is described to help the reader understand the impact analysis. Although some of the unavailable information may be needed prior to implementing certain aspects of the RMP, it was not determined to be essential to making a reasoned choice among alternatives.

Subsequent project-level analysis will provide the opportunity to collect and examine site-specific inventory data required to determine appropriate application of RMP-level guidance. In addition, ongoing inventory and monitoring efforts by BLM and others within the planning area continue to update and refine information that will be used to implement this plan.

4.1.6 Resources or Programs Where No or Negligible Impacts Would Occur

The following resources are either not present within the planning area, or no/negligible impacts to them have been identified from implementing any of the RMP alternatives: prime and unique farmlands, hazardous materials and solid waste, wild and scenic rivers, and public safety. Therefore, these resources are not discussed as stand-alone topics in the impact analysis. The designation of the Carrizo Plain as a National Monument made the area's administrative designation as an area of critical environmental concern (ACEC) redundant, as the same resources identified for protection as an ACEC are also identified in the Monument Proclamation. However, under the No Action Alternative, the ACEC designation would be carried forward. Since the analysis of impacts for all of the resources within the Monument is done in the context of impacts on the objects of the Monument Proclamation, an analysis covering impacts to the ACEC values would also be redundant. Therefore, a separate analysis was not conducted for ACEC impacts. The impacts to the objects protected under the Monument Proclamation should be consulted to determine ACEC impacts under the No Action Alternative.

4.1.7 Chapter Organization

Effects from the proposed plan are presented by the following resource topics:

- 4.2 Biological Resources—Wildlife
- 4.3 Biological Resources—Vegetation
- 4.4 Fire and Fuels Management
- 4.5 Air Quality
- 4.6 Soils
- 4.7 Water Resources
- 4.8 Global Climate Change
- 4.9 Geology and Paleontology
- 4.10 Cultural Resources
- 4.11 Visual Resources

- 4.12 Wilderness Study Areas and Other Lands with Wilderness Characteristics
- 4.13 Livestock Grazing
- 4.14 Recreation / Interpretation and Administrative Facilities
- 4.15 Travel Management
- 4.16 Minerals
- 4.17 Lands and Realty
- 4.18 Social and Economic Conditions

For each resource, the discussion includes a list of assumptions and incomplete information, followed by identification of direct and indirect impacts, and finally, cumulative impacts. The impact description for each resource begins with a discussion of impacts common to all action alternatives. The majority of these impacts are just reprinted/carried forward from the Draft RMP. However, in several instances they have been updated in response to public comments or additional information. This discussion is followed by a description of impacts specific to the proposed plan.

4.2 Impact Analysis for Biological Resources—Wildlife

4.2.1 Assumptions Used for the Analysis

All actions undertaken as a part of this RMP would be assessed in accordance with NEPA and the *Endangered Species Act*. If required, consultation with the U.S. Fish and Wildlife Service (USFWS) will be completed. Standard operating procedures (SOPs), stipulations, mitigation measures, and terms and conditions in this RMP and subsequent NEPA documents and biological opinions will be applied and followed.

Valid existing rights, such as existing oil and gas leases, private mineral rights, existing land use authorizations, would be honored, but SOPs, stipulations, mitigation measures, and terms and conditions in this RMP and subsequent NEPA documents and biological opinions will be applied and followed.

Impacts to wildlife from the livestock grazing and fire/fuels management program may actually be attributable to implementing the wildlife program itself, even though the impacts are described under those respective sections for organizational purposes. For example, all of the livestock grazing prescriptions within the vegetation management allotments are targeted towards wildlife habitat management.

If additional special status species are designated or discovered, the objectives and management actions in this plan will extend to such species as well.

Critical habitat is not likely to be designated on public lands within the Monument since the USFWS does not include areas where existing management is sufficient to conserve the species. Critical habitat could be designated on private lands within the Monument boundary.

Over time, species distribution may change. Management action locations, including core area boundaries, would change accordingly.

If livestock grazing is used as a tool to manage vegetation, the treatment area would most likely correspond to the area circumscribed by existing fences and any natural barriers. These treatment areas currently correspond to historical pastures based on previous land ownership patterns and not on ecological parameters. Alternatives in this plan include the removal and realignment of fencing, where necessary, to better reflect vegetation management areas and natural ecological boundaries.

Low vegetation biomass years are defined as dry rainfall years in which rainfall is less than 80% of the long-term average. In such years, a relatively low amount of vegetation biomass is likely produced, and this amount would not have negative effects on San Joaquin Valley listed animal species. There have been 34 such years between the 1889-1890 and 2006-2007 water years.

Vegetation biomass produced in years that are within 20% of the long-term average (above or below) would not produce a thick thatch of nonnative grasses that would likely hinder the movement and activities of the San Joaquin Valley listed animal species.

High or excessive vegetation biomass years are those in which rainfall produces a thick thatch of nonnative grasses that likely hinders the movement and activities of the San Joaquin Valley listed animal species. These conditions may occur as the result of a single year greater than 140% or a series of rainfall years greater than 120% of the long-term average. Nonnative grass production depends on a combination of rainfall and species composition of the seedbank. There have been six periods between the 1889-1890 and 2006-2007 water years in which high vegetation biomass of nonnative grasses likely occurred.

4.2.2 Incomplete Information

Undiscovered locations of special status species may occur on the Monument, other species may be added to special status lists, and new species may be discovered. The proposed plan has inventory and monitoring actions to mitigate impacts to any newly discovered species/populations on the CPNM.

4.2.3 Programs with No or Negligible Impacts

Visual Resources Management establishes zones that allow for certain levels of contrast when new projects are implemented. Although this may impact the location or design of certain wildlife habitat improvements (such as guzzlers, fencing), it would not preclude any of the actions in the alternatives so would have no or negligible impacts. The Paleontology and Geology programs would have negligible to no impacts on wildlife and in the Monument. There would be negligible impacts to overall wildlife communities (excluding nesting raptors) from any of the proposed Cultural Resource actions. New interpretive sites and expansion of existing sites would have impacts discussed in the Recreation program impact analysis. Air Quality management actions to improve air quality and reduce dust would result in negligible to minor beneficial impacts to wildlife species.

4.2.4 General Wildlife Impacts

The following discussion describes general impacts that would occur to many or all of the wildlife species that inhabit the Monument. This general discussion is followed by more specific descriptions of impacts for special status and other species of concern in the Monument.

4.2.4.1 Impacts Common to All Action Alternatives

Impacts on Wildlife from Implementing the Wildlife Program

Management of the core areas for the listed San Joaquin Valley upland species would provide moderate to major beneficial impacts to many wildlife species that inhabit open upland habitats typical of the San Joaquin Valley and more arid regions of the Monument. The collective wildlife management objectives to maintain viable populations, provide habitat for mountain plover and California condor, protect roosting habitat, maintain habitat structural diversity, protect riparian habitat and vernal pools, and conduct research and inventory would protect the wildlife objects of the Proclamation and would have major beneficial impacts to many wildlife species within the Monument over the long term.

Impacts on Wildlife from Implementing Other Programs

Vegetation

Fencing of 500 acres to BLM specifications to protect rare plant populations at one or more sites would have negligible effects on wildlife in the Monument. The fences may serve as perches for some birds. This may be beneficial for the species using the perches for hunting or resting, but may increase predation to prey species nearby.

Restoration activities to reintroduce native plants into previously cultivated farm fields or in habitats with a low proportion of native plant species would have minor direct impacts on wildlife. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Bird nesting would not be affected. Important habitat features would be identified and avoided to the maximum extent practicable. The long-term improvement in native plant community composition would likely benefit a large number of animals with a more diverse array of seeds, forage species, cover, and structural diversity.

Fire and Fuels Management

Wildfire suppression may disturb wildlife habitat along fire control lines, at staging areas, in retardant drops, and in cross-country travel. Vegetation and burrows may be crushed, animals entombed, and vehicle strikes may occur. In grassland habitats the suppression activities are usually kept to the least amount of disturbance needed to control the fire with mobile attack, retardant, or a single dozer line. These impacts are temporary in duration and are usually revegetated by natural processes of annual plants within 1 to 3 years. In the Carrizo Plain, the Elkhorn Plain, and the foothills and drainages of the Caliente Range and Temblor Range, the effects of wildfire may remove saltbush plants for 1 to several decades (Germano et al. 2001). Saltbush plants occurring in scattered stands and in denser stringers along drainages and alluvial fans provide important nesting, foraging, thermal, escape, and resting cover for many animals. Wildland fire suppression would minimize the extent of damage to saltbush scrub habitats and would maintain these habitat features for wildlife. The short-term nature of suppression activities in the grasslands would be offset by the minor to moderate beneficial effects of minimizing wildfire in these shrub communities damaged for many years by fire.

Livestock Grazing

Livestock grazing would be conducted to meet the Standards for Rangeland Health so that “viable, healthy, productive, and diverse populations of native and desired species, including special status species, are maintained or enhanced, where appropriate.” Since the Monument management objectives emphasize an increase of native and indigenous species, livestock grazing management prescriptions and decisions would be designed and administered to meet this standard. Grazing practices that do not protect the objects of the Proclamation would be modified to remove the impact, or would be eliminated. However, with the wide variety of San Joaquin Valley plant and animals species to be protected under the Proclamation, there will likely be some species benefitted at the expense of other Valley species in meeting the land health standards. Overall, there would be negligible to major beneficial impacts to wildlife, depending on habitat conditions, grazing permit terms and conditions, and the need to apply vegetation management prescriptions.

Monitoring impacts from livestock grazing and adjusting authorizations as necessary to meet management objectives would have negligible to major beneficial impacts to wildlife, depending on the extent of the impact and the remedy applied.

Recreation

Dispersed vehicle camping in the Backcountry zone in important wildlife areas could be eliminated if problems are documented during monitoring. Site-specific closures could be made if impacts are unacceptable. Vehicle camping activities would have localized, but negligible effects on wildlife. There is a small chance of inadvertent damage to habitat features (such as burrows, dens, nesting trees and shrubs, springs, logs) from vehicle-related camping activities.

The development of water, signs, and overlooks would have negligible impacts on wildlife. All the direct impacts would be localized, may be avoidable, and would not affect wildlife at the population level. The indirect effects of greater recreational activities near upgraded facilities would have a wider area of human impacts on wildlife, but this is expected to be at a very small scale and would not affect wildlife populations.

The development of recreational activities within the Frontcountry zone would also have negligible impacts on wildlife. Nearly all the direct impacts would be localized, may be avoidable, and would not affect wildlife at the population level. The indirect effects of greater recreational activities near upgraded facilities would have a wider area of human impacts on wildlife habitat, but this is expected to be at a very small scale and would not affect populations of animals.

Travel Management

Closed roads would have minor beneficial impacts to wildlife as the road footprint is reduced to single-track trails and vehicle strikes are eliminated. Occasional administrative access would allow maintenance of wildlife habitat improvements such as protective fences, springs, and guzzlers.

Minerals Management

The impacts would be the same as described in the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

There would be negligible to moderate impacts from energy mineral exploration and development in the Monument.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. Geophysical activities would have a transient impact on 115 acres through cross country travel and shothole drilling. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, and avoid wildlife features to the greatest extent practicable. Construction activities would result in a loss of animals directly within the footprint with some disruption to animals directly adjacent to the well locations. Animals adjacent to the construction footprint may wander onto the edge of the construction area and may be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations when nighttime activities and lighting occur. Drilling activities typically last up to 20 days per well. Once a well is drilled, few, if any, nighttime activities would occur.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The

impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by wildlife within several months.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

In the Russell Ranch oilfield, there would be 6.5 acres of new disturbance. There would be 3.5 acres disturbed from new well pads and 3 acres from new roads. Geophysical activities would impact 25 acres through cross-country travel and shot hole drilling. BLM SOPs would minimize project impacts and avoid wildlife habitat features as described above.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing avoidance requirements would have negligible to minor impacts to most wildlife. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than 10 feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. The detonation of the charges is perceptible to humans within 200 feet of a shot hole and some surface movement can be observed at the shot point. It is possible that the shot hole detonations and testing vibrations may have deleterious effects on burrowing animals.

Lands and Realty

The issuance of rights-of-way and permits would have negligible impacts to wildlife communities. BLM would implement standard survey, take avoidance, and mitigation measures that would result in few direct and indirect impacts to wildlife at the community scale. Site-specific impacts may occur to a small number of individuals, but the Monument populations would be negligibly affected.

4.2.4.2 Impacts under the Proposed Plan (Alternative 2)

Impacts on Wildlife from Implementing the Wildlife Program

Protection of raptor nesting sites from human intrusion would provide moderate benefits to a number of nesting birds on the Painted Rock, Selby Rock, and other rock formations. The planting of trees at facilities would provide new nesting opportunities and minor benefits for a number of birds such as house finch, mourning dove, western kingbird, and northern mockingbird. The construction of new guzzlers would provide better habitat conditions for upland game birds (California quail, chukar, and mourning dove). The control of pets would reduce the risk of disease transmission and chasing and capture of animals by dogs.

Impacts on Wildlife from Implementing Other Programs

Vegetation

Constructing 10 to 20 miles of fencing to protect oak trees at one or more sites would have negligible effects on wildlife in the Monument. The fences may serve as perches for some birds. This may be beneficial for the species using the perches for hunting or resting, but may increase predation to prey species nearby.

Restoration activities on 200 to 500 acres per year to reintroduce native plants into previously cultivated farm fields or in habitats with a low proportion of native plant species would have minor impacts on wildlife. The use of a tractor-pulled range drill/seeder may run over and collapse burrows. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Bird nesting would not be affected. Important habitat features would be identified and avoided to the maximum extent practicable. Strip seeding, leaving large areas untreated, would be used in more densely populated giant kangaroo rat habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely have moderate benefits to wildlife with a more diverse array of seeds and plant materials, but this is presently unknown.

Restoration of up to 10 acres of oak understory soils and litter would be beneficial to a number of wildlife species such as California legless lizard and western skink, deer mouse, and California pocket mouse.

Restoration of biological soil crusts would have negligible impacts on wildlife. The repeated use of prescribed fire and herbicides to promote soil crusts would remove herbaceous vegetation for several years while the crusts develop. This may remove food and cover for small mammals and reptiles on the sites. However, the extent of these activities would be very localized and would not affect populations in the short or long term. The long-term establishment of biological soil crusts would likely benefit wildlife by promoting a composition structure of more native plants.

Weed control by hand or mechanical methods on 10 to 100 acres would have negligible effects on wildlife and special status animals. Projects would be designed and timed to avoid direct impacts during nesting/reproduction when possible. Important habitat features would be avoided to the maximum extent practicable.

Fire and Fuels Management

The impacts would be the same as described in the No Action Alternative, as described below:

Impacts from No Action Alternative (for reference :)

Since the effects of fire on altering vegetation and habitat for wildlife depends on the food and cover requirements of a particular species, the effects of wildfire can be beneficial or negative. In the Carrizo Plain itself, the Panorama Hills-Elkhorn Plain area, the Temblor Range, and the southern base of the Caliente Mountain, the protection of saltbush shrub and scrub plants is important to many of the biological objects of the Proclamation and wildlife species that depend on the shrubs for nesting, escape, and thermal cover. Since common saltbush and spiny saltbush are easily killed by fire and may require a decade or more to become reestablished after a fire, suppression activities that minimize the amount of fire damage to these communities are important to species such as western whiptail, Heermann's kangaroo rat, desert cottontail, pronghorn, sage sparrow, white-crowned sparrow, lark sparrow, house finch, LeConte's thrasher, and loggerhead shrike. Wildfires in these subregions are often suppressed with "mobile attack" tactics (driving fire engines along the edge of the burn to apply water) that have negligible effects to habitat. Although dozer firelines would occasionally be constructed to contain

wildfires in the valley bottom of the Monument, the impacts to habitat are generally absent within 2 to 4 years and can be considered minor. However, large wildfires that eliminate saltbush for 1 or more decades would have moderate to major impacts to the wildlife community.

The upper Sonoran subshrub scrub, interior Coast Range saltbush scrub, juniper woodlands, juniper oak woodlands, and Diablan sage scrub plant communities are generally not fire-adapted. This wildlife habitat provides a complex structure of trees and shrubs that provide a wide variety of cover for wildlife. Wildfire in these communities would remove many of these trees and shrubs for many years, converting the sites to grassland. Fire suppression would limit the size of fires in these regions and would benefit animals that depend on the tree and shrub structure. A large portion of the area is within the Caliente WSA or in terrain where Minimum Impact Suppression Tactics (MIST) would be applied. Such tactics and management to suppress wildfires in these areas would have moderate to major beneficial effects to wildlife.

The application of prescribed fire would have moderate to major benefits to wildlife communities since specific wildlife objectives would be incorporated into project design and implementation. Prescribed fire would be applied to control nonnative grass cover or to create a more diverse cover of habitats and seral stages. Prescribed fires would benefit open habitat species such as short-nosed kangaroo rat, giant kangaroo rat, San Joaquin kit fox, horned lark, American pipit, mountain plover, and long-billed curlew. Since prescribed fires could be designed to avoid saltbush scrub habitats, the overall diversity of the grassland and saltbush scrubland habitat mosaic would be maintained to benefit a variety of wildlife species.

Prescribed fire pile burns would have negligible impacts to wildlife due to their small size and limited application in the Monument. These projects can often be timed to avoid wildlife reproduction periods or located to avoid important wildlife features.

Livestock Grazing

Livestock grazing would be less frequently applied as a management tool in the vegetation management areas except in high rainfall and abundant nonnative vegetation biomass years. Livestock grazing in the Section 15 allotments would also be less frequent (five of ten years) than in the No Action alternative (eight of ten years). However, the impacts to wildlife would be variable, similar to those described in the No Action alternative, which are described as follows:

Impacts from No Action Alternative (for reference):

Under current management, livestock grazing in the vegetation management areas would likely be reduced to improve native plant composition, based on recent monitoring data analyses (Christian et al., in prep.). Livestock grazing would likely be applied in the important giant kangaroo rat and blunt-nosed leopard lizard areas in extremely wet years of high nonnative biomass production. It is expected that wildlife communities and objects of the Proclamation would continue to remain stable considering the mosaic of vegetation structure across the landscape of the Monument. The annual variation of precipitation results in the greatest changes in habitat structure across the landscape. BLM monitoring data on breeding birds, winter raptors, and small mammals (Germano and Saslaw 1996; Ronan and Rosenberg 2002; BLM 2008b; Sauer et al. 2008; Sauer et al. 1996; White and Ralls 1993) suggest that there are wide annual fluctuations in the abundances from year to year. Wildlife populations may respond to the amount of open ground cover, taller and denser grass, or the amount of herbaceous ground cover. For species requiring shrub structure, fires and episodic recruitment events influence their abundances and distributions. In both grazed and ungrazed pastures and between years of livestock grazing and no livestock grazing, there is variability of species abundances and distributions that appear to be within the natural range of variation for these grassland and shrubland ecosystems. Animal species composition has

varied with changes in annual vegetation structure. In general, all of the species expected to be found in the Monument habitats have been well represented as expected for the climate, vegetation, and landform in the Monument. Vegetation management could result in some distribution and abundance changes over time.

Livestock grazing would create a more open habitat structure that simulates drier years with sparse grass/herbaceous cover. Livestock grazing to reduce excessive residual dry matter would favor open-habitat species like kangaroo rats, whiptail lizard, horned lark, LeConte's thrasher (openings between shrubs), ferruginous hawk, and antelope squirrel. The absence of livestock grazing during wet years and when herbaceous cover accumulates over several years creates greater grass and herbaceous cover and more perches from taller plants. The more closed habitat species like deer mice, harvest mice, California vole, savannah sparrow, grasshopper sparrow, western meadowlark, northern harrier, and short-eared owl, would be more abundant. Shrub-dependent species like sage sparrow, lark sparrow, loggerheaded shrike, California towhee, LeConte's thrasher, desert cottontail, and black-tailed hare, would be fairly abundant where adequate shrub cover exists and other habitat and population factors are favorable (for example, open ground for foraging).

Considering current stocking densities, season of use, mulch management guidelines, and shrub utilization guidelines for the vegetation management areas, the greatest influence of grazing would be in the amount of herbaceous cover, plant composition, and structure. Shrub cover is expected to be maintained at a greater extent since shrub health/impacts would continue to be pasture management indicators/triggers. Through pasture management, shrub recruitment events would not be compromised by livestock grazing activities. Since saltbush seedlings appear in late spring, summer, or early fall, prior to livestock turnout, BLM has the opportunity to not employ grazing management the first year(s) after recruitment. This would be implemented through the annual review of vegetation objectives to assess whether livestock grazing would be conducted. Monitoring of vegetation and grazing effects would feed back into the annual grazing decisions to promote shrub seedling establishment to maintain/improve this component of wildlife habitat.

Livestock grazing at the pasture scale can influence the amount of grass and herbaceous ground cover. Stocking density, duration, and timing could result in a patchy mosaic or an extensive, even grazed pattern. Some areas are grazed more intensively than others, creating openings or reducing habitat cover in a patchy way. Livestock trampling can also affect ground nesting success and cause burrow collapse. Livestock grazing can have variable impacts on small mammal abundance. Monitoring data on giant kangaroo rats in the Monument have reported lower numbers of burrow systems in grazed relative to ungrazed pastures (Christian et al., in prep.). Other studies have shown little differences between grazed and ungrazed study plots in some years (Germano et al. 2006), or higher numbers of small mammal numbers in a grazed plot in high biomass years (Endangered Species Recovery Program 2005). In high precipitation years and in successive years of nonnative plant material accumulation, livestock grazing could be applied at the pasture level to reduce overall herbaceous cover to favor species requiring more open ground structure. This management would be applied primarily in the Panorama Hills-Elkhorn Plain and Carrizo Plain Central subregions.

Grazing also influences nutrient cycling, waste accumulation and deposition, insect habitat in dung, soil moisture, and soil temperature. These factors can modify habitat structure for invertebrates and change their species composition. These factors may subsequently influence the amount of invertebrate food items for some birds and mammals. While the overall effect of this removal of dry plant material is far from simple relative to soil protection, seed germination, and nutrient cycling, it does result in some predictable changes in bird species composition largely resulting in a change in vertical structure and ground cover, and less apparent changes in prey abundance or availability. At the grazing intensities

proposed, there would be a variety of plant cover/soil cover microsites that would favor a diverse invertebrate fauna across the landscape.

Applying the current grazing prescriptions within the vegetation management area would result in minor beneficial impacts to the overall wildlife community. There would be beneficial effects from a grazed habitat structure for some wildlife species while there would be detrimental effects for others. However, using livestock grazing as a tool to treat nonnative grass biomass and provide a mosaic of native habitats and structure in the Monument would have an overall minor beneficial impact to the wildlife communities.

The Section 15 grazing allotments in the Temblor Range, the Caliente Range, and the alluvial fans and drainages in the northern fringe of the Cuyama Valley would continue to provide habitat for native wildlife species under the Standards for Rangeland Health and Caliente RMP guidelines. Livestock grazing in the pastures of the North Temblor allotment has generally occurred annually during the green season of use and would be expected to be authorized when minimum residual dry matter requirements are present. Livestock grazing has been somewhat occasional on the Caliente Range in recent years. While livestock grazing is not applied with the direct intent to manage native wildlife habitats (as in the vegetation management areas), the grazing of forage and biomass would likely continue to maintain suitable habitat structure for native wildlife. Considering the natural mosaic of habitats among soil, landform, precipitation and temperature patterns, and vegetation distributions, most wildlife communities appear to be in a sustainable condition and would be expected to remain so under current livestock management. There would be negligible to major benefits from managing wildlife habitats to meet Rangeland Health Standards in the Section 15 allotments.

Travel Management

The closure and limited designation of roads in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. The restricted vehicle access would have a moderate positive effect, reducing the risk of vehicle strikes and habitat disturbance in the Monument.

Lands and Realty

Under the proposed plan (Alternative 2), acquisition efforts would be directed to those lands with important biological resources, including wildlife habitat. This would have a moderate to major positive effect on the rate and amount of habitat acquired. Acquisition of privately owned habitat would allow BLM to discontinue any detrimental practices and initiate conservation/restoration actions.

4.2.4.3 Impacts under Alternative 1

Impacts on Wildlife from Implementing the Wildlife Program

Under Alternative 1, eliminating artificial water sources would have moderate to major impacts on wildlife that depend on those waters. Most of the Carrizo Plain North, Carrizo Plain South, and Panorama Hills-Elkhorn Plain subregions would become uninhabitable for a number of wildlife species for at least some times during the year. Removing guzzlers in the Temblor Range, and Caliente subregions would have major detrimental effects on upland game birds (California quail, mourning dove, and chukar). The removal of nonnative trees and some human structures would eliminate roosting, nesting, and perching sites for several species of bats and some birds such as the house finch, barn owl, and Say's phoebe.

Impacts on Wildlife from Implementing Other Programs

Vegetation

Weed control by hand or mechanical methods on 10 to 100 acres would have negligible effects on wildlife. Projects would be designed and timed to avoid direct impacts during nesting/reproduction when possible. Important habitat features would be avoided to the maximum extent practicable.

Fire and Fuels Management

MIST in the Caliente WSA and Primitive recreation zone (62,455 acres) would have a variety of impacts on wildlife. Overall, there would be beneficial impacts to wildlife by minimizing habitat disturbance from the construction of dozer control lines or mobile attack. In grassland communities, the fires would likely be larger than if maximum suppression tactics are used. This would have detrimental effects if greater acreage of saltbush plants and stands are consumed and damaged by the fires. In the Carrizo Plain, the Elkhorn Plain, and the foothills and drainages of the Caliente Range and Temblor Range, the effects of wildfire may remove saltbush plants for one to several decades (Germano et al. 2001). Saltbush plants occurring in scattered stands and in denser stringers along drainages and alluvial fans provide important nesting, foraging, thermal, escape, and resting cover for many animals. Larger fires may increase the extent of damage to saltbush scrub habitats and would eliminate these habitat features for wildlife.

Similar impacts would be expected in the areas managed for wilderness characteristics in the Caliente Mountains North, Caliente Foothills North, and Caliente Foothills South subregions since these shrub communities are not considered as fire-adapted and the natural occurrence of fires is not common.

Eliminating the use of prescribed fire would remove opportunities to create habitat mosaics of varied plant communities and seral stages. Wildlife that favor open cover, such as horned larks, American pipits, and mountain plovers would generally find fewer acres of suitable habitat in wetter years when prescribed burns would be conducted. Eliminating prescribed fire would have minor to moderate impact to open habitat species.

Livestock Grazing

Under Alternative 1, the impacts of livestock trampling on ground nesting birds and small mammals and use of vegetation would be eliminated. The impacts would be considered major, but could be detrimental or beneficial, depending on habitat requirements. Much of the landscape within the Monument would favor the closed habitat wildlife species that require greater herbaceous ground cover and taller structure in the winter and spring seasons. For example, the abundance of horned lark, American pipit, and mountain plover would decrease while western meadowlark, savannah sparrow, and red-winged blackbird would increase. The more open habitat species would find fewer acres suitable in many years in the northern regions of the Monument, but most of the Carrizo Plain and Elkhorn Plain subregions would remain more open due to giant kangaroo rat clipping activity. While there would be no change in wildlife habitats and communities in the approximately 27,000 acres of currently ungrazed pastures, the vegetation would likely be much denser in the spring and early summer seasons in wet years than currently occurs in the rest of the Monument. There would be little difference between this alternative and the current management in dry years when livestock grazing has not been employed due to low forage production. The greatest difference from current management would occur in an extremely wet year or after a series of above-average rainfall years when nonnative grass accumulates and nonnative grass and forbs cover the greatest portion of the ground surface. This is most pronounced in the spring and early summer seasons, before giant kangaroo rat clipping and annual plant desiccation and shatter occurs. The extent of closed and open ground cover within the Carrizo Plain, Elkhorn Plain, and foothill regions would depend to a large degree on the extent of giant kangaroo rat populations, which have varied greatly

across the landscape over the past 20 years. If giant kangaroo rat populations are high and their distributions are extensive, then the standing nonnative herbaceous cover would also likely be removed on their precincts and surrounding areas. However, during low population levels and reduced areas of giant kangaroo rat distributions, the landscape could remain covered by persistent nonnative grasses.

The extent of shrub and tree habitats in the Monument is expected to be similar to the current situation. Shrub stands that currently have livestock grazing impacts would have improved structure and vigor. However, the current season of livestock use and other management guidelines authorized in the Monument generally favor the establishment and maintenance of shrub species. Recruitment of new shrub species is also expected to occur. Whether increased ground cover of nonnative persistent grasses would hamper new seedling establishment is not known. The 1991 event of saltbush establishment occurred when the drought of 1989–1991 was ended by the “March miracle” rains that washed considerable saltbush seed from the hills into the alluvial fans of the Monument and San Joaquin Valley. The lack of ground cover and competition from native and nonnative plants probably helped seedling establishment in this event. Without livestock grazing, the amount of open sites for seedling establishment would depend on climatic conditions and perhaps kangaroo rat vegetation removal. However, shrub habitats are expected to remain healthy and widespread at the landscape level. Thus, there would be negligible impacts to shrub-dependent species.

The arid south slopes of the Temblor and Caliente Ranges are not expected to accumulate persistent grass cover in wet years or for a prolonged wet period. Wildlife habitats in these areas would be negligibly affected by the elimination of livestock grazing since few livestock forage in these arid sites and the vegetation remains sparse even in the wettest of years. Brewer’s sparrows, black-throated sparrow, and Scott’s oriole habitats would not likely change under this alternative.

The elimination of livestock grazing would probably result in the elimination of livestock management fences and some waters. The loss of water sources could change the distributions of some species in the Monument would have minor to moderate detrimental effects to some species.

Travel Management

The impacts of closing approximately 80 miles of roads within the Monument would have a minor positive effect on wildlife communities. These dirt roads do not currently serve as barriers to wildlife but are used as travel corridors by some species. Some roads would be altered from an open surface to a vegetated cover. The linear nature and narrow extent of these roads would probably be imperceptible to the adjacent wildlife. Since existing traffic levels are low on the proposed route closures, the difference in human disturbance would likely be minimal. However, the risk of vehicle strikes and disturbance to animals in the closed two-tracks would be eliminated. In addition, with visitation to the Monument likely to increase steadily over the life of the plan, a reduction in the number of routes, or a restriction in their use, could be even more of a benefit to native plants and animals in the future.

Minerals

Impacts would be the same as the No Action Alternative.

Lands and Realty

Impacts would be the same as the No Action Alternative, except that rights-of-way would be reduced.

4.2.4.4 Impacts under Alternative 3

Impacts on Wildlife from Implementing the Wildlife Program

The impacts of this alternative to wildlife would be similar to those described in the proposed plan (Alternative 2). A greater number of artificial water sources would provide minor to moderate benefits to many wildlife species.

Impacts to Wildlife from Implementing Other Programs

Vegetation

Impacts would be the same as the proposed plan (Alternative 2).

Fire and Fuels Management

Although there would be 500 acres treated under this alternative, the impacts would be the same as the proposed plan (Alternative 2).

Livestock Grazing

Impacts would be the same as the impacts in the No Action Alternative.

Travel Management

The impacts to wildlife would be the same as the No Action Alternative.

Lands and Realty

Impacts would be the same as the proposed plan (Alternative 2).

4.2.4.5 Impacts under the No Action Alternative

Impacts on Wildlife from Implementing the Wildlife Program

The current management goal to achieve and maintain sustainable populations of all extant, non-listed native species and provide for the natural expansion and fluctuations of their populations would have major beneficial impacts to wildlife communities in the Monument. This goal implements the basic principles of conservation biology that sustains ecosystem health. The full complement of native species would provide for the complex functions and ecological processes of plant and animal communities and would sustain the processes of energy flow and nutrient cycling. Land health would be sustained, stable, and more resilient to the uncertainties of annual weather patterns and long-term climate change.

Reintroduction or augmentation of native animals into the Monument would have minor to moderate benefits to the overall wildlife communities by helping to achieve and maintain a robust assemblage of native animals that are appropriate for the species distributions and Monument habitats. A specific screening and decision process (Appendix O, Standard Operating Procedures) is in place to evaluate the appropriateness of each reintroduction or augmentation. The process is expected to avoid impacts inconsistent with Monument objectives and would support the overall ecological health of the plant and animals communities in the Monument.

Impacts on Wildlife from Implementing Other Programs

Vegetation

The current Monument objectives to increase the importance of native species in Monument communities provide for all transitional states of native communities through the natural range of disturbances (for example, fire, non-wildlife grazing, climatic events), and maintain shrub-scrub communities that would have major beneficial impacts to wildlife communities across the Monument in the short and long term. It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species and the control of exotic species and noxious weeds would provide high quality habitat for wildlife within the Monument.

Fire and Fuels Management

Since the effects of fire on altering vegetation and habitat for wildlife depends on the food and cover requirements of a particular species, the effects of wildfire can be beneficial or negative. In the Carrizo Plain itself, the Panorama Hills-Elkhorn Plain area, the Temblor Range, and the southern base of the Caliente Mountain, the protection of saltbush shrub and scrub plants is important to many of the biological objects of the Proclamation and wildlife species that depend on the shrubs for nesting, escape, and thermal cover. Since common saltbush and spiny saltbush are easily killed by fire and may require a decade or more to become reestablished after a fire, suppression activities that minimize the amount of fire damage to these communities are important to species such as western whiptail, Heermann's kangaroo rat, desert cottontail, pronghorn, sage sparrow, white-crowned sparrow, lark sparrow, house finch, LeConte's thrasher, and loggerhead shrike. Wildfires in these subregions are often suppressed with "mobile attack" tactics (driving fire engines along the edge of the burn to apply water) that have negligible effects to habitat. Although dozer firelines would occasionally be constructed to contain wildfires in the valley bottom of the Monument, the impacts to habitat are generally absent within 2 to 4 years and can be considered minor. However, large wildfires that eliminate saltbush for 1 or more decades would have moderate to major impacts to the wildlife community.

The upper Sonoran subshrub scrub, interior Coast Range saltbush scrub, juniper woodlands, juniper oak woodlands, and Diablan sage scrub plant communities are generally not fire-adapted. This wildlife habitat provides a complex structure of trees and shrubs that provide a wide variety of cover for wildlife. Wildfire in these communities would remove many of these trees and shrubs for many years, converting the sites to grassland. Fire suppression would limit the size of fires in these regions and would benefit animals that depend on the tree and shrub structure. A large portion of the area is within the Caliente WSA or in terrain where Minimum Impact Suppression Tactics (MIST) would be applied. Such tactics and management to suppress wildfires in these areas would have moderate to major beneficial effects to wildlife.

The application of prescribed fire would have moderate to major benefits to wildlife communities since specific wildlife objectives would be incorporated into project design and implementation. Prescribed fire would be applied to control nonnative grass cover or to create a more diverse cover of habitats and seral stages. Prescribed fires would benefit open habitat species such as short-nosed kangaroo rat, giant kangaroo rat, San Joaquin kit fox, horned lark, American pipit, mountain plover, and long-billed curlew. Since prescribed fires could be designed to avoid saltbush scrub habitats, the overall diversity of the grassland and saltbush scrubland habitat mosaic would be maintained to benefit a variety of wildlife species.

Prescribed fire pile burns would have negligible impacts to wildlife due to their small size and limited application in the Monument. These projects can often be timed to avoid wildlife reproduction periods or located to avoid important wildlife features.

Soils

Actions to remediate soil erosion problems and manage livestock grazing to maintain soil in proper functioning condition would have major beneficial impacts to wildlife resources and special status animals. Maintenance of healthy soils would maintain or improve habitat conditions over the long term.

Water

Protection or enhancement of springs, water sources, and drainages would have negligible to moderate beneficial impacts to wildlife resources and special status animals. Water sources are considered critical habitat features that can determine animal distributions and abundance within the Monument. Actions, such as fencing spring sources from livestock trampling and vegetation use, would create or maintain a diverse habitat structure for a variety of wildlife species. The more diverse herbaceous and shrub layers create more soil litter, nesting sites, food resources, and cover opportunities for wildlife. The presence of natural surface water or water provided at troughs would provide important habitat resources, especially considering the arid climate and limited water sources in the Monument. Protective fencing would be designed and constructed using SOPs to minimize or avoid negative impacts to wildlife. Special consideration would be given to enhance pronghorn water sources while minimizing fencing impacts.

Livestock Grazing

Under current management, livestock grazing in the vegetation management areas would likely be reduced to improve native plant composition, based on recent monitoring data analyses (Christian et al., in prep.). Livestock grazing would likely be applied in the important giant kangaroo rat and blunt-nosed leopard lizard areas in extremely wet years of high nonnative biomass production. It is expected that wildlife communities and objects of the Proclamation would continue to remain stable considering the mosaic of vegetation structure across the landscape of the Monument. The annual variation of precipitation results in the greatest changes in habitat structure across the landscape. BLM monitoring data on breeding birds, winter raptors, and small mammals (Germano and Saslaw 1996; Ronan and Rosenberg 2002; BLM 2008b; Sauer et al. 2008; Sauer et al. 1996; White and Ralls 1993) suggest that there are wide annual fluctuations in the abundances from year to year. Wildlife populations may respond to the amount of open ground cover, taller and denser grass, or the amount of herbaceous ground cover. For species requiring shrub structure, fires and episodic recruitment events influence their abundances and distributions. In both grazed and ungrazed pastures and between years of livestock grazing and no livestock grazing, there is variability of species abundances and distributions that appear to be within the natural range of variation for these grassland and shrubland ecosystems. Animal species composition has varied with changes in annual vegetation structure. In general, all of the species expected to be found in the Monument habitats have been well represented as expected for the climate, vegetation, and landform in the Monument. Vegetation management could result in some distribution and abundance changes over time.

Livestock grazing would create a more open habitat structure that simulates drier years with sparse grass/herbaceous cover. Livestock grazing to reduce excessive residual dry matter would favor open-habitat species like kangaroo rats, whiptail lizard, horned lark, LeConte's thrasher (openings between shrubs), ferruginous hawk, and antelope squirrel. The absence of livestock grazing during wet years and when herbaceous cover accumulates over several years creates greater grass and herbaceous cover and more perches from taller plants. The more closed habitat species like deer mice, harvest mice, California vole, savannah sparrow, grasshopper sparrow, western meadowlark, northern harrier, and short-eared owl, would be more abundant. Shrub-dependent species like sage sparrow, lark sparrow, loggerheaded shrike, California towhee, LeConte's thrasher, desert cottontail, and black-tailed hare, would be fairly abundant

where adequate shrub cover exists and other habitat and population factors are favorable (for example, open ground for foraging).

Considering current stocking densities, season of use, mulch management guidelines, and shrub utilization guidelines for the vegetation management areas, the greatest influence of grazing would be in the amount of herbaceous cover, plant composition, and structure. Shrub cover is expected to be maintained at a greater extent since shrub health/impacts would continue to be pasture management indicators/triggers. Through pasture management, shrub recruitment events would not be compromised by livestock grazing activities. Since saltbush seedlings appear in late spring, summer, or early fall, prior to livestock turnout, BLM has the opportunity to not employ grazing management the first year(s) after recruitment. This would be implemented through the annual review of vegetation objectives to assess whether livestock grazing would be conducted. Monitoring of vegetation and grazing effects would feed back into the annual grazing decisions to promote shrub seedling establishment to maintain/improve this component of wildlife habitat.

Livestock grazing at the pasture scale can influence the amount of grass and herbaceous ground cover. Stocking density, duration, and timing could result in a patchy mosaic or an extensive, even grazed pattern. Some areas are grazed more intensively than others, creating openings or reducing habitat cover in a patchy way. Livestock trampling can also affect ground nesting success and cause burrow collapse. Livestock grazing can have variable impacts on small mammal abundance. Monitoring data on giant kangaroo rats in the Monument have reported lower numbers of burrow systems in grazed relative to ungrazed pastures (Christian et al., in prep.). Other studies have shown little differences between grazed and ungrazed study plots in some years (Germano et al. 2006), or higher numbers of small mammal numbers in a grazed plot in high biomass years (Endangered Species Recovery Program 2005). In high precipitation years and in successive years of nonnative plant material accumulation, livestock grazing could be applied at the pasture level to reduce overall herbaceous cover to favor species requiring more open ground structure. This management would be applied primarily in the Panorama Hills-Elkhorn Plain and Carrizo Plain Central subregions.

Grazing also influences nutrient cycling, waste accumulation and deposition, insect habitat in dung, soil moisture, and soil temperature. These factors can modify habitat structure for invertebrates and change their species composition. These factors may subsequently influence the amount of invertebrate food items for some birds and mammals. While the overall effect of this removal of dry plant material is far from simple relative to soil protection, seed germination, and nutrient cycling, it does result in some predictable changes in bird species composition largely resulting in a change in vertical structure and ground cover, and less apparent changes in prey abundance or availability. At the grazing intensities proposed, there would be a variety of plant cover/soil cover microsites that would favor a diverse invertebrate fauna across the landscape.

Applying the current grazing prescriptions within the vegetation management area would result in minor beneficial impacts to the overall wildlife community. There would be beneficial effects from a grazed habitat structure for some wildlife species while there would be detrimental effects for others. However, using livestock grazing as a tool to treat nonnative grass biomass and provide a mosaic of native habitats and structure in the Monument would have an overall minor beneficial impact to the wildlife communities.

The Section 15 grazing allotments in the Temblor Range, the Caliente Range, and the alluvial fans and drainages in the northern fringe of the Cuyama Valley would continue to provide habitat for native wildlife species under the Standards for Rangeland Health and Caliente RMP guidelines. Livestock grazing in the pastures of the North Temblor allotment has generally occurred annually during the green season of use and would be expected to be authorized when minimum residual dry matter requirements

are present. Livestock grazing has been somewhat occasional on the Caliente Range in recent years. While livestock grazing is not applied with the direct intent to manage native wildlife habitats (as in the vegetation management areas), the grazing of forage and biomass would likely continue to maintain suitable habitat structure for native wildlife. Considering the natural mosaic of habitats among soil, landform, precipitation and temperature patterns, and vegetation distributions, most wildlife communities appear to be in a sustainable condition and would be expected to remain so under current livestock management. There would be negligible to major benefits from managing wildlife habitats to meet Rangeland Health Standards in the Section 15 allotments.

Travel Management

There would be negligible anticipated effects to wildlife communities from the current road management system. Vehicle strikes primarily occur along Soda Lake Road where vehicles often travel at highway speeds, but other strikes have occurred on BLM maintained and un-maintained two-track roads. However, visitor and administrative use of roads is uncommon on most routes and vehicle strikes are relatively rare events. The presence of roads in grassland and shrub-scrub habitats is not considered to cause habitat fragmentation or act as barriers within habitats. Roads are commonly used as travel ways by reptiles and small mammals and as foraging areas by many wildlife species. The road network provides reasonable access to maintain existing wildlife habitat features such as guzzlers, water troughs, and springs.

Minerals

There would be negligible to moderate impacts from energy mineral exploration and development in the Monument.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. Geophysical activities would have a transient impact on 115 acres through cross country travel and shot hole drilling. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, and avoid wildlife features to the greatest extent practicable. Construction activities would result in a loss of animals directly within the footprint with some disruption to animals directly adjacent to the well locations. Animals adjacent to the construction footprint may wander onto the edge of the construction area and may be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations when nighttime activities and lighting occur. Drilling activities typically last up to 20 days per well. Once a well is drilled, few, if any, nighttime activities would occur.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by wildlife within several months.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes

slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

In the Russell Ranch oilfield, there would be 6.5 acres of new disturbance. There would be 3.5 acres disturbed from new well pads and 3 acres from new roads. Geophysical activities would impact 25 acres through cross-country travel and shot hole drilling. BLM SOPs would minimize project impacts and avoid wildlife habitat features as described above.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing avoidance requirements would have negligible to minor impacts to most wildlife. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than 10 feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. The detonation of the charges is perceptible to humans within 200 feet of a shot hole and some surface movement can be observed at the shot point. It is possible that the shot hole detonations and testing vibrations may have deleterious effects on burrowing animals.

Lands and Realty

The acquisition of private inholdings would have minor to major beneficial impacts to wildlife depending on the size of the acquisitions, the habitat types, the presence of habitat features, and land uses under private ownership. The protection afforded by BLM ownership under the Monument Proclamation would provide long-term benefits to wildlife.

Authorization of rights-of-way, permits, or other realty actions would have negligible to minor impacts to wildlife considering the existing plan objectives and Monument Proclamation. SOPs would be applied to minimize impacts to wildlife and site-specific avoidance measures would be implemented to the greatest extent practicable (for example, maintaining unobstructed flight paths for raptors and condors).

4.2.5 Special Status Animals

4.2.5.1 Giant Kangaroo Rat

Impacts to the Giant Kangaroo Rat Common to All Action Alternatives

Impacts to the Giant Kangaroo Rat from Implementing the Wildlife Program

The wildlife management goals to manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, rare natural communities, and conservation of the regional landscape would have major beneficial impacts to the conservation and recovery of the giant kangaroo rat.

There would be major beneficial impacts to giant kangaroo rats by implementing the specific objectives to:

- identify core geographic areas for endangered species population management and recovery;
- give endangered species habitat primary management priority in the core areas;
- maintain and enhance viable populations within core areas; and

- allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values).

The designation and management of the three listed species core areas (Map 3-2) on 29,800 acres of BLM lands (22 percent of the giant kangaroo rat habitat in the Monument) would maintain giant kangaroo rat populations within the Monument in the long term. The management of the core areas applies a strategy of effective habitat management to improve habitat conditions when necessary. In most years the amount of grass and herbaceous vegetation is in balance between providing seeds and green forage and a structure of low, patchy vegetation and bare ground favored by kangaroo rats. When rainfall is below or near the annual average, the amount of native annuals and nonnative grasses and herbs is fairly low and provides these conditions. However, when rainfall exceeds the average for several successive years or when the annual rainfall is far above the average, there is exceptionally high production of the annual native and nonnative vegetation. While most of the native annual flora in the Monument is small herbs and wispy-like grasses, the nonnative grasses (primarily red brome, riggut brome, soft chess, foxtail barley, and wild oats) are more dense and persistent. The nonnative filaree can also cover a high percentage of the ground, and can be quite dense in the winter and spring seasons. However, it dries during the spring and shatters quite easily as summer progresses. Management of the core areas would trigger vegetation treatments by applying livestock grazing or prescribed fire to reduce the amount of persistent nonnative grasses. Since giant kangaroo rats can generally affect the amount of herbaceous vegetation when they are abundant, the strategy includes a provision to apply vegetation treatment when the amount of annual vegetation (primarily nonnative grasses) exceeds 1,600 pounds per acre and when giant kangaroo rat population are at exceptionally low levels of fewer than 20 per hectare (8 per acre).

It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire or livestock grazing to improve habitat conditions that may threaten giant kangaroo rat populations. It is unknown if low populations of giant kangaroo rats always coincide with periods of high grass production; however, based on the last such period when monitored populations declined (D.J. Germano and L.R. Saslaw, personal observation, 2007) and found to be mostly absent in the CPNM (Christian et al., in prep), it is prudent to target the nonnative grasses or excessive biomass for vegetation treatment.

Portions of the core areas would be managed for blunt-nosed leopard lizards, which require a more open vegetation structure. The vegetation treatment would be the same level of residual dry matter as prescribed for giant kangaroo rats (500 to 1,000 pounds per acre), but would likely be required five years in ten since the threshold for treatment is at 1,000 pounds per acre rather than 1,600 pounds per acre. This more frequent treatment is expected to have negligible detrimental to moderate beneficial impacts to giant kangaroo rats. Grazing at the 500 to 1,000 pound per acre range is compatible with the habitat requirements of this species, but there may be some negative impacts from trampling and burrow collapse.

The core areas were selected because they had consistently high populations in most years, appeared to have good long-term habitat quality, and were of a size that could be affected by fire or livestock grazing. The strategy is to have these areas as “safety nets” where there is a high likelihood that the vegetation can be reduced by fire or grazing when needed.

Giant kangaroo rat populations would likely fluctuate in a manner observed in monitoring studies conducted from 1985 through 2008. In most years, giant kangaroo rat populations would be fairly

abundant across the landscape in Elkhorn Plain and central portion of the Carrizo Plain, with or without livestock grazing or prescribed fires to manage vegetation. Vegetation structure would be at a density that would not inhibit giant kangaroo rat populations. It is expected that during periods of prolonged drought, populations would decline to low numbers (Endangered Species Recovery Program 2005) with scattered individuals or small colonies that would serve as “founders” to repopulate the landscape when more favorable conditions return. In periods of extremely high precipitation and high biomass of persistent nonnative vegetation, the application of vegetation management (when biomass exceeds 1,600 pounds/acre) to reduce the amount of residual dry matter to around 500 to 1,000 pounds per acre in the core areas would create suitable habitat conditions to curtail widespread declines where the treatments occur. While this approach would focus habitat management on 22 percent of the giant kangaroo rat habitat in the Monument, it would likely avoid landscape-scale population and distribution declines similar to those observed during the 1994 to 2000 period. This is expected to reduce the risk of localized and/or more extensive short-term extirpations of giant kangaroo rats across the Monument during unfavorable wet, grassy periods. Thus, giant kangaroo rat populations would be maintained, at least in the core areas, in all but prolonged periods of drought. The persistence of these animals in the core areas would help repopulate giant kangaroo rats into the adjacent non-core areas as well.

The wildlife management objectives that enhance or maintain the variety of animals within the Monument are likely to benefit giant kangaroo rats throughout the life of the plan. For example, the management of low habitat structure for mountain plovers in upland areas outside of the core areas will provide suitable habitat for giant kangaroo rats. Fencing and signing projects would be implemented to avoid burrows and take of kangaroo rats and thus would have negligible effects. Areas that would be removed from livestock grazing to protect vernal pools, washes with Sphinx moths, or riparian habitats would be relatively small in size and would not affect giant kangaroo rats in most years. These areas would not usually occur in core areas and would be compatible with giant kangaroo rat objectives outside of the core areas.

Research and monitoring activities that address habitat quality and ecology of giant kangaroo rats and associated listed and non-listed species would have a long-term moderate to major benefit to this species. Any take or project effects would be authorized under state and federal permitting requirements and would be evaluated and mitigated in project-specific environmental analyses.

Management for a diversity of wildlife habitats would have a moderate to major benefit to giant kangaroo rats in those areas where there is an objective to create a low structure of vegetation. Since the overall objective is to create a diversity of habitat structure within the Monument, a substantial portion of the Monument would be managed to benefit this species in the core areas. The creation and maintenance of a mosaic of grassland and shrubland habitats would likely maintain giant kangaroo rats across the Monument landscape. Population monitoring and AM would indicate habitat management prescriptions to help meet population and distribution objectives.

Impacts to the Giant Kangaroo Rat from Implementing Other Programs

Under all action alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on giant kangaroo rat populations: Air Quality, Soils, Water Resources, Geology and Paleontology, and Visual Resources.

Fire and Fuels Management. Fire suppression activities may disturb habitat along fire control lines, at staging areas, in retardant drops, and in cross-country travel. Burrows may be crushed, animals entombed, and vehicle strikes may occur. In grassland habitats the suppression activities are usually kept to the least amount of disturbance needed to control the fire with mobile attack, retardant, or a single dozer line. These impacts are temporary in duration and are usually revegetated naturally by annual plants within one to three years. Kangaroo rats often reoccupy the disturbed sites immediately following the suppression

activities. Restoration of firelines may occur with native plant seedings, which would have negligible impacts similar to those described for restoration activities. Fire control impacts a very small amount of habitat in the landscape and would not affect animals at the population level. Fire suppression would have negligible benefits to giant kangaroo rats since saltbush is only marginally associated with this species. Scattered saltbush or linear stands along drainages are important habitat features for other species and would be given high priority for protection during fire suppression activities. However, wildfire can open dense saltbush scrub stands creating habitat more favorable for giant kangaroo rats.

Cultural Resources. Habitat disturbance associated with protection, movement, or removal of historic farming equipment or buildings and construction of barriers, boardwalks, or interpretive panels would result in negligible impacts to giant kangaroo rats inhabiting the sites. Activities may cause the collapse and entombment of animals and vehicles strikes may occur. Cultural resource excavations and site facilities may remove habitat for a short period of time. However, implementation of SOP avoidance criteria or the capture, holding, and release of giant kangaroo rats from within project footprints would be implemented to minimize project impacts.

Livestock Grazing. Livestock grazing would be conducted to meet the Standards for Rangeland Health so that “viable, healthy, productive, and diverse populations of native and desired species, including special status species, are maintained or enhanced, where appropriate.” Since the Monument management objectives place high priority on the conservation and recovery of special status species, livestock grazing management prescriptions and decisions would be designed and administered to meet this standard. There would be negligible to major beneficial impacts to giant kangaroo rats, depending on habitat conditions, grazing permit terms and conditions, and the need to apply vegetation management prescriptions.

Recreation. The placement of informational signs and the development of potable water at dispersed camping sites and at existing campgrounds would have negligible impacts on giant kangaroo rats. There could be some instances where these projects would occur in giant kangaroo rat habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect giant kangaroo rats at the population level. The indirect effects of greater recreational activities near upgraded water sources would have a wider area of human impacts on giant kangaroo rat habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The expansion of the visitor center would have negligible localized impacts on individual animals inhabiting the site. However, mitigation measures would be implemented to minimize take and efforts would be made to move these animals into adjacent habitat around the visitor center, if warranted. There would be benefits to listed species through improved visitor and environmental education opportunities at the center, which may help implement conservation and recovery of the CPNM species.

Minerals. The impacts would be the same as in the No Action Alternative, as follows:

Impacts from No Action Alternative (for reference):

Potential impacts to giant kangaroo rats include direct mortality, loss of burrow systems, loss or alteration of habitat, and harassment. The construction and maintenance of well pads, access roads, pipelines, and other oil field structures may trap or bury kangaroo rats in their burrows. Kangaroo rats can also drown or become entrapped in spilled oil or tarry substances. Kangaroo rats may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. Geophysical activities would have a transient impact on 115 acres through cross country travel and shothole drilling. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads

would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. Although BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, and avoid giant kangaroo rats burrows and minimize take to the greatest extent practicable, the density of giant kangaroo rats in many areas of the Monument would still result in the loss of some burrows. However, mitigation measures that require the capture and release of animals trapped from within and directly adjacent to the construction footprint would be implemented. These animals would be moved from the construction area into suitable habitat where there are few existing giant kangaroo rats (to minimize potential competition). These measures have been implemented in western Kern County on several oil well projects with over 60% known survivorship of transplanted individuals (BLM 2008c). While the fate of 40 percent of the transplanted animals was unknown, the measure is implemented to reduce the direct mortality of individual kangaroo rats within a project construction footprint and would likely contribute to maintaining the overall population in the Monument.

Construction activities would result in a loss of animals directly within the footprint with some disruption to animals directly adjacent to the well locations. Animals adjacent to the construction footprint may wander onto the edge of the construction area and may be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations when nighttime activities and lighting occur. Drilling activities typically last up to 20 days per well. Once a well is drilled, few, if any, nighttime activities would occur.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately. In a study in western Kern County, lagomorphs appeared to use reclaimed sites almost immediately and a similar pattern was observed for rodents (kangaroo rats, southern grasshopper mouse, San Joaquin pocket mouse, and deer mouse) (Hinshaw et al. 1999).

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

This activity is located within a core management area and the Carrizo Plain population is important for the conservation and recovery of the species. However, oil development activities on 30 acres of the valley floor would have minor to moderate impacts to the local and Monument-wide populations of giant kangaroo rats considering the application of take avoidance measures, their extensive distributions (over approximately 116,000 acres), and the high density (up to 16 per acre) of giant kangaroo rats within the central and southern portions of the CPNM.

In the Russell Ranch oilfield, there would be 6.5 acres of new disturbance. There would be 3.5 acres disturbed from new well pads and 3 acres from new roads. Geophysical activities would impact 25 acres through cross-country travel and shot hole drilling. Giant kangaroo rats are not abundant in this area, and impacts would be avoided (and thus negligible) by implementing buffer zone requirements. This disturbance of 6.5 acres would not impact or would have negligible impacts to giant kangaroo rats with implementation of avoidance criteria.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing 50-foot buffer avoidance requirements would have minor to moderate impacts on giant kangaroo rats at the site-specific level. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than 10 feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. The detonation of the charges is perceptible to humans within 200 feet of a shot hole and some surface movement can be observed at the shot point. It is possible that the shot hole detonations and testing vibrations may have deleterious effects on these animals that use foot drumming in communication and hearing in predator avoidance. However, the effects of seismic testing noise on the kangaroo rat hearing are unknown. Biologists accompanying seismic crews have not reported animals exiting burrows after detonation, but specific monitoring of giant kangaroo rat activity response to shot hole drilling and detonations has not been conducted to date. Monitoring studies on geophysical projects in western Kern County surveyed with vibroseis and shot hole source methods reported a decline in the number of burrows within vibroseis corridors 90 days and 1 year following surveys compared to adjacent sample areas. However, there was a substantial increase in new burrows along the routes when they were resampled one year later (Tabor and Thomas 2002). Following vibroseis activities, small mammal burrows are commonly seen within disturbed soils from vehicle travel and vibroseis pad placement (digging into the side of the depressions). However, vibroseis source point generation would only occur on existing roads in the Monument. Recent testing of both vibroseis and shot-hole detonations on giant kangaroo rats numbers did not provide evidence of an adverse impact associated with seismic survey energy sources (Feihler and Cypher 2009).

Impacts to the Giant Kangaroo Rat under the Proposed Plan (Alternative 2)

Impacts to the Giant Kangaroo Rat from Implementing the Wildlife Program

Management of the non-core areas to maintain populations of giant kangaroo rats would have moderate to major beneficial impacts to giant kangaroo rats. The application of livestock grazing and prescribed fire as vegetation management tools would provide options to apply effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would be the same as described in Alternative 1, as below:

Impacts under Alternative 1 (for reference):

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to giant kangaroo rats. Pronghorn fawning habitat is best when vegetation height is between 15 and 25 inches tall over up to 80 percent of the fawning area. This structure is too high and thick for suitable giant kangaroo rat habitat. While giant kangaroo rats would be scattered in low numbers in the Carrizo Plain North and Caliente Foothill North subregions, these areas would be considered marginal habitat and giant kangaroo rat populations and distributions would likely be at low numbers when tall/abundant vegetation is present. The removal of water troughs would not affect giant kangaroo rats. The removal of fences would remove artificial perches used by raptors to hunt these animals. The overall impacts of managing pronghorn and tule elk habitat in these two subregions would have negligible impacts to giant kangaroo rats. However,

this is similar to the existing situation, and overall giant kangaroo rat populations within the Monument would be maintained in the core and non-core areas to the south.

Impacts to the Giant Kangaroo Rat from Implementing Other Programs

Under the proposed plan (Alternative 2), with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on giant kangaroo rat populations: Cultural Resources and Recreation.

Vegetation. Restoration activities to reintroduce native plants into previously cultivated farm fields or in habitats with a low proportion of native plant species would have minor impacts on giant kangaroo rats. The use of a tractor-pulled range drill/seeders may run over and collapse giant kangaroo rat burrows. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Where burrows are scattered, they are easily avoided if collapse is observed to occur. Strip seeding, leaving large areas untreated, would be used in more densely populated giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, or other special status animal species habitats if avoidance is warranted. The long-term improvement in native plant community composition would have minor to moderate benefit to giant kangaroo rats with a more diverse array of plant foods, seeds, and cover.

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off-road travel) could disturb habitat, crush vegetation, collapse burrows, entomb animals, or result in vehicle strikes. The activities would be kept to a minimum and the effects to giant kangaroo rats would be negligible.

Prescribed fire would have moderate to major benefits to managing vegetation to maintain giant kangaroo rat populations in high biomass years, as described in the No Action Alternative, reprinted below:

Impacts under the No Action Alternative (for reference):

The use of prescribed fire on 30,000 acres within the Monument would have moderate to major benefit to giant kangaroo rat populations in most circumstances. Monitoring studies of a prescribed fire in the West Well pasture from 1993 to 1996 indicated that giant kangaroo rats persisted longer in the burned than in the unburned plots during a large-scale population decline (Germano and Saslaw 1996). Similar monitoring of a burn in 1993 in the Lokern Area in western Kern County showed that Heermann's and short-nosed kangaroo rats also persisted in burned areas while animals were no longer captured in the grassy, unburned paired trap lines. Direct mortality to three giant kangaroo rats, presumably from smoke inhalation, was observed at the West Well site. However, this was an extremely low percentage of the total number of kangaroo rats in the burn area, and the population was maintained following the burn.

Prescribed fire could be used in the core areas and adjacent non-core areas if needed to improve or maintain habitat conditions for giant kangaroo rats. If additional treatment outside of the core areas is needed, it would most likely be applied in the non-core areas that are adjacent to the core areas shown in Map 3-2. However, the non-core areas that may be treated could be different, varying with changes over time in habitat conditions, giant kangaroo rat distributions, and management prescriptions.

Mowing vegetation may cause burrow collapse, entombment, and vehicle strikes. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. The 350 acres to be mowed is a very small portion of the landscape and thus the effects to giant kangaroo rat populations

would be negligible. Mowing would reduce the thick cover along travel routes, allowing better visibility for animals to avoid vehicles and for motorists to see animals and avoid striking them.

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill animals in the direct heat of the burn. However, burrows and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. The impact to a small amount of acreage would have negligible effects on giant kangaroo rat populations. The 1,000 acres of prescribed burns and 5 miles of dozer line would have impacts similar to those described for wildfire (see Impacts Common to All Action Alternatives), but the damage to saltbush plants may be avoided by placement of fire control lines and by excluding saltbush from within the burn area. Prescribed fire has been observed to maintain a more open habitat structure favorable to giant kangaroo rats. The burn effects usually last between 3 to 5 years, depending on subsequent annual rainfall. Although there would be some direct mortality to a low percentage of kangaroo rats within the burn areas, the overall effect would be positive at the population level. While there would be a loss of saltbush shrubs in the burn areas, this would have negligible effects on giant kangaroo rat populations within the post-burn areas.

Livestock Grazing. Under the proposed plan, livestock grazing may be occasionally applied in the core areas and adjacent non-core areas to maintain habitat conditions for giant kangaroo rats so that they would not disappear from the Monument. Based on objectives and management prescriptions described in the Conservation Target Table, vegetation management would only be applied when there are low numbers of giant kangaroo rats and biomass is in excess of 1,600 pounds per acre. It is estimated that excessive amounts of standing vegetation biomass may occur in high rainfall periods on average about two years in ten. During these conditions, livestock grazing may be applied to reduce high amounts of standing biomass to improve habitat conditions for giant kangaroo rats. When such conditions occur, approximately 58,000 acres (44 percent of the giant kangaroo rat habitat in the Monument) would be potentially treated in pastures that contain the core areas. If additional treatment is needed, it would be applied based on the Decision Tree for Management of San Joaquin Valley Target Species in Non-Core Areas (Figure 2.4-1). Vegetation treatment in the non-core areas would most likely be applied in habitats directly adjacent to the core areas as identified in Map 4-1. Under this scenario, approximately 29,000 acres (22 percent of the giant kangaroo rat habitat in the Monument) may be treated with livestock grazing (in addition to the core areas) in pastures that contain the adjacent non-core areas. A total of 66 percent of the giant kangaroo rat habitat in the Valley floor portion of the Monument could be treated if necessary. However, the non-core areas that may be treated could be different than those identified in Map 4-1 if habitat conditions, giant kangaroo rat distributions, and management prescriptions change over time.

The impacts of livestock grazing in the vegetation management areas under this alternative would be the same as those described in the No Action Alternative, as described below:

Impacts under the No Action Alternative (for reference):

Livestock grazing may help maintain favorable habitat conditions for giant kangaroo rats in periods of extremely high standing vegetation biomass, but there may be negative impacts when livestock grazing occurs in more average rainfall and vegetation production years. Monitoring data and research on this kangaroo rat and other kangaroo rats species indicate that wet years and dense persistent vegetation (both herbaceous and shrubs) correlates with lower populations and reduced distributions. In general, the abundance of giant kangaroo rats increases as grass and forb cover decreases (Williams and Kilburn 1991; Rowland and Turner 1964; USFWS 1998; Cypher 2001; Germano et al. 2001; Waser and Ayers 2003; BLM 2007). In most years of average to below average rainfall and vegetation biomass production, giant kangaroo rats are able to clip down the herbaceous vegetation to meet their habitat needs and livestock grazing would not be necessary or desirable. However, in years of excessive herbaceous

production they may not be able to create suitable open habitat and population declines may occur. Extremely wet periods and high residual dry matter levels have coincided with regional declines of kangaroo rats in the southern San Joaquin Valley and the Monument (Single et al. 1996; Germano et al. 2001). Whether the cause(s) of the declines are spoilage of seeds, excessive fungal growth and lethal mycotoxins, wetness and respiratory problems, or greater predation rates due to reduced visibility and impeded escape through the grasses is not fully understood (Germano et al. 2001; Waser and Ayers 2003). Recent studies in the Southern San Joaquin Valley have indicated that when there are low amounts of standing biomass, kangaroo rats are more abundant in the open habitats (Goldingay et al. 1997; Cypher 2001; Germano et al. 2006; ESRP 2005; Germano and Saslaw 1996). It is not clear whether thick grass structure or high moisture resulting from high rainfall is the cause of lower kangaroo rat populations. However, since excessively high grass and herbaceous vegetation can be manipulated by livestock grazing, vegetation management by grazing may be helpful in reducing precipitous declines in greater-than-average rainfall years.

There is some level of uncertainty whether livestock grazing would successfully maintain giant kangaroo rat habitat and populations. Recent monitoring studies in the Monument between 1997 and 2003 indicated that there were lower numbers of active giant kangaroo rat precincts counted in grazed pastures relative to ungrazed pastures in the six years of data analysis (Christian et al, in prep). These data included both the extremely wet El Niño year of 1998 and subsequent low precipitation year of 2002. This study started in 1997 when giant kangaroo rats were at extremely low populations. Monitoring indicated that, overall, active burrow systems increased by nearly 50% and burrow distributions increased from 21% to 35% of the study locations. Increases occurred on both grazed and ungrazed pastures, but there was a statistically lower number of kangaroo rat precincts in the grazed pastures. In contrast to this study, giant kangaroo rat studies on the Elkhorn Plain Ecological Reserve between 1987 and 2005 showed similar numbers of giant kangaroo rats captured on a pair of grazed and ungrazed study plots in most years. However, in the record high rainfall year of 1998 (El Niño), giant kangaroo rats were over four times more abundant in the grazed pasture than in the ungrazed Reserve (Endangered Species Recovery Program 2005). In 1999, they were nearly twice as many animals in the grazed pasture. Observations of giant kangaroo rat distributions on the Monument in the 1998 El Niño year indicated an apparent absence of giant kangaroo rats in most of the Carrizo Plain, but active precincts were apparent in an obviously grazed pasture in the Panorama Hills area. Livestock grazing studies have not been conclusive, but the application of livestock grazing to reduce vegetation biomass to provide more favorable habitat structure appears to have good management potential. Since there appears to be a negative correlation of high vegetation biomass on giant kangaroo rat populations, reducing the amount of standing biomass through livestock grazing may be a prudent course of action to reduce population declines. While livestock trampling of burrow systems has been observed in some soil types, the general improvement of habitat conditions would likely outweigh these effects (Germano et al. 2001).

Livestock grazing in the vegetation management area of the Carrizo Plain and Elkhorn Plain would have moderate to major beneficial impacts to maintain giant kangaroo rat populations on the Monument in wet rainfall years with high nonnative vegetation biomass. Livestock grazing would have minor to moderate negative effects to giant kangaroo rat populations in years that do not have high rainfall and thick nonnative grass/herbaceous structure.

Livestock grazing under current management in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and the Sulphur Canyon allotment would likely occur in eight of ten years. The impacts would be beneficial in wet years when management may be needed to reduce high amounts of standing vegetation biomass. The more frequent grazing may have negative effects to giant kangaroo rat populations in some years. Monitoring data from the Monument (Christian et al., in prep.) indicated lower numbers of precincts in grazed pastures relative to ungrazed pastures. Thus, there may be moderate to major beneficial impacts to maintaining giant

kangaroo rats in these areas in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass.

Application of the Conservation Target Table would refine management prescriptions to maintain suitable giant kangaroo rat habitat and viable populations. Thus, livestock grazing in the vegetation management areas would have moderate to major beneficial impacts to maintain giant kangaroo rat populations on the Monument.

Livestock grazing in the Section 15 Recruit, South Anderson, South Selby, and Sulphur Canyon pastures under current management would likely occur in five of ten years. The impacts would be the same as described in the No Action Alternative (see below)

Impacts under the No Action Alternative (for reference):

Livestock grazing under current management in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and the Sulphur Canyon allotment would likely occur in eight of ten years. The impacts would be beneficial in wet years when management may be needed to reduce high amounts of standing vegetation biomass. The more frequent grazing may have negative effects to giant kangaroo rat populations in some years. Monitoring data from the Monument (Christian et al., in prep.) indicated lower numbers of precincts in grazed pastures relative to ungrazed pastures. Thus, there may be moderate to major beneficial impacts to maintaining giant kangaroo rats in these areas in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass.

Travel Management. The impacts to giant kangaroo rats would be the same as for Alternative 1, described below:

Impacts under Alternative 1 (for reference):

The closure and limited designation of roads in giant kangaroo rat habitat in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. While there is very little driving activity during the night when kangaroo rats are active, the restricted vehicle access would have a positive minor effect, reducing the risk of vehicle strikes in the Monument.

Impacts to the Giant Kangaroo Rat under Alternative 1

Impacts to the Giant Kangaroo Rat from Implementing the Wildlife Program

The elimination of livestock grazing and prescribed fire as vegetation management tools would hinder effective habitat management in core areas. As described in the Conservation Target Table, there are vegetation conditions and giant kangaroo rat population levels that require a reduction of biomass or residual dry matter. Livestock grazing or prescribed fire have been used to maintain suitable habitat conditions for this species. This alternative could have moderate to major detrimental impacts on effectively managing the core areas.

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to giant kangaroo rats. Pronghorn fawning habitat is best when vegetation height is between 15 and 25 inches tall over up to 80 percent of the fawning area. This structure is too high and thick for suitable giant kangaroo rat habitat. While giant kangaroo rats would be scattered in low numbers in the Carrizo Plain North and Caliente Foothill North subregions, these areas would be considered marginal habitat and giant kangaroo rat populations and distributions would likely be at low numbers when tall/abundant vegetation is present. The removal of water troughs would not affect giant kangaroo rats. The removal of fences would remove

artificial perches used by raptors to hunt these animals. The overall impacts of managing pronghorn and tule elk habitat in these two subregions would have negligible impacts to giant kangaroo rats. However, this is similar to the existing situation, and overall giant kangaroo rat populations within the Monument would be maintained in the core and non-core areas to the south.

Under Alternative 1, with the exception of those impacts discussed under General Wildlife Impacts, the following program will have a negligible effect on giant kangaroo rat populations: Vegetation.

Impacts to the Giant Kangaroo Rat from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off road travel) could disturb habitat, crush vegetation, collapse burrows, entomb animals, or result in vehicle strikes. The activities would be kept to a minimum and the effects to giant kangaroo rats would be negligible.

The elimination of prescribed fire to manage the nonnative grass and herbaceous vegetation within the giant kangaroo rat core and non-core areas would have major detrimental impacts to this species. While there is no need to apply prescribed fire in most years when rainfall is below average or when annual vegetation is not tall and thick, the use of prescribed fire is considered a valuable management tool when thick grassy conditions occur. It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 22 or 23 years) in 118 years. It is during these periods, when vegetation management could be applied through prescribed fire to improve habitat conditions that may threaten giant kangaroo rat populations.

Mowing vegetation may cause burrow collapse, entombment, and vehicle strikes. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. The 25 acres to be treated is a very small portion of the landscape and thus the effects to giant kangaroo rat populations would be negligible. Mowing would reduce the thick cover along travel routes, allowing better visibility for animals to avoid vehicles and for motorists to see animals and avoid striking them.

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill animals in the direct heat of the burn. However, burrows and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. The impact to a small amount of acreage would have negligible effects on giant kangaroo rat populations.

Livestock Grazing. The elimination of livestock grazing in the Monument would result in higher amounts of herbaceous vegetation across the landscape in wet years. In average rainfall years, exceptionally dry rainfall years or in a series of below-average rainfall years, vegetation structure would be at low levels and the habitats would be generally favorable for giant kangaroo rats. Giant kangaroo rats appear to be able to successfully manipulate herbaceous vegetation on their precincts in these conditions and the absence of livestock grazing may be beneficial to giant kangaroo rats in most years. Recent monitoring studies between 1997 and 2003 in the Monument indicated that giant kangaroo rat precincts were more abundant in ungrazed relative to grazed pastures (Christian et al., in prep.). However, in high rainfall years with high vegetation biomass, habitat conditions are less favorable for giant kangaroo rats. Although it is not clear whether thick grass structure or high moisture resulting from high rainfall is the cause of lower kangaroo rat populations, some vegetation management to reduce standing biomass may be helpful to reduce the thick grass structure. As discussed in the No Action Alternative, giant kangaroo rat studies on the Elkhorn Plain Ecological Reserve detected substantially higher numbers of giant kangaroo rats in the grazed pasture during and directly following the record 1998 rainfall. Livestock

grazing studies have not been conclusive, but the application of livestock grazing to reduce vegetation biomass to provide more favorable habitat structure appears to have good management potential. Since there appears to be a negative effect of high vegetation biomass on giant kangaroo rat populations, reducing the amount of standing biomass through livestock grazing may be a prudent course of action to reduce population declines. While livestock trampling of burrow systems has been observed in some soil types, the general improvement of habitat conditions would likely outweigh these effects (Germano et al. 2001). The elimination of livestock grazing would not allow Monument managers to apply a common management tool in the core areas for the benefit of this species. Elimination of livestock grazing in giant kangaroo rat habitats, when needed to control high amounts of nonnative persistent grass cover, would be contrary to the conservation strategies identified in the recovery plan for giant kangaroo rats (USFWS 1998).

The elimination of livestock grazing on the southern alluvial fans and flat-bottomed drainages of the Caliente Range on the northern fringe of the Cuyama Valley would have negligible effects in most years. However, when these sites become excessively covered with nonnative grasses in extremely wet periods, the habitat quality might be compromised. The fragmented distribution of the suitable habitat in this area may make repopulation somewhat unlikely for longer periods of time. Prescribed fire could not be applied in these areas without high mortality of saltbush shrubs and without substantial risk of the fire escaping upslope. The chance of effective treatment seems to be quite low without livestock grazing as a possible tool. This may be an important factor in maintaining a viable population of giant kangaroo rats in the Cuyama Valley where most acres across the valley have been converted to intensive agriculture.

The elimination of livestock grazing would have minor to moderate beneficial effects to giant kangaroo rats in most years. However, there could be moderate to major negative effects when vegetation biomass is high by reducing habitat quality across the Monument landscape.

Recreation. The Primitive recreation zones to be managed as having wilderness characteristics overlap with the core area for giant kangaroo rats in the West Well, Silver Gate, East Painted Rock, East Cochora, West Cochora, South Cousins, Kinney-Hahl, and Van Matre pastures. If mowing of vegetation is required to implement core area habitat management actions, this would not be consistent with the wilderness objectives.

Travel Management. The closure and limited designation roads in giant kangaroo rat habitat in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. While there is very little driving activity during the night when kangaroo rats are active, the restricted vehicle access would have a positive minor effect, reducing the risk of vehicle strikes in the Monument.

Impacts to the Giant Kangaroo Rat under Alternative 3

Impacts to the Giant Kangaroo Rat from Implementing the Wildlife Program

The impacts would be the same as described for the proposed plan (Alternative 2).

Impacts to the Giant Kangaroo Rat from Implementing Other Programs

Under Alternative 3, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on giant kangaroo rat populations: Vegetation, and Wilderness Study Area (WSA) and Other Lands with Wilderness Characteristics.

Fire and Fuels Management. The impacts from prescribed fire would be similar to those described in the proposed plan (Alternative 2), but prescribed fire may be used in a larger area of suitable habitat if

needed to maintain populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 29,000 acres of core areas and 67,000 acres of suitable giant kangaroo rat habitat outside of the core areas on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama Valley.

Livestock Grazing. The impacts from livestock grazing in the vegetation management areas would be similar to those described in the proposed plan (Alternative 2), but prescribed grazing may be used in a larger area of suitable habitat if needed to maintain populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 115,000 acres of suitable habitat (58,000 acres of pastures containing core areas and 57,000 acres of suitable giant kangaroo rat habitat on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama valley outside of the core areas). Livestock grazing in the vegetation management area as prescribed in the Conservation Target Table would have moderate to major beneficial impacts to maintain giant kangaroo rat populations on the Monument.

Livestock grazing in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and Sulphur Canyon allotment under this alternative would be the same as described in the No Action Alternative: there may be moderate to major beneficial impacts to maintaining giant kangaroo rats in these areas in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass.

Recreation. Under Alternative 3, there would be no acres of giant kangaroo rat habitat in the Primitive recreation zone and no impacts to this species.

Dispersed vehicle camping in the Backcountry zone in giant kangaroo rat habitat could be eliminated if problems are documented during monitoring. Site-specific closures could be made if impacts are unacceptable. Vehicle camping activities would have localized, but negligible effects on giant kangaroo rats. There is a small chance of inadvertent damage to habitat features (such as precincts, burrows, dens) from vehicle-related camping activities.

The development of water, signs, and overlooks would have negligible impacts on giant kangaroo rats. There could be some instances where these projects would occur in giant kangaroo rat habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect giant kangaroo rats at the population level. The indirect effects of greater recreational activities near upgraded facilities would have a wider area of human impacts on giant kangaroo rat habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The development of recreational activities within the Frontcountry zone would be expanded through the Elkhorn Plain and additional impacts to giant kangaroo rats would be expected. New facilities and visitor services would likely result in more vehicle use during daytime and nighttime hours. The possibility of more direct and indirect impacts from increased visitor activities on the Elkhorn Plain could have minor effects to this species by vehicle collisions, trampling of burrows, nighttime activities, and general disturbance from visitor activities. There could be some instances where new projects would occur in giant kangaroo rat habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect giant kangaroo rats at the population level. The indirect effects of greater recreational activities near upgraded facilities would increase the area of human impacts on giant kangaroo rat habitat, but this is still expected to be at a very small scale and would have negligible to minor impacts to populations of this species.

Travel Management. The impacts to wildlife would be the same as the No Action Alternative.

Impacts under the No Action Alternative

Impacts to the Giant Kangaroo Rat from Implementing the Wildlife Program

The current Monument goal to contribute to the recovery of listed species by achieving long-term, viable populations of all extant listed species in the Monument would have major beneficial impacts to the conservation and recovery of this federally and California listed endangered species. Current management is implementing the objectives to manage locations and habitat features of listed species to allow for their continued existence and maintenance of viability, provide for the natural expansion and fluctuations of listed species consistent with species recovery, and reduce human-caused hazards to core species.

Impacts to Giant Kangaroo Rat from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, non-wildlife grazing, climatic events), and maintain shrub-scrub communities, would have major beneficial impacts to giant kangaroo rats across the Monument in the short and long term. It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species would provide high quality habitat for this species. The most important element of these objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for giant kangaroo rats. Under this mosaic, the kangaroo rats would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain giant kangaroo populations across the Monument landscape considering the high amount of climatic and vegetation biomass production and decomposition.

It should be noted that while extensive dense cover and tall structure of nonnative grasses may pose problems for giant kangaroo rats, many of these nonnatives are key seed producers that provide the bulk of their diet. Therefore, management has focused on maintaining suitable open ground cover within whatever mix of natives or nonnatives may occur. Monitoring of giant kangaroo rat populations and plant community composition and structure would be conducted to inform vegetation/habitat management prescriptions for the benefit of this species.

Restoration activities to reintroduce native plants into previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species would have minor impacts on giant kangaroo rats. The use of a tractor-pulled range drill/seeder may run over and collapse giant kangaroo rat burrows. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Where burrows are scattered, they are easily avoided if collapse is observed to occur. Strip seeding, leaving large areas untreated, would be used in more densely populated giant kangaroo rat habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely have minor to moderate beneficial impacts to giant kangaroo rats with a more diverse array of seeds, but this is presently unknown.

Fire and Fuels Management. The use of prescribed fire on 30,000 acres within the Monument would have moderate to major benefit to giant kangaroo rat populations in most circumstances. Monitoring studies of a prescribed fire in the West Well pasture from 1993 to 1996 indicated that giant kangaroo rats persisted longer in the burned than in the unburned plots during a large-scale population decline (Germano and Saslaw 1996). Similar monitoring of a burn in 1993 in the Lokern Area in western Kern County showed that Heermann's and short-nosed kangaroo rats also persisted in burned areas while animals were no longer captured in the grassy, unburned paired trap lines. Direct mortality to three giant

kangaroo rats, presumably from smoke inhalation, was observed at the West Well site. However, this was an extremely low percentage of the total number of kangaroo rats in the burn area, and the population was maintained following the burn.

Water Resources. Protection or enhancement of springs, water sources, and drainages would have negligible beneficial impacts to giant kangaroo rats.

Cultural Resources. There would be negligible impacts to giant kangaroo rats from any of the proposed Cultural Resource actions.

Livestock Grazing. Under current management, livestock grazing would be used as a vegetation management tool on an occasional basis in the Carrizo Plain and Elkhorn Plain vegetation management area to reduce standing biomass of persistent nonnative grasses for the benefit of giant kangaroo rats. Livestock grazing would occur in the Section 15 allotments in an average of eight out of ten years.

Livestock grazing may help maintain favorable habitat conditions for giant kangaroo rats in periods of extremely high standing vegetation biomass, but there may be negative impacts when livestock grazing occurs in more average rainfall and vegetation production years. Monitoring data and research on this kangaroo rat and other kangaroo rats species indicate that wet years and dense persistent vegetation (both herbaceous and shrubs) correlates with lower populations and reduced distributions. In general, the abundance of giant kangaroo rats increases as grass and forb cover decreases (Williams and Kilburn 1991; Rowland and Turner 1964; USFWS 1998; Cypher 2001; Germano et al. 2001; Waser and Ayers 2003; BLM 2007). In most years of average to below average rainfall and vegetation biomass production, giant kangaroo rats are able to clip down the herbaceous vegetation to meet their habitat needs and livestock grazing would not be necessary or desirable. However, in years of excessive herbaceous production they may not be able to create suitable open habitat and population declines may occur. Extremely wet periods and high residual dry matter levels have coincided with regional declines of kangaroo rats in the southern San Joaquin Valley and the Monument (Single et al. 1996; Germano et al. 2001). Whether the cause(s) of the declines are spoilage of seeds, excessive fungal growth and lethal mycotoxins, wetness and respiratory problems, or greater predation rates due to reduced visibility and impeded escape through the grasses is not fully understood (Germano et al. 2001; Waser and Ayers 2003). Recent studies in the Southern San Joaquin Valley have indicated that when there are low amounts of standing biomass, kangaroo rats are more abundant in the open habitats (Goldingay et al. 1997; Cypher 2001; Germano et al. 2006; ESRP 2005; Germano and Saslaw 1996). It is not clear whether thick grass structure or high moisture resulting from high rainfall is the cause of lower kangaroo rat populations. However, since excessively high grass and herbaceous vegetation can be manipulated by livestock grazing, vegetation management by grazing may be helpful in reducing precipitous declines in greater-than-average rainfall years.

There is some level of uncertainty whether livestock grazing would successfully maintain giant kangaroo rat habitat and populations. Recent monitoring studies in the Monument between 1997 and 2003 indicated that there were lower numbers of active giant kangaroo rat precincts counted in grazed pastures relative to ungrazed pastures in the six years of data analysis (Christian et al. in prep). These data included both the extremely wet El Niño year of 1998 and subsequent low precipitation year of 2002. This study started in 1997 when giant kangaroo rats were at extremely low populations. Monitoring indicated that, overall, active burrow systems increased by nearly 50% and burrow distributions increased from 21% to 35% of the study locations. Increases occurred on both grazed and ungrazed pastures, but there was a statistically lower number of kangaroo rat precincts in the grazed pastures. In contrast to this study, giant kangaroo rat studies on the Elkhorn Plain Ecological Reserve between 1987 and 2005 showed similar numbers of giant kangaroo rats captured on a pair of grazed and ungrazed study plots in most years. However, in the record high rainfall year of 1998 (El Niño), giant kangaroo rats were over four times more abundant in the

grazed pasture than in the ungrazed Reserve (Endangered Species Recovery Program 2005). In 1999, they were nearly twice as many animals in the grazed pasture. Observations of giant kangaroo rat distributions on the Monument in the 1998 El Niño year indicated an apparent absence of giant kangaroo rats in most of the Carrizo Plain, but active precincts were apparent in an obviously grazed pasture in the Panorama Hills area. Livestock grazing studies have not been conclusive, but the application of livestock grazing to reduce vegetation biomass to provide more favorable habitat structure appears to have good management potential. Since there appears to be a negative correlation of high vegetation biomass on giant kangaroo rat populations, reducing the amount of standing biomass through livestock grazing may be a prudent course of action to reduce population declines. While livestock trampling of burrow systems has been observed in some soil types, the general improvement of habitat conditions would likely outweigh these effects (Germano et al. 2001).

Livestock grazing in the vegetation management area of the Carrizo Plain and Elkhorn Plain would have moderate to major beneficial impacts to maintain giant kangaroo rat populations on the Monument in wet rainfall years with high nonnative vegetation biomass. Livestock grazing would have minor to moderate negative effects to giant kangaroo rat populations in years that do not have high rainfall and thick nonnative grass/herbaceous structure.

Livestock grazing under current management in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and the Sulphur Canyon allotment would likely occur in eight of ten years. The impacts would be beneficial in wet years when management may be needed to reduce high amounts of standing vegetation biomass. The more frequent grazing may have negative effects to giant kangaroo rat populations in some years. Monitoring data from the Monument (Christian et al., in prep.) indicated lower numbers of precincts in grazed pastures relative to ungrazed pastures. Thus, there may be moderate to major beneficial impacts to maintaining giant kangaroo rats in these areas in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass.

Travel Management. There would be minor impacts to giant kangaroo rats from the current road management system. Vehicle strikes primarily occur along the Soda Lake Road where vehicles often travel at highway speeds, but other strikes have occurred on BLM maintained and unmaintained two-track roads. However, visitor and administrative use of roads is uncommon on most routes and vehicle strikes are relatively rare events. Kangaroo rat activity crossing roads occurs at night when there is little vehicle travel off the county roads. The presence of roads in grassland and shrub-scrub habitats is not considered to cause habitat fragmentation or act as barriers within habitats. Kangaroo rats are often seen on graded roads and two-tracks at night.

Minerals. Potential impacts to giant kangaroo rats include direct mortality, loss of burrow systems, loss or alteration of habitat, and harassment. The construction and maintenance of well pads, access roads, pipelines, and other oil field structures may trap or bury kangaroo rats in their burrows. Kangaroo rats can also drown or become entrapped in spilled oil or tarry substances. Kangaroo rats may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. Geophysical activities would have a transient impact on 115 acres through cross country travel and shothole drilling. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. Although BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, and avoid giant kangaroo rats burrows and minimize take to the

greatest extent practicable, the density of giant kangaroo rats in many areas of the Monument would still result in the loss of some burrows. However, mitigation measures that require the capture and release of animals trapped from within and directly adjacent to the construction footprint would be implemented. These animals would be moved from the construction area into suitable habitat where there are few existing giant kangaroo rats (to minimize potential competition). These measures have been implemented in western Kern County on several oil well projects with over 60% known survivorship of transplanted individuals (BLM 2008c). While the fate of 40 percent of the transplanted animals was unknown, the measure is implemented to reduce the direct mortality of individual kangaroo rats within a project construction footprint and would likely contribute to maintaining the overall population in the Monument.

Construction activities would result in a loss of animals directly within the footprint with some disruption to animals directly adjacent to the well locations. Animals adjacent to the construction footprint may wander onto the edge of the construction area and may be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations when nighttime activities and lighting occur. Drilling activities typically last up to 20 days per well. Once a well is drilled, few, if any, nighttime activities would occur.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately. In a study in western Kern County, lagomorphs appeared to use reclaimed sites almost immediately and a similar pattern was observed for rodents (kangaroo rats, southern grasshopper mouse, San Joaquin pocket mouse, and deer mouse) (Hinshaw et al. 1999).

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

This activity is located within a core management area and the Carrizo Plain population is important for the conservation and recovery of the species. However, oil development activities on 30 acres of the valley floor would have minor to moderate impacts to the local and Monument-wide populations of giant kangaroo rats considering the application of take avoidance measures, their extensive distributions (over approximately 116,000 acres), and the high density (up to 16 per acre) of giant kangaroo rats within the central and southern portions of the CPNM.

In the Russell Ranch oilfield, there would be 6.5 acres of new disturbance. There would be 3.5 acres disturbed from new well pads and 3 acres from new roads. Geophysical activities would impact 25 acres through cross-country travel and shot hole drilling. Giant kangaroo rats are not abundant in this area, and impacts would be avoided (and thus negligible) by implementing buffer zone requirements. This disturbance of 6.5 acres would not impact or would have negligible impacts to giant kangaroo rats with implementation of avoidance criteria.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing 50-foot buffer avoidance requirements would have minor to moderate impacts on giant kangaroo rats at the site-specific level. The extent of the impacts would depend on the project design, primarily the number of shot holes and number,

length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than 10 feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. The detonation of the charges is perceptible to humans within 200 feet of a shot hole and some surface movement can be observed at the shot point. It is possible that the shot hole detonations and testing vibrations may have deleterious effects on these animals that use foot drumming in communication and hearing in predator avoidance. However, the effects of seismic testing noise on the kangaroo rat hearing are unknown. Biologists accompanying seismic crews have not reported animals exiting burrows after detonation, but specific monitoring of giant kangaroo rat activity response to shot hole drilling and detonations has not been conducted to date. Monitoring studies on geophysical projects in western Kern County surveyed with vibroseis and shot hole source methods reported a decline in the number of burrows within vibroseis corridors 90 days and 1 year following surveys compared to adjacent sample areas. However, there was a substantial increase in new burrows along the routes when they were resampled one year later (Tabor and Thomas 2002). Following vibroseis activities, small mammal burrows are commonly seen within disturbed soils from vehicle travel and vibroseis pad placement (digging into the side of the depressions). However, vibroseis source point generation would only occur on existing roads in the Monument. Recent testing of both vibroseis and shot-hole detonations on giant kangaroo rats numbers did not provide evidence of an adverse impact associated with seismic survey energy sources (Feihler and Cypher 2009).

4.2.5.2 San Joaquin Kit Fox

Impacts to the San Joaquin Kit Fox Common to All Action Alternatives

Impacts to the San Joaquin Kit Fox from Implementing the Wildlife Program

The wildlife management goals to manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, rare natural communities, and conservation of the regional landscape, would have major beneficial impacts to the conservation and recovery of the San Joaquin kit fox.

There would be major beneficial impacts to San Joaquin kit fox by implementing the specific objectives to:

- identify core geographic areas for endangered species population management and recovery;
- give endangered species habitat primary management priority in core areas;
- maintain and enhance viable populations within core areas; and
- allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values).

The designation and management of the three listed species core areas (Map 3-2) would maintain San Joaquin kit fox populations within the Monument in the long term. However, our ability to achieve effective vegetation management varies from Alternative 1 compared to the proposed plan (Alternative 2) and Alternative 3. In the absence of prescribed fire and livestock grazing as vegetation management tools in Alternative 1, it is unknown whether effective habitat management can be implemented to provide suitable habitat for San Joaquin kit fox and their primary prey, giant kangaroo rats, when nonnative grasses and herbaceous vegetation reduce habitat quality.

Management of the core areas would focus on vegetation management on about 20 percent of the kit fox habitat in the Monument when needed to maintain suitable habitat and viable populations of giant kangaroo rat and San Joaquin antelope squirrel prey species. Population declines of kangaroo rats in the Monument and in the San Joaquin Valley in the mid 1990s coincided with declines of San Joaquin kit fox populations (Cypher et al. 2000). The population levels of San Joaquin kit fox generally follow the abundance of their prey and are typical of predator and prey relationships. Management of the core areas within the Monument to maintain viable populations of giant kangaroo rats would be critical to maintaining San Joaquin kit fox populations as well.

The wildlife management goal to restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem within the Monument would have a major benefit to San Joaquin kit fox in the short and long term. It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species would provide high quality habitat for this species. The most important element of these objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for kit foxes and their prey. Under this mosaic, the kit foxes would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain San Joaquin kit foxes and their prey of giant kangaroo rats, San Joaquin antelope squirrels, deer mice, desert cottontail, black-tailed hare, and California ground squirrels across the Monument landscape.

The wildlife management objectives that enhance or maintain the variety of animals within the Monument are likely to have moderate to major benefit to San Joaquin kit foxes throughout the life of the plan. For example, the management of low habitat structure for mountain plovers in upland areas outside of the core areas will provide suitable habitat for kit foxes. Areas that would be removed from livestock grazing to protect vernal pools, washes with Sphinx moths, or riparian habitats would contribute to providing a variety of prey species in the matrix of grazed and ungrazed habitats.

Research and monitoring activities that address habitat quality and ecology of giant kangaroo rats and associated listed and non-listed species would have a moderate to major long-term benefit to San Joaquin kit fox. Many of the research projects are identified as recovery tasks in the San Joaquin Valley multi-species recovery plan.

The maintenance of habitat linkages between the CPNM and western Kern County San Joaquin kit fox core areas would have major beneficial impacts for the conservation and recovery of this species. The recovery plan identifies the connectivity between these areas as important recovery tasks.

Impacts to the San Joaquin Kit Fox from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities may disturb habitat along fire control lines, at staging areas, in retardant drops, and in cross-country travel. Prey animal burrows may be crushed, animals entombed, and vehicle strikes may occur. In grassland habitats the suppression activities are usually kept to the least amount of disturbance needed to control the fire with mobile attack, retardant, or a single dozer line. These impacts are temporary in duration and are usually revegetated naturally by annual plants within one to three years. Kit fox prey species often reoccupy the disturbed sites immediately following the suppression activities. Restoration of firelines may occur with native plant seedings, which would have negligible impacts similar to those described for restoration activities. Fire control impacts a very small amount of habitat in the landscape and would have negligible effects to animals at the population level. Fire suppression often benefits kit fox prey species by minimizing the loss of saltbush plants which are intolerant of fire (Germano et al. 2001). Scattered saltbush or linear stands along drainages are important habitat features that provide thermal and escape cover for prey species.

However, wildfire can open dense saltbush scrub stands creating habitat more favorable for San Joaquin kit foxes and are necessary for San Joaquin kit foxes to avoid predation by coyotes.

Cultural Resources. Habitat disturbance associated with protection, movement, or removal of historic farming equipment or buildings and construction of barriers, boardwalks, or interpretive panels would result in negligible impacts to kit fox inhabiting the sites. Implementation of SOP avoidance criteria would be implemented to minimize project impacts.

Livestock Grazing. The impacts would be the same as described for the giant kangaroo rat.

Recreation. The placement of informational signs and the development of potable water at dispersed camping sites and at existing campgrounds would have negligible impacts on San Joaquin kit fox. There could be some instances where these projects would occur near dens, but avoidance criteria would be implemented. The indirect effects of greater recreational activities near upgraded water sources would have a wider area of human impacts on kit fox habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The expansion of the visitor center would have negligible benefits to listed species through improved visitor and environmental education opportunities at the center, which may help implement conservation and recovery of the CPNM species.

Minerals. Under all action alternatives, the impacts to San Joaquin kit foxes from minerals will be the same as under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Potential impacts to San Joaquin kit fox include direct mortality, loss of dens, loss or alteration of habitat, human disturbance, and exposure to oil field chemicals. Construction of well pads, access roads, and associated oil field facilities may trap or bury foxes, particularly if the construction occurs on or near a den site. Since dens are ecologically important to kit foxes, measures are implemented to avoid impacts to dens. While all occupied dens are avoided, it may not be possible to avoid all unoccupied dens. Since kit fox use multiple dens (USFWS 1998), the occasional loss of an unoccupied non-natal den is not expected to be significant. If dens are a limiting factor, artificial dens would be installed to replace any dens lost from project impacts. Activities near or impacts to natal dens could have more impact, particularly if such impacts occur while young pups are present. Disturbance to dens, especially natal dens, would be minimized with the implementation of SOPs and survey and avoidance measures required by BLM for all actions.

The CPNM core population is one of three core populations identified by the USFWS as important for species recovery. However, habitat loss from projected oil exploration and development in the Monument is not expected to conflict with recovery plan goals since individual projects are expected to be relatively small (0.5 acres per well pad and 0.3 to 0.75 acres of road per well) compared to the home range of a kit fox (average 1,144 acres) and few wells are projected to be drilled. In addition, standard kit fox mitigation measures and BLM SOPs will be applied as appropriate to all BLM authorizations and projects so that impacts to dens would be avoided. Studies conducted in developed oilfields in western Kern County show a range of kit fox responses to oilfield habitat disturbance and activities. At Elk Hills in western Kern County, there appeared to be similar population density, reproduction, dispersal, and mortality in developed and undeveloped oil fields (cited in USFWS 1998). Moderate intensity oil fields can provide reasonably good habitat for kit foxes if habitat is maintained and mitigation measures are implemented (USFWS 1998). With implementation of avoidance and mitigation measures required at the site-specific project stage, negligible impacts would occur to individual kit foxes. Thus, there would be negligible effects at the population level within the Monument.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by kit foxes and kangaroo rats within several months. Kit foxes are frequently observed near oil field facilities and commonly use developed areas (Cypher et al. 2000). They do not seem to be particularly sensitive to human disturbance.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour off of county roads to minimize the risk of vehicle strikes of listed species.

Oil development activities on 30 acres of the valley floor would have minor impacts to the local and Monument-wide populations of San Joaquin kit foxes considering the extensive distributions within the Carrizo Plain and Elkhorn Plain portions of the Monument.

In the Russell Ranch oilfield, there would be 6.5 acres of new disturbance. There would be 3.5 acres disturbed from new well pads and 3 acres from new roads. Geophysical activities would impact 25 acres through cross-country travel and shot hole drilling. San Joaquin kit foxes are not common in this area, and impacts would be avoided (and thus negligible) by implementing den avoidance measures. This disturbance of 6.5 acres would not impact or would have negligible impacts to San Joaquin kit fox and giant kangaroo rats with implementation of avoidance criteria.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing den avoidance requirements would have minor impacts on San Joaquin kit fox at the site-specific and population levels. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid dens and burrows and cause minimal den and burrow collapse.

Impacts to the San Joaquin Kit Fox under the Proposed Plan (Alternative 2)

Impacts to the San Joaquin Kit Fox from Implementing the Wildlife Program

Wildlife. Management of the likely non-core treatment areas to maintain populations of San Joaquin kit foxes would have moderate to major beneficial impacts to kit foxes. The application of livestock grazing and prescribed fire as vegetation management tools would provide options to apply effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would be the same as described in Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to San Joaquin kit fox. Pronghorn fawning habitat is best when vegetation height is between 15 and 25 inches tall over up to 80

percent of the fawning area. This structure is too high and thick for suitable San Joaquin kit fox habitat. While kit fox would be scattered in low numbers in the Carrizo Plain North and Caliente Foothill North subregions, these areas would be considered marginal habitat and kit fox populations and distributions would likely be at low numbers when tall/abundant vegetation is present. The overall impacts of managing pronghorn and tule elk habitat in these two subregions would have negligible to minor detrimental impacts to kit fox. However, this is similar to the existing situation, and overall kit fox populations within the Monument would be maintained in the core and non-core areas to the south.

Impacts to the San Joaquin Kit Fox from Implementing Other Programs

Vegetation. Restoration activities to reintroduce native plants into previously cultivated farm fields or in habitats with a low proportion of native plant species would have negligible to minor beneficial impacts on San Joaquin kit fox. The use of a tractor-pulled range drill/seeder may run over and damage den entrances. However, these features are usually obvious in previously cultivated fields and would be avoided during restoration activities. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Strip seeding, leaving large areas untreated, would be used in more densely populated giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, or other special status animal species habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely benefit San Joaquin kit foxes with a more diverse array of habitats for prey species (kangaroo rats, mice, ground squirrels, desert cottontail, hares, and insects).

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off-road travel) could disturb habitat, crush vegetation, collapse burrows, entomb small mammals, damage den entrances, or result in vehicle strikes. The activities would be kept to a minimum and the effects to San Joaquin kit fox would be negligible.

Prescribed fire would have a moderate to major benefit to maintain prey populations and suitable habitat for San Joaquin kit fox in high biomass years, as described in the No Action Alternative:

Impacts under No Action Alternative (for reference):

The use of prescribed fire on 30,000 acres within the Monument would provide moderate to major benefits to kit fox populations, depending habitat conditions. Direct mortality is not expected and control lines would avoid den locations. The relative beneficial impacts to habitat would be major when dense vegetation is removed and the habitat stays open for several years. The impacts would be more moderate when vegetation is already quite open and generally suitable. The beneficial response of giant kangaroo rats and other small mammal populations to fire would be of primary benefit to kit foxes.

Prescribed fire could be used in the core areas and adjacent non-core areas if needed to improve or maintain habitat conditions for kit fox and their prey species. If additional treatment outside of the core areas is needed, it would most likely be applied in the adjacent non-core areas identified in Map 4-1. However, the non-core areas that may be treated could be different than those identified in Map 4-1 if habitat conditions, prey distributions, and management prescriptions change over time.

Mowing vegetation may cause burrow collapse for prey species and damage to kit fox den entrances. Since these activities usually occur when soils are somewhat dry and firm, damage would not be widespread. The 350 acres to be treated is a very small portion of the landscape and thus the effects to San Joaquin kit fox populations would be negligible. Mowing would reduce the thick cover along travel routes, allowing better visibility for kit foxes to avoid vehicles and for motorists to see kit foxes and avoid striking them.

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill prey animals in the direct heat of the burn. However, dens, burrows, and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. The small amount of acreage affected would have negligible impacts on San Joaquin kit fox populations.

The 1,000 acres of prescribed burns and 5 miles of dozer line would have impacts similar to those described for wildfire (see Impacts Common to All Action Alternatives), but the damage to saltbush plants may be avoided by placement of fire control lines and by excluding saltbush from within the burn area. Prescribed fire has been observed to maintain a more open habitat structure favorable to San Joaquin kit foxes and their important prey giant kangaroo rats. The burn effects usually last between 3 to 5 years, depending on subsequent annual rainfall. Although there would be some direct mortality to a low percentage of kangaroo rat prey animals within the burn areas, the overall effect would be positive at the prey population level. While there would be a loss of saltbush shrubs in the burn areas, this would have moderate to major effects on San Joaquin kit fox populations within the post-burn areas.

Livestock Grazing. Under the proposed plan (Alternative 2), livestock grazing may be occasionally applied in the core areas to maintain habitat conditions for San Joaquin kit fox and their giant kangaroo rat prey, so that they would not disappear from the Monument. If additional treatment is needed, it would most likely be applied in the adjacent non-core areas identified in Map 4-1. Under this scenario, approximately 29,000 acres may be treated with livestock grazing (in addition to the core areas) in pastures that contain the adjacent non-core areas. However, the non-core areas that may be treated could be different than those identified in Map 4-1 if habitat conditions, giant kangaroo rat distributions, and management prescriptions change over time. The impacts would generally be the same as described for the giant kangaroo rat.

The impacts of livestock grazing in the vegetation management areas under this alternative would be the same as those described in the No Action Alternative.

Impacts under No Action Alternative (for reference):

Livestock grazing impacts are generally the same as those described for giant kangaroo rat. Since San Joaquin kit fox populations are influenced by prey availability (Cypher et al. 2000), management of giant kangaroo rat populations would have a large influence on kit fox populations. Habitat structure within the Monument is also greatly influenced by the abundance of giant kangaroo rats, and vegetation management prescriptions that maintain suitable habitat for giant kangaroo rat would also provide suitable habitat for San Joaquin kit fox. Therefore, livestock grazing in the vegetation management area of the Carrizo Plain and Elkhorn Plain would have moderate to major beneficial impacts to maintain San Joaquin kit fox populations on the Monument in wet rainfall years with high nonnative vegetation biomass. Livestock grazing would have minor to moderate negative effects to kit fox populations in years that do not have high rainfall and thick nonnative grass/herbaceous structure if prey numbers are suppressed.

Application of the Conservation Target Table would refine management prescriptions to maintain prey populations, suitable habitat structure, and viable kit fox populations. Thus, livestock grazing in the vegetation management areas would have moderate to major beneficial impacts to maintain San Joaquin kit fox populations on the Monument.

Livestock grazing in the Section 15 Recruit, South Anderson, South Selby, and Sulphur Canyon pastures under this alternative would likely occur in five of ten years. The impacts would be the same as described in the No Action Alternative

Impacts under the No Action Alternative (for reference):

There may be moderate to major beneficial impacts from livestock grazing in the Section 15 allotments in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass if giant kangaroo rat prey numbers are suppressed.

with moderate to major beneficial impacts to maintaining kit fox prey and suitable habitat in these areas in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass if prey populations are suppressed.

Travel Management. The impacts to San Joaquin kit fox would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Though some kit fox are killed due to vehicle strikes, the known numbers are relatively few in relation to population size. Since 1997, there have been eight to ten known kit fox deaths caused by vehicles within the Monument, though more are suspected. Road maintenance that reduces vegetation and loosens soils may cause an increase in rodents or their availability to predators along the edges of roads, attracting kit foxes to forage there. Contaminants from vehicle exhaust and spills can concentrate along roadways. The presence of people may disrupt social ecology, displace animals, and reduce productivity (Cypher et al. 2000). According to Cypher et al. (2003), however, food availability and habitat loss are still the most important factors affecting kit fox populations.

Unless numbers of vehicles on the roads increase, fatalities can be expected to be the same as the current numbers. Nearly all of the known kit fox vehicle strikes have occurred on Soda Lake Road with a few occurrences on other county roads. Vehicles on county roads usually travel at higher speeds than on BLM roads. Soda Lake Road receives more traffic than any other road in the Monument with an estimate of over 18,000 vehicles per year. However, county roads are not subject to BLM road designations or speed limits. The existing BLM road network is expected to have negligible effect on kit fox populations considering the relatively low amount of vehicle traffic on BLM roads at night when kit foxes and their kangaroo rat prey are active and most likely to be killed by vehicle strikes.

Impacts to the San Joaquin Kit Fox under Alternative 1

Impacts to the San Joaquin Kit Fox from Implementing the Wildlife Program

Management of the non-core areas to maintain populations of San Joaquin kit fox would have moderate to major beneficial impacts to kit foxes. However, the elimination of livestock grazing and prescribed fire as vegetation management tools would hinder effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for foxes and their prey species. This alternative could have moderate to major detrimental impacts on effectively managing the core areas.

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to San Joaquin kit fox. Pronghorn fawning habitat is best when vegetation height is between 15 and 25 inches tall over up to 80

percent of the fawning area. This structure is too high and thick for suitable San Joaquin kit fox habitat. While kit fox would be scattered in low numbers in the Carrizo Plain North and Caliente Foothill North subregions, these areas would be considered marginal habitat and kit fox populations and distributions would likely be at low numbers when tall/abundant vegetation is present. The overall impacts of managing pronghorn and tule elk habitat in these two subregions would have negligible to minor detrimental impacts to kit fox. However, this is similar to the existing situation, and overall kit fox populations within the Monument would be maintained in the core and non-core areas to the south.

Impacts to the San Joaquin Kit Fox from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off-road travel) could disturb habitat, crush vegetation, collapse burrows, entomb small mammals, damage den entrances, or result in vehicle strikes. The activities would be kept to a minimum and the effects to San Joaquin kit fox would be negligible.

The elimination of prescribed fire to manage the nonnative grass and herbaceous vegetation within the listed species core and likely non-core treatment areas would have major detrimental impacts to kit foxes. While there is no need to apply prescribed fire in most years when rainfall is below average or when annual vegetation is not tall and thick, the use of prescribed fire is considered a valuable management tool when thick grassy conditions occur. It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire to improve habitat conditions that may threaten giant kangaroo rat prey populations and maintain a more open habitat structure for kit foxes.

Mowing vegetation may cause damage to den entrances. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. The 25 acres to be mowed is a very small portion of the landscape and thus the effects to kit fox would be negligible. San Joaquin kit fox dens would be avoided with application of SOPs.

Pile burns would be conducted to avoid impacts to San Joaquin kit fox.

Livestock Grazing. The elimination of livestock grazing would be the same as those described for the giant kangaroo rat since San Joaquin kit fox populations would be strongly affected by the abundance of this prey species. San Joaquin kit fox habitat would be generally suitable in the Monument in most years, but could be much less suitable in years with high vegetation biomass if livestock grazing is not available as a management tool.

Recreation. The Primitive recreation zones to be managed as having wilderness characteristics overlap with the core area for San Joaquin kit foxes in the West Well, Silver Gate, East Painted Rock, East Cochora, West Cochora, South Cousins, Kinney-Hahl, and Van Matre pastures. If mowing of vegetation is required to implement core area habitat management actions, this would not be consistent with the wilderness objectives.

Travel Management. The closure and limited designation of roads in San Joaquin kit fox habitat in the Monument would reduce the risk of vehicle collisions. While there is very little driving activity during the night when kit fox are active, the restricted vehicle access would have a minor positive effect, reducing the risk of vehicle strikes in the Monument.

Impacts to the San Joaquin Kit Fox under Alternative 3

Impacts to the San Joaquin Kit Fox from Implementing the Wildlife Program

The impacts would be the same as described for the proposed plan (Alternative 2).

Impacts to the San Joaquin Kit Fox from Implementing Other Programs

Vegetation and Fire/Fuels Management. The impacts would be the same as described in the proposed plan (Alternative 2), but a larger area of suitable giant kangaroo rat habitat (approximately 67,000 acres) may be treated outside of the core areas.

Livestock Grazing. The impacts from livestock grazing in the vegetation management areas would be similar to those described in the proposed plan (Alternative 2), but prescribed grazing may be used in a larger area of suitable habitat if needed to maintain kit fox populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 115,000 acres of suitable habitat (58,000 acres of pastures containing core areas plus 57,000 acres of suitable giant kangaroo rat/San Joaquin kit fox habitat on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama Valley outside of the core areas). Livestock grazing in the vegetation management area as prescribed in the Conservation Target Table would have moderate to major beneficial impacts on maintaining San Joaquin kit fox populations on the Monument.

Livestock grazing in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and the Sulphur Canyon allotment under this alternative would be the same as described in the No Action Alternative: there may be moderate to major beneficial impacts to maintaining kit fox habitats in these areas in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass if prey populations are suppressed

Recreation. Under Alternative 3, there would be no acres of San Joaquin kit fox habitat in the Primitive recreation zone and no impacts to this species.

Dispersed vehicle camping in the Backcountry zone in San Joaquin kit fox habitat could be eliminated if problems are documented during monitoring. Site-specific closures could be made if impacts are unacceptable. Vehicle camping activities would have localized, but negligible effects on San Joaquin kit fox. There is a small chance of inadvertent damage to dens from vehicle-related camping activities.

The development of water, signs, and overlooks would have negligible impacts on San Joaquin kit fox. There could be some instances where these projects would occur in San Joaquin kit fox habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect San Joaquin kit fox at the population level. The indirect effects of greater recreational activities near upgraded facilities would have a wider area of human impacts on San Joaquin kit fox habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The development of recreational activities within the front country zone would be expanded through the Elkhorn Plain and additional impacts to San Joaquin kit fox would be expected. New facilities and visitor services would likely result in more vehicle use during daytime and nighttime hours. The possibility of more direct and indirect impacts from increased visitor activities on the Elkhorn Plain could have minor effects to this species by vehicle collisions, nighttime activities, and general disturbance from visitor activities. There could be some instances where new projects would occur in San Joaquin kit fox habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect San Joaquin kit fox at the population level. The indirect effects of greater recreational activities near upgraded

facilities would increase the area of human impacts on San Joaquin kit fox habitat, but this is still expected to be at a very small scale and would have negligible effects on populations of this species.

Travel Management. The impacts to kit foxes would be the same as the No Action Alternative.

Impacts to the San Joaquin Kit Fox under the No Action Alternative

Impacts to the San Joaquin Kit Fox from Implementing the Wildlife Program

The current Monument goal to contribute to the recovery of listed species by achieving long-term, viable populations of all extant listed species in the Monument would have major beneficial impacts to the conservation and recovery of this federally endangered and California threatened species. The CPNM is considered one of three core conservation areas for the San Joaquin kit fox. Of the three core areas, (western Kern County and the Ciervo-Panoche area are the other two), only the CPNM has acquired substantial acreage in federal, state, or conservation ownership to approach meeting this recovery task. Current management is implementing the objectives to manage locations and habitat features of listed species to allow for their continued existence and maintenance of viability, provide for the natural expansion and fluctuations of listed species consistent with species recovery, and reduce human-caused hazards to core species.

Impacts to the San Joaquin Kit Fox from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have major beneficial impacts to San Joaquin kit fox in the short and long term. It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species would provide high quality habitat for this species. The most important element of these objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for kit foxes and their prey. Under this mosaic, the kit foxes would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain San Joaquin kit foxes and their prey of giant kangaroo rats, San Joaquin antelope squirrels, deer mice, desert cottontail, black-tailed hare, and California ground squirrels across the Monument landscape.

The restoration of previously farmed fields would have negligible impacts to San Joaquin kit fox since dens would be avoided. The restoration of the vegetation to increase native plant composition would have negligible to minor benefits to San Joaquin kit fox since the overall habitat structure would be similar to the existing fields in most years.

Fire and Fuels Management. The impacts from wildland fire suppression on San Joaquin kit fox would be similar to that described for giant kangaroo rat.

The use of prescribed fire on 30,000 acres within the Monument would provide moderate to major benefits to kit fox populations, depending habitat conditions. Direct mortality is not expected and control lines would avoid den locations. The relative beneficial impacts to habitat would be major when dense vegetation is removed and the habitat stays open for several years. The impacts would be more moderate when vegetation is already quite open and generally suitable. The beneficial response of giant kangaroo rats and other small mammal populations to fire would be of primary benefit to kit foxes.

Soils, Water Resources, Cultural Resources. Impacts to San Joaquin kit fox from these programs would be similar to those described for giant kangaroo rat.

Livestock Grazing. Livestock grazing impacts are generally the same as those described for giant kangaroo rat. Since San Joaquin kit fox populations are influenced by prey availability (Cypher et al. 2000), management of giant kangaroo rat populations would have a large influence on kit fox populations. Habitat structure within the Monument is also greatly influenced by the abundance of giant kangaroo rats, and vegetation management prescriptions that maintain suitable habitat for giant kangaroo rat would also provide suitable habitat for San Joaquin kit fox. Therefore, livestock grazing in the vegetation management area of the Carrizo Plain and Elkhorn Plain would have moderate to major beneficial impacts to maintain San Joaquin kit fox populations on the Monument in wet rainfall years with high nonnative vegetation biomass. Livestock grazing would have minor to moderate negative effects to kit fox populations in years that do not have high rainfall and thick nonnative grass/herbaceous structure if prey numbers are suppressed.

There may be moderate to major beneficial impacts from livestock grazing in the Section 15 allotments in the occasional wet years with high vegetation biomass, but minor to moderate negative impacts when livestock grazing occurs in years of less than high vegetation biomass if giant kangaroo rat prey numbers are suppressed.

Travel Management. Though some kit fox are killed due to vehicle strikes, the known numbers are relatively few in relation to population size. Since 1997, there have been eight to ten known kit fox deaths caused by vehicles within the Monument, though more are suspected. Road maintenance that reduces vegetation and loosens soils may cause an increase in rodents or their availability to predators along the edges of roads, attracting kit foxes to forage there. Contaminants from vehicle exhaust and spills can concentrate along roadways. The presence of people may disrupt social ecology, displace animals, and reduce productivity (Cypher et al. 2000). According to Cypher et al. (2003), however, food availability and habitat loss are still the most important factors affecting kit fox populations.

Unless numbers of vehicles on the roads increase, fatalities can be expected to be the same as the current numbers. Nearly all of the known kit fox vehicle strikes have occurred on Soda Lake Road with a few occurrences on other county roads. Vehicles on county roads usually travel at higher speeds than on BLM roads. Soda Lake Road receives more traffic than any other road in the Monument with an estimate of over 18,000 vehicles per year. However, county roads are not subject to BLM road designations or speed limits. The existing BLM road network is expected to have negligible effect on kit fox populations considering the relatively low amount of vehicle traffic on BLM roads at night when kit foxes and their kangaroo rat prey are active and most likely to be killed by vehicle strikes.

Minerals. Potential impacts to San Joaquin kit fox include direct mortality, loss of dens, loss or alteration of habitat, human disturbance, and exposure to oil field chemicals. Construction of well pads, access roads, and associated oil field facilities may trap or bury foxes, particularly if the construction occurs on or near a den site. Since dens are ecologically important to kit foxes, measures are implemented to avoid impacts to dens. While all occupied dens are avoided, it may not be possible to avoid all unoccupied dens. Since kit fox use multiple dens (USFWS 1998), the occasional loss of an unoccupied non-natal den is not expected to be significant. If dens are a limiting factor, artificial dens would be installed to replace any dens lost from project impacts. Activities near or impacts to natal dens could have more impact, particularly if such impacts occur while young pups are present. Disturbance to dens, especially natal dens, would be minimized with the implementation of SOPs and survey and avoidance measures required by BLM for all actions.

The CPNM core population is one of three core populations identified by the USFWS as important for species recovery. However, habitat loss from projected oil exploration and development in the Monument is not expected to conflict with recovery plan goals since individual projects are expected to be relatively small (0.5 acres per well pad and 0.3 to 0.75 acres of road per well) compared to the home range of a kit fox (average 1,144 acres) and few wells are projected to be drilled. In addition, standard kit fox mitigation measures and BLM SOPs will be applied as appropriate to all BLM authorizations and projects so that impacts to dens would be avoided. Studies conducted in developed oilfields in western Kern County show a range of kit fox responses to oilfield habitat disturbance and activities. At Elk Hills in western Kern County, there appeared to be similar population density, reproduction, dispersal, and mortality in developed and undeveloped oil fields (cited in USFWS 1998). Moderate intensity oil fields can provide reasonably good habitat for kit foxes if habitat is maintained and mitigation measures are implemented (USFWS 1998). With implementation of avoidance and mitigation measures required at the site-specific project stage, negligible impacts would occur to individual kit foxes. Thus, there would be negligible effects at the population level within the Monument.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by kit foxes and kangaroo rats within several months. Kit foxes are frequently observed near oil field facilities and commonly use developed areas (Cypher et al. 2000). They do not seem to be particularly sensitive to human disturbance.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour off of county roads to minimize the risk of vehicle strikes of listed species.

Oil development activities on 30 acres of the valley floor would have minor impacts to the local and Monument-wide populations of San Joaquin kit foxes considering the extensive distributions within the Carrizo Plain and Elkhorn Plain portions of the Monument.

In the Russell Ranch oilfield, there would be 6.5 acres of new disturbance. There would be 3.5 acres disturbed from new well pads and 3 acres from new roads. Geophysical activities would impact 25 acres through cross-country travel and shot hole drilling. San Joaquin kit foxes are not common in this area, and impacts would be avoided (and thus negligible) by implementing den avoidance measures. This disturbance of 6.5 acres would not impact or would have negligible impacts to San Joaquin kit fox and giant kangaroo rats with implementation of avoidance criteria.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing den avoidance requirements would have minor impacts on San Joaquin kit fox at the site-specific and population levels. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid dens and burrows and cause minimal den and burrow collapse.

4.2.5.3 Blunt-Nosed Leopard Lizard

Impacts to the Blunt-Nosed Leopard Lizard Common to All Action Alternatives

Impacts to the Blunt-Nosed Leopard Lizard from Implementing the Wildlife Program

Wildlife. The wildlife management goals to manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, rare natural communities, and conservation of the regional landscape would have major beneficial impacts to the conservation and recovery of the blunt-nosed leopard lizard.

There would be major beneficial impacts to blunt-nosed leopard lizards by implementing the specific objectives to:

- identify core geographic areas for endangered species population management and recovery ;
- give endangered species habitat primary management priority in core areas;
- maintain and enhance viable populations within core areas; and
- allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values).

The designation and management of the three listed species core areas (Map 3-2) would maintain blunt-nosed leopard lizard populations within the Monument in the long term. However, the ability to achieve effective vegetation management varies among the action alternatives.

The management of the core areas applies a strategy of effective habitat management to improve habitat conditions when necessary on about 37 percent of the blunt-nosed leopard lizard habitat in the Monument. In most years the amount of grass and herbaceous vegetation is in balance between providing prey (grasshoppers, beetles, side-blotched lizards) for blunt-nosed leopard lizards and a structure of low, patchy vegetation and bare ground favored by blunt-nosed leopard lizards to capture prey and escape predators. When rainfall is below or near the annual average, the amount of native annuals and nonnative grasses and herbs is fairly low and provides these conditions. However, when rainfall exceeds the average for several successive years or when the annual rainfall is far above the average, there is exceptionally high production of the annual native and nonnative vegetation. While most of the native annual flora in the Monument is small herbs and wispy-like grasses, the nonnative grasses (primarily red brome, ripgut brome, soft chess, foxtail barley, and wild oats) are more dense and persistent. The nonnative filaree can also cover a high percentage of the ground, and can be quite dense in the winter and spring seasons to hinder leopard lizard movement. However, filaree dries during the spring and shatters quite easily as summer progresses and may become less of a hindrance for hatchlings that occur in the late summer and fall. Management of the core areas would trigger vegetation treatments by applying livestock grazing or prescribed fire to reduce the amount of persistent nonnative grasses.

For blunt-nosed leopard lizard core areas, the threshold is to apply management when herbaceous biomass is greater than 1,000 pounds per acre, to maintain biomass/residual dry matter between 500 pounds per acre and 1,000 pounds per acre during the blunt-nosed leopard lizard active period (May through September). Although there are provisions to apply livestock grazing or prescribed fire based on giant kangaroo rat abundance and biomass levels of 1,600 pounds per acre in the core areas, the habitat requirements of blunt-nosed leopard lizards is for less vegetative cover than for giant kangaroo rats. Based on the known distributions and records of blunt-nosed leopard lizards within the Monument, the core areas that would likely receive vegetation treatment in high biomass years would include the East Cochora, West Cochora, Old Corral North, Van Matre, Fault, Phelan, South Anderson, and Recruit Grade

pastures. This totals about 25,500 acres of the core areas, or 29 percent of the blunt-nosed leopard lizard habitat in the Monument. Considering the pasture boundaries and topography, about 31,500 acres could be grazed for blunt-nosed leopard habitat maintenance, approximately 36 percent of the blunt-nosed leopard lizard habitat in the Monument.

It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 22 or 23 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire or livestock grazing to improve habitat conditions that may threaten blunt-nosed leopard lizard populations. It is likely that blunt-nosed leopard lizards would require more frequent vegetation management treatments than giant kangaroo rats since they are less tolerant of thick vegetation structure. It is unknown if low populations of blunt-nosed leopard lizard always coincide with periods of high grass production, but based on the last such period when populations were monitored and found to be mostly absent in the CPNM, it is prudent to target the nonnative grasses under these conditions.

The core areas were selected because they had consistently high populations in most years, appeared to have good long-term habitat quality, and were of a size that could be affected by fire or livestock grazing. The strategy is to have these areas as “safety nets” where there is a high likelihood that the vegetation can be reduced by fire or grazing when needed.

On the Monument, the distributions and abundance of giant kangaroo rat populations may determine habitat suitability of blunt-nosed leopard lizards across the landscape. Because of this relationship, management of giant kangaroo rats, the keystone species in this ecosystem, strongly affects the blunt-nosed leopard lizard. The impacts described for giant kangaroo rats would be similar for this species, but monitoring of blunt-nosed leopard lizard populations would be necessary to better determine this relationship and apply appropriate management.

The wildlife management objectives that enhance or maintain the variety of animals within the Monument are likely to have moderate to major benefits to blunt-nosed leopard lizards throughout the life of the plan. For example, the management of low habitat structure for mountain plovers in upland areas outside of the core areas will provide suitable habitat for blunt-nosed leopard lizards. Fencing and signing projects would be implemented to avoid burrows and take of blunt-nosed leopard lizards and thus would have negligible effects. Areas that would be removed from livestock grazing to protect vernal pools, washes with Sphinx moths, or riparian habitats would be relatively small in size and would not affect blunt-nosed leopard lizards in most years. These areas would not usually occur in core areas and would be compatible with blunt-nosed leopard lizard objectives outside of the core areas.

Research and monitoring activities that address habitat quality and ecology of blunt-nosed leopard lizards and associated listed and non-listed species would have a long-term benefit to this species. Any take or project effects would be authorized under state and federal permitting requirements and would be evaluated and mitigated in project-specific environmental analyses.

Management for a diversity of wildlife habitats would have moderate to major benefits to blunt-nosed leopard lizards in those areas where there is an objective to create a low structure of vegetation. Since the overall objective is to create a diversity of habitat structure within the Monument, a large portion of the Monument would be managed to benefit this species. The creation and maintenance of a mosaic of grassland and shrubland habitats would likely maintain blunt-nosed leopard lizards across the Monument landscape. Population monitoring and AM would indicate habitat management prescriptions to help meet population and distribution objectives.

Impacts to the Blunt-Nosed Leopard Lizard from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities may disturb habitat along fire control lines, at staging areas, in retardant drops, and in cross-country travel. Burrows may be crushed, animals entombed, and vehicle strikes may occur. In grassland habitats the suppression activities are usually kept to the least amount of disturbance needed to control the fire with mobile attack, retardant, or a single dozer line, resulting in negligible impacts. These impacts are temporary in duration and are usually revegetated naturally by annual plants within one to three years. Kangaroo rats often reoccupy the disturbed sites immediately following the suppression activities, providing habitat for blunt-nosed leopard lizards. Restoration of firelines may occur with native plant seedings, which would have negligible impacts similar to those described for restoration activities. Fire control impacts a very small amount of habitat in the landscape and would not affect animals at the population level. Fire suppression often benefits blunt-nosed leopard lizards by minimizing the loss of saltbush plants which are intolerant of fire (Germano et al. 2001). Scattered saltbush or linear stands along drainages are important habitat features for thermal, feeding, and escape cover. However, wildfire can open dense saltbush scrub stands creating habitat more favorable for blunt-nosed leopard lizards.

Cultural Resources. Habitat disturbance associated with protection, movement, or removal of historic farming equipment or buildings and construction of barriers, boardwalks, or interpretive panels would result in negligible impacts to blunt-nosed leopard lizards inhabiting the sites. Activities may cause the collapse and entombment of animals and vehicles strikes may occur. Cultural resource excavations and site facilities may remove habitat for a short period of time. However, implementation of SOP avoidance criteria within project footprints would be implemented to minimize project impacts.

Livestock Grazing. Livestock grazing would be conducted to meet the Standards for Rangeland Health so that “viable, healthy, productive, and diverse populations of native and desired species, including special status species, are maintained or enhanced, where appropriate.” Since the Monument management objectives place high priority on the conservation and recovery of special status species, livestock grazing management prescriptions and decisions would be designed and administered to meet this standard. There would be negligible to major beneficial impacts to blunt-nosed leopard lizards, depending on habitat conditions, grazing permit terms and conditions, and the need to apply vegetation management prescriptions.

Recreation. The placement of informational signs and the development of potable water at dispersed camping sites and at existing campgrounds would have negligible impacts on blunt-nosed leopard lizards. There could be some instances where these projects would occur in blunt-nosed leopard lizard habitat, but nearly all the direct impacts would be localized, would be avoidable, and would not affect blunt-nosed leopard lizards at the population level. The indirect effects of greater recreational activities near upgraded water sources would have a wider area of human impacts on blunt-nosed leopard lizard habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The expansion of the visitor center would not affect blunt-nosed leopard lizard habitat. There would be benefits to listed species through improved visitor and environmental education opportunities at the center, which may help implement conservation and recovery of the CPNM species.

Minerals. The impacts would be the same as under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Potential impacts to blunt-nosed leopard lizards include direct mortality, loss of burrows, loss or alteration of habitat, and harassment. The construction and maintenance of well pads, access roads,

pipelines, and other oil field structures may trap or bury leopard lizards in their burrows. Lizards can also drown or become entrapped in spilled oil or tarry substances. Blunt-nosed leopard lizards may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. Although BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, avoid leopard lizard burrows, install exclusion barriers, and minimize take to the greatest extent practicable, there would likely be some loss of burrows used by blunt-nosed leopard lizards. Exclusion barriers would keep animals adjacent to the construction footprint from wandering onto the edge of the construction area where they could be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations. Drilling activities typically last up to 20 days per well. Once a well is drilled, operations and maintenance activities may occur daily.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by blunt-nosed leopard lizards within several months.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

Oil development activities on 30 acres of the valley floor would have minor impacts to the local and Monument-wide populations of blunt-nosed leopard lizards considering the extensive distributions (over 85,000 acres) within the central and southern portions of the CPNM. The disturbance of 6.5 acres in the Russell Ranch oilfield would not impact or would have negligible impacts to blunt-nosed leopard lizards since this area is outside the current range of the species.

Geophysical activities would have a transient impact on 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing 50-foot buffer avoidance requirements would have negligible to minor impacts on blunt-nosed leopard lizards at the site-specific and population levels. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than ten feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. While the detonation of the charges is perceptible to humans within 200 feet of a shot hole, the effects of the noise on the blunt-nosed leopard lizard is unknown. Specific monitoring of blunt-nosed leopard lizard activity response to shot hole drilling and detonations has not been conducted to date. Vibroseis source point generation would only occur on existing roads in the Monument. Although

the impacts of shot hole source point generation are expected to be substantially less than vibroseis, focused studies on shot hole impacts on blunt-nosed leopard lizards have not been conducted to date.

Impacts to the Blunt-Nosed Leopard Lizard under the Proposed Plan (Alternative 2)

Impacts to the Blunt-Nosed Leopard Lizard from Implementing the Wildlife Program

Wildlife. Management of the likely non-core treatment areas to maintain populations of blunt-nosed leopard lizards would have moderate to major beneficial impacts to this species. The application of livestock grazing and prescribed fire as vegetation management tools would provide options to apply effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

Impacts to the Blunt-Nosed Leopard Lizard from Implementing Other Programs

Vegetation. Restoration activities to reintroduce native plants into previously cultivated farm fields or in habitats with a low proportion of native plant species would have minor impacts on blunt-nosed leopard lizards. The use of a tractor-pulled range drill/seeder may run over and collapse giant kangaroo rat burrows. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard and when blunt-nosed leopard lizards are no longer above ground. Where burrows are scattered, they are easily avoided if collapse is observed to occur. Strip seeding, leaving large areas untreated, would be used in more densely populated giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, or other special status animal species habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely have minor to moderate benefit to blunt-nosed leopard lizards with a more diverse array of plant species that would support a more diverse prey base.

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off road travel) could disturb habitat, crush vegetation, collapse burrows, entomb animals, or result in vehicle strikes. The activities would be kept to a minimum and the effects to blunt-nosed leopard lizards would be negligible.

Mowing vegetation may cause burrow collapse, entombment, and vehicle strikes. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. However, lizards may be killed by mowing activities if conducted when they are above ground. The 350 acres to be treated is a very small portion of the landscape and thus the effects to blunt-nosed leopard lizard populations would be negligible if conducted when lizards are not above ground. Mowing would reduce the thick cover along travel routes, allowing better visibility for animals to avoid vehicles and for motorists to see animals and avoid striking them.

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill animals in the direct heat of the burn. However, burrows and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. The impact to a small amount of acreage would have negligible effects on blunt-nosed leopard lizard populations.

Prescribed fire would have moderate to major benefits from managing vegetation to maintain blunt-nosed leopard lizard populations in high biomass years, as described in the No Action Alternative.

Impacts under No Action Alternative (for reference):

The use of prescribed fire on 30,000 acres within the Monument would provide moderate to major benefits to blunt-nosed leopard lizard populations, depending habitat conditions. There may be some direct mortality to lizards from fire, but this has not been studied to date. The relative beneficial impacts to habitat would be major when dense vegetation is removed and the habitat stays open for several years. The impacts would be more moderate when vegetation is already quite open and generally suitable. Blunt-nosed leopard lizard populations increased following a landscape level burn in the Lokern area in western Kern County between 1997 and 2005 (Germano et al. 2006). However, pre-burn populations and populations in adjacent unburned areas were not monitored to compare effects.

Prescribed fire could be used in the core areas and adjacent non-core areas if needed to improve or maintain habitat conditions for leopard lizards. If additional treatment outside of the core areas is needed, it would most likely be applied in the adjacent non-core areas. However, the non-core areas that may be treated may change as habitat conditions, blunt-nosed leopard lizard distributions, and management prescriptions change over time. The damage to saltbush plants may be avoided by placement of fire control lines and by excluding saltbush from within the burn area. Prescribed fire has been observed to maintain a more open habitat structure favorable to blunt-nosed leopard lizards. The burn effects usually last between 3 and 5 years, depending on subsequent annual rainfall. There may be some direct mortality to blunt-nosed leopard lizards within the burn areas, but the extent is unknown. The habitat improvement would likely be positive at the population level. While there would be a loss of saltbush shrubs in the burn areas, this would have moderate to major benefits to blunt-nosed leopard lizard populations within the post-burn areas.

Livestock Grazing. Under the proposed plan (Alternative 2), livestock grazing may be occasionally applied in the core areas and adjacent non-core areas to maintain habitat conditions for blunt-nosed leopard lizards so that they would not disappear from the Monument. Based on objectives and management prescriptions described in the Conservation Target Table, vegetation management may be applied when vegetation mass exceeds 1,000 pounds per acre in leopard lizard core areas. It is estimated that excessive amounts of standing vegetation biomass may occur in high rainfall periods on average about two years in ten. During these conditions, livestock grazing may be applied to reduce high amounts of standing biomass to improve habitat conditions for blunt-nosed leopard lizards. When such conditions occur, approximately 43,000 acres would be potentially treated in pastures that contain the blunt-nosed leopard lizard core areas. If additional treatment is needed, it would most likely be applied in the adjacent non-core areas. Under this scenario, approximately 29,000 acres may be treated with livestock grazing (in addition to the core areas) in pastures that contain the adjacent non-core areas. However, the non-core areas that may be treated would be based on habitat conditions, leopard lizard distributions, and management prescriptions change over time.

The impacts of livestock grazing in the vegetation management areas under this alternative would be the same as those described in the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Under the No Action Alternative, livestock grazing would have moderate to major beneficial impacts when used as a vegetation management tool to reduce high amounts of standing biomass of persistent nonnative grasses for the benefit of blunt-nosed leopard lizards in high biomass years. Management of tall nonnative grasses (for example, red brome and foxtail barley) to maintain an open habitat structure for this species is believed to be critical. Ground cover between 15 to 30 percent is considered optimal for blunt-nosed leopard lizards and greater than 50 percent is unsuitable (Chesemore 1980). Blunt-nosed leopard lizards rely on open habitats to capture arthropods and small lizards (Montanucci 1965). They avoid predation by running under shrubs or into small mammal burrows (Germano et al. 2001). In most

years, giant kangaroo rats and low vegetation production are able to maintain suitable blunt-nosed leopard habitat structure. Vegetation management is required when biomass and persistent grass cover creates an extensive thatch across the landscape. Recent studies on the effects of grazing on blunt-nosed leopard lizards indicate that this species is more abundant in grazed than ungrazed pastures in the Lokern Natural Area (Germano et al. 2006). Previous studies at the Elkhorn Plain Ecological Reserve from 1991 to 1993, however, indicated that blunt-nosed leopard lizards survived years of low and high plant productivity equally on grazed and ungrazed pastures, though years of drought and a lack of grazing treatment in some years makes these results inconclusive (Williams et al. 1993; Germano et al. 1994; Germano and Williams 2005). The blunt-nosed leopard lizard recovery plan states that light to moderate grazing may be beneficial (USFWS 1998).

Management of nonnative vegetation by grazing or fire could affect distributions of blunt-nosed leopard lizards. Radio telemetry studies conducted by Warrick et al. (1998) showed a strong avoidance for grasslands with dense grass cover and lizards instead used washes, roads, and floodplains. Areas with more open ground cover resulting from recent sheep grazing and wildfire were used in proportion to their availability. In the Monument, large areas of habitat became unsuitable for blunt-nosed leopard lizards when dense grass cover dominated the landscape in mid to late 1990s.

Key problems for blunt-nosed leopard lizards result from dense grass cover during the spring when yearling and adult lizards emerge from winter torpor (greatly slowed metabolic rate while underground). The prescribed burning proposed in the Monument is also a feasible tool to reduce vegetative cover for the benefit of blunt-nosed leopard lizard, but its application occurs after spring growth has been completed and annual plants have dried. This usually occurs in late May or early June, four to six weeks after the emergence of blunt-nosed leopard lizard from winter torpor. During this period, lizards start reproduction activities and replenish body mass through extensive foraging (Germano et al. 1994). This coincides with rapid spring growth of annual vegetation as the result of winter moisture and rising spring temperatures. At this time, blunt-nosed leopard lizards can be impeded from foraging activities, reproductive activities, and predator avoidance with dense grass cover (Warrick et al. 1998). Giant kangaroo rat activity of clearing vegetation on and around their precincts starts as plant seeds begin to ripen (USFWS 1998). This occurs later in the spring, usually several weeks after blunt-nosed leopard lizards have been active, and after the lizards need to regain lost body reserves. In years of extensive nonnative annual plant growth, giant kangaroo rat clearing of vegetation occurs across the landscape only after late June or July. Until this occurs, blunt-nosed leopard lizards are more likely to use washes, roads, barren soils, or floodplains, which may result in greater predation rates. While the mechanisms of population declines may not be fully understood, population data at several sites throughout the range of blunt-nosed leopard lizards (including some telemetry studies) have documented precipitous declines in years of heavy grass cover. In years of low annual vegetation production, or when the build-up of ground cover is not extensive, the landscape is suitable in nearly all the uplands during the spring period and populations have increased or have been relatively stable.

Livestock grazing during the winter and spring seasons can reduce biomass prior to, or coinciding with, emergence of blunt-nosed leopard lizards in the spring. Application of livestock grazing on most blunt-nosed leopard lizard habitat in the Monument is a feasible management tool in years of extensive nonnative annual plant growth. The current habitat management would provide flexibility for managers to apply grazing as needed to reduce vegetative structure with moderate to major benefit of blunt-nosed leopard lizards.

Livestock grazing can result in removal of shrub cover, soil degradation, and trampling of rodent burrows used as blunt-nosed leopard lizard shelter if livestock stocking rate is too high or animals are left on the range too long after annual plants have died (Chesemore 1981; Williams et al. 1988). However, current livestock grazing guidelines used in the Monument would not result in large impacts to shrubs, soils, or

burrows. There may be lower densities of giant kangaroo rats in grazed pastures relative to ungrazed pastures in some years in the Monument (Christian et al., in prep.). This could result in fewer acres clipped by giant kangaroo rats and fewer burrows available for use by leopard lizards in grazed pastures. However, livestock grazing would likely supplement or exceed vegetation biomass removal by all giant kangaroo rats within a grazed pasture.

Application of the Conservation Target Table would refine management prescriptions to maintain suitable blunt-nosed leopard lizard habitat and viable populations. Thus, livestock grazing in the vegetation management areas would have moderate to major beneficial impacts to maintain blunt-nosed leopard lizard populations on the Monument.

Livestock grazing in the Section 15 Recruit, South Anderson, South Selby, and Sulphur Canyon pastures under this alternative would likely occur in five of ten years. The impacts would be the same as described in the No Action Alternative (as described below), with moderate to major beneficial impacts to maintaining blunt-nosed leopard lizards in these areas in the occasional wet years with high vegetation biomass. There would be negligible to moderate beneficial impacts when livestock grazing occurs in years of less than high vegetation biomass.

Impacts under No Action Alternative (for reference):

The Recruit and South Anderson pastures in the Section 15 North Temblor Allotment would continue to provide suitable blunt-nosed leopard lizard habitat under the Standards for Rangeland Health and Caliente RMP guidelines. Livestock grazing in these pastures has generally occurred on an annual basis within a green season of use and would be expected to be applied when minimum residual dry matter requirements are present. While livestock grazing is not applied with the direct intent to manage blunt-nosed leopard lizard habitat (as in the vegetation management areas), the grazing of forage and biomass would likely continue to maintain habitat structure and would have moderate to major benefit for the species.

The Section 15 allotments on the south side of the Caliente Range on the alluvial fans and drainages in the northern fringe of the Cuyama Valley would provide suitable habitat for blunt-nosed leopard lizards under the Standards for Rangeland Health and Caliente RMP guidelines. Livestock grazing in these pastures has generally occurred on an annual basis within a green season of use and would be expected to be applied when minimum residual dry matter requirements are present. This would have moderate to major benefit to leopard lizards in years of high vegetation biomass.

Travel Management. The impacts to blunt-nosed leopard lizard would be the same as Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

The closure and limited designation of roads in blunt-nosed leopard lizard habitat in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. Most vehicle travel occurs during daylight when blunt-nosed leopard lizards are active and commonly using roads and adjacent berms. The restricted vehicle access would have a minor to moderate positive effect, to reducing the risk of vehicle strikes in the Monument.

Impacts to the Blunt-Nosed Leopard Lizard under Alternative 1

Impacts to the Blunt-Nosed Leopard Lizard from Implementing the Wildlife Program

Wildlife. Management of the likely non-core treatment areas to maintain populations of blunt-nosed leopard lizard would have moderate to major beneficial impacts to the species. However, the elimination of livestock grazing and prescribed fire as vegetation management tools would hinder effective habitat

management in these areas and could result in moderate to major detrimental effects. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

Impacts to the Blunt-Nosed Leopard Lizard from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off-road travel) could disturb habitat, crush vegetation, collapse burrows, entomb animals, or result in vehicle strikes. The activities would be kept to a minimum and the effects to blunt-nosed leopard lizards would be negligible.

The elimination of prescribed fire to manage the nonnative grass and herbaceous vegetation within the blunt-nosed leopard lizard core and likely non-core treatment areas would have major detrimental impacts to this species. While there is no need to apply prescribed fire in most years when rainfall is below average or when annual vegetation is not tall and thick, the use of prescribed fire is considered a valuable management tool when thick grassy conditions occur. It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire to improve habitat conditions that may threaten blunt-nosed leopard lizard populations.

Mowing vegetation may cause burrow collapse, entombment, and vehicle strikes. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. The 25 acres to be treated is a very small portion of the landscape and thus the effects to blunt-nosed leopard lizard populations would be negligible.

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill animals in the direct heat of the burn. However, burrows and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. The impact to a small amount of acreage would have negligible effects on blunt-nosed leopard lizard populations.

Livestock Grazing. The elimination of livestock grazing in the Monument would have major detrimental impacts to blunt-nosed leopard lizard populations and could threaten conservation and recovery of the species. The removal of livestock grazing would result in higher amounts of herbaceous vegetation across the landscape in wet years and as residual dry matter accumulates through time. In areas with high giant kangaroo rat abundance, the accumulation would be much less or would not occur. In exceptionally dry rainfall years or in a series of below-average rainfall years, livestock grazing would not typically occur or would not be a factor in maintaining favorable habitat conditions. Giant kangaroo rats appear to be able to successfully manipulate herbaceous vegetation on their precincts in most years and provide suitable habitat for blunt-nosed leopard lizards. However, in high biomass years, this may not be the case since kangaroo rats typically start to remove standing vegetation one or more months after blunt-nosed leopard lizards emerge from torpor and begin feeding and reproduction activities. The elimination of livestock grazing would become a factor in blunt-nosed leopard lizard habitat suitability in the exceptionally wet years when herbaceous plant cover would produce less-than-optimum, or unfavorable, habitat conditions.

Areas of dense vegetation are not considered suitable for blunt-nosed leopard lizard (Montanucci 1965), and an increase in persistent and thick grass cover has been found to be a detriment to blunt-nosed leopard lizards in several study populations (Warrick et al. 1998; Germano et al. 2006). Lizards would seek open

areas in washes, roads, and barren areas in the spring season before the vegetation is removed by giant kangaroo rats. However, such areas would likely be marginally available within the Carrizo and Elkhorn Plains in high grass production years. In addition, giant kangaroo rat census data suggest that in years of extreme rainfall and/or with an accumulation of residual dry matter, giant kangaroo rat populations also decline (Single et al. 1996; Germano and Saslaw 2007). Without the vegetation clipping of giant kangaroo rats, the annual nonnative grasses persist through the summer season as an impediment to hatchling blunt-nosed leopard lizards into the fall season. Successive years of residual dry matter retention that results in a build-up of grassy cover would reduce the habitat quality of extensive acreage in the Monument. Thus, blunt-nosed leopard lizard populations could decline across the landscape during periods of high biomass production and accumulation. Management of vegetation by livestock grazing or prescribed fire could be applied and it is uncertain if the populations would persist in the core areas.

The elimination of livestock grazing on the southern alluvial fans and flat-bottomed drainages of the Caliente Range on the northern fringe of the Cuyama Valley would have negligible effects in most years. However, when these sites become excessively covered with nonnative grasses in extremely wet periods, the habitat quality would likely be compromised. The fragmented distribution of the suitable habitat in this area may make repopulation somewhat unlikely for longer periods of time. Prescribed fire could not be applied in these areas without high mortality of saltbush shrubs and without substantial risk of the fire escaping upslope. The chance of effective treatment seems to be quite low without livestock grazing as a possible tool. This may be an important factor in maintaining a viable population of blunt-nosed leopard lizards in the Cuyama Valley where most acres across the valley have been converted to intensive agriculture. Thus, the elimination of livestock grazing in this area could have moderate to major detrimental effects in the conservation of blunt-nosed leopard lizards in the Cuyama Valley.

Recreation. The Primitive recreation zones to be managed as having wilderness characteristics overlap with the core area for blunt-nosed leopard lizard in the West Well, Silver Gate, East Painted Rock, East Cochora, West Cochora, South Cousins, Kinney-Hahl, and Van Matre pastures. If mowing of vegetation is required to implement core area habitat management actions, this would not be consistent with the wilderness objectives.

Travel Management. The closure and limited designation of roads in blunt-nosed leopard lizard habitat in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. Most vehicle travel occurs during daylight when blunt-nosed leopard lizards are active and commonly using roads and adjacent berms. The restricted vehicle access would have a minor to moderate positive effect, to reducing the risk of vehicle strikes in the Monument.

Impacts to the Blunt-Nosed Leopard Lizard under Alternative 3

Impacts to the Blunt-Nosed Leopard Lizard from Implementing the Wildlife Program

Wildlife. The impacts would be the same as described for the proposed plan (Alternative 2).

Impacts to the Blunt-Nosed Leopard Lizard from Implementing Other Programs

Vegetation and Fire/Fuels Management. The impacts would be the same as the proposed plan (Alternative 2).

Livestock Grazing. The impacts from livestock grazing in the vegetation management areas would be similar to those described in the proposed plan (Alternative 2), but prescribed grazing may be used in a larger area of suitable habitat if needed to maintain populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 115,000 acres of suitable habitat (58,000 acres

of pastures containing core areas plus 57,000 acres of suitable blunt-nosed leopard lizard habitat on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama valley outside of the core areas). Livestock grazing in the vegetation management area as prescribed in the Conservation Target Table would have moderate to major beneficial impacts to maintain blunt-nosed leopard lizard populations on the Monument.

Livestock grazing in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and the Sulphur Canyon allotment under this alternative would be the same as described in the No Action Alternative: there may be moderate to major beneficial impacts to maintaining blunt-nosed leopard lizards in these areas in the occasional wet years with high vegetation biomass. There would be negligible to moderate beneficial impacts when livestock grazing occurs in years of less than high vegetation biomass.

Recreation. The development of recreational activities within the front country zone would be expanded through the Elkhorn Plain and additional impacts to blunt-nosed leopard lizards would be expected. New facilities and visitor services would likely result in more vehicle use during daytime hours. The possibility of more direct and indirect impacts from increased visitor activities on the Elkhorn Plain could have moderate to major effects to this species by vehicle collisions, trampling of burrows, and general disturbance from visitor activities. There could be some instances where new projects would occur in blunt-nosed leopard lizard habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect blunt-nosed leopard lizards at the population level. The indirect effects of greater recreational activities near upgraded facilities would increase the area of human impacts on blunt-nosed leopard lizard habitat, and the risk from vehicle strikes may threaten long-term population viability.

Travel Management. The impacts to blunt-nosed leopard lizard would be the same as the No Action Alternative.

Impacts to the Blunt-Nosed Leopard Lizard under the No Action Alternative

Impacts to the Blunt-Nosed Leopard Lizard from Implementing the Wildlife Program

Wildlife. The current Monument goal to contribute to the recovery of listed species by achieving long-term, viable populations of all extant listed species in the Monument would have major beneficial impacts to the conservation and recovery of this federally and California listed endangered species. Current management is implementing the objectives to manage locations and habitat features of listed species to allow for their continued existence and maintenance of viability, provide for the natural expansion and fluctuations of listed species consistent with species recovery, and reduce human-caused hazards to core species.

Impacts to the Blunt-Nosed Leopard Lizard from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have major beneficial impacts to blunt-nosed leopard lizards across the Monument in the short and long term. It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species would provide high quality habitat for this species. However, objectives to increase native plant cover and composition may require avoidance of livestock grazing during the winter and spring seasons of rapid annual plant growth. If this results in an increase of annual plant cover that is structurally too tall or thick for blunt-nosed leopard lizards, habitat quality would be degraded. In many years, annual plant production is low and giant kangaroo rat clipping activities and plant

decomposition can maintain favorable habitat conditions for blunt-nosed leopard lizards. During some above-average rainfall years, dense annual plant growth of native plants, and particularly nonnative grass species, limits the habitat quality for this species. Application of livestock grazing during these conditions, prior to the emergence of blunt-nosed leopard lizards in the spring, would reduce the amount of persistent nonnative grass cover, but could be in conflict with plant community objectives.

The most important element of these objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for blunt-nosed leopard lizards. Within this mosaic, blunt-nosed leopard lizards would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain leopard lizard populations across the Monument landscape considering the high amount of climatic variation and vegetation biomass production and decomposition.

Restoration activities to reintroduce native plants into previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species would have minor impacts on blunt-nosed leopard lizards. Fields within the Carrizo Plain North and Caliente Foothills North subregions are generally outside the occupied range of blunt-nosed leopard lizards in the Monument. The use of a tractor-pulled range drill/seeder may run over and collapse small mammal burrows used by leopard lizards. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Where burrows are scattered, they are easily avoided if collapse is observed to occur. Strip seeding, leaving large areas untreated, would be used in blunt-nosed leopard lizard habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely provide a moderate benefit to leopard lizards with a more diverse array of insect prey species.

Fire and Fuels Management. The use of prescribed fire on 30,000 acres within the Monument would provide moderate to major benefits to blunt-nosed leopard lizard populations, depending habitat conditions. There may be some direct mortality to lizards from fire, but this has not been studied to date. The relative beneficial impacts to habitat would be major when dense vegetation is removed and the habitat stays open for several years. The impacts would be more moderate when vegetation is already quite open and generally suitable. Blunt-nosed leopard lizard populations increased following a landscape level burn in the Lokern area in western Kern County between 1997 and 2005 (Germano et al. 2006). However, pre-burn populations and populations in adjacent unburned areas were not monitored to compare effects.

Livestock Grazing. Under the No Action Alternative, livestock grazing would have moderate to major beneficial impacts when used as a vegetation management tool to reduce high amounts of standing biomass of persistent nonnative grasses for the benefit of blunt-nosed leopard lizards in high biomass years. Management of tall nonnative grasses (for example, red brome and foxtail barley) to maintain an open habitat structure for this species is believed to be critical. Ground cover between 15 to 30 percent is considered optimal for blunt-nosed leopard lizards and greater than 50 percent is unsuitable (Chesemore 1980). Blunt-nosed leopard lizards rely on open habitats to capture arthropods and small lizards (Montanucci 1965). They avoid predation by running under shrubs or into small mammal burrows (Germano et al. 2001). In most years, giant kangaroo rats and low vegetation production are able to maintain suitable blunt-nosed leopard habitat structure. Vegetation management is required when biomass and persistent grass cover creates an extensive thatch across the landscape. Recent studies on the effects of grazing on blunt-nosed leopard lizards indicate that this species is more abundant in grazed than ungrazed pastures in the Lokern Natural Area (Germano et al. 2006). Previous studies at the Elkhorn Plain Ecological Reserve from 1991 to 1993, however, indicated that blunt-nosed leopard lizards survived

years of low and high plant productivity equally on grazed and ungrazed pastures, though years of drought and a lack of grazing treatment in some years makes these results inconclusive (Williams et al. 1993; Germano et al. 1994; Germano and Williams 2005). The blunt-nosed leopard lizard recovery plan states that light to moderate grazing may be beneficial (USFWS 1998).

Management of nonnative vegetation by grazing or fire could affect distributions of blunt-nosed leopard lizards. Radio telemetry studies conducted by Warrick et al. (1998) showed a strong avoidance for grasslands with dense grass cover and lizards instead used washes, roads, and floodplains. Areas with more open ground cover resulting from recent sheep grazing and wildfire were used in proportion to their availability. In the Monument, large areas of habitat became unsuitable for blunt-nosed leopard lizards when dense grass cover dominated the landscape in mid to late 1990s.

Key problems for blunt-nosed leopard lizards result from dense grass cover during the spring when yearling and adult lizards emerge from winter torpor (greatly slowed metabolic rate while underground). The prescribed burning proposed in the Monument is also a feasible tool to reduce vegetative cover for the benefit of blunt-nosed leopard lizard, but its application occurs after spring growth has been completed and annual plants have dried. This usually occurs in late May or early June, four to six weeks after the emergence of blunt-nosed leopard lizard from winter torpor. During this period, lizards start reproduction activities and replenish body mass through extensive foraging (Germano et al. 1994). This coincides with rapid spring growth of annual vegetation as the result of winter moisture and rising spring temperatures. At this time, blunt-nosed leopard lizards can be impeded from foraging activities, reproductive activities, and predator avoidance with dense grass cover (Warrick et al. 1998). Giant kangaroo rat activity of clearing vegetation on and around their precincts starts as plant seeds begin to ripen (USFWS 1998). This occurs later in the spring, usually several weeks after blunt-nosed leopard lizards have been active, and after the lizards need to regain lost body reserves. In years of extensive nonnative annual plant growth, giant kangaroo rat clearing of vegetation occurs across the landscape only after late June or July. Until this occurs, blunt-nosed leopard lizards are more likely to use washes, roads, barren soils, or floodplains, which may result in greater predation rates. While the mechanisms of population declines may not be fully understood, population data at several sites throughout the range of blunt-nosed leopard lizards (including some telemetry studies) have documented precipitous declines in years of heavy grass cover. In years of low annual vegetation production, or when the build-up of ground cover is not extensive, the landscape is suitable in nearly all the uplands during the spring period and populations have increased or have been relatively stable.

Livestock grazing during the winter and spring seasons can reduce biomass prior to, or coinciding with, emergence of blunt-nosed leopard lizards in the spring. Application of livestock grazing on most blunt-nosed leopard lizard habitat in the Monument is a feasible management tool in years of extensive nonnative annual plant growth. The current habitat management would provide flexibility for managers to apply grazing as needed to reduce vegetative structure with moderate to major benefit of blunt-nosed leopard lizards.

Livestock grazing can result in removal of shrub cover, soil degradation, and trampling of rodent burrows used as blunt-nosed leopard lizard shelter if livestock stocking rate is too high or animals are left on the range too long after annual plants have died (Chesemore 1981; Williams et al. 1988). However, current livestock grazing guidelines used in the Monument would not result in large impacts to shrubs, soils, or burrows. There may be lower densities of giant kangaroo rats in grazed pastures relative to ungrazed pastures in some years in the Monument (Christian et al., in prep.). This could result in fewer acres clipped by giant kangaroo rats and fewer burrows available for use by leopard lizards in grazed pastures. However, livestock grazing would likely supplement or exceed vegetation biomass removal by all giant kangaroo rats within a grazed pasture.

The Recruit and South Anderson pastures in the Section 15 North Temblor Allotment would continue to provide suitable blunt-nosed leopard lizard habitat under the Standards for Rangeland Health and Caliente RMP guidelines. Livestock grazing in these pastures has generally occurred on an annual basis within a green season of use and would be expected to be applied when minimum residual dry matter requirements are present. While livestock grazing is not applied with the direct intent to manage blunt-nosed leopard lizard habitat (as in the vegetation management areas), the grazing of forage and biomass would likely continue to maintain habitat structure and would have moderate to major benefit for the species.

The Section 15 allotments on the south side of the Caliente Range on the alluvial fans and drainages in the northern fringe of the Cuyama Valley would provide suitable habitat for blunt-nosed leopard lizards under the Standards for Rangeland Health and Caliente RMP guidelines. Livestock grazing in these pastures has generally occurred on an annual basis within a green season of use and would be expected to be applied when minimum residual dry matter requirements are present. This would have moderate to major benefit to leopard lizards in years of high vegetation biomass.

Travel Management. Impacts to blunt-nosed leopard lizards from Travel Management would be similar to those described for the giant kangaroo rat.

Minerals. Potential impacts to blunt-nosed leopard lizards include direct mortality, loss of burrows, loss or alteration of habitat, and harassment. The construction and maintenance of well pads, access roads, pipelines, and other oil field structures may trap or bury leopard lizards in their burrows. Lizards can also drown or become entrapped in spilled oil or tarry substances. Blunt-nosed leopard lizards may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. Although BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, avoid leopard lizard burrows, install exclusion barriers, and minimize take to the greatest extent practicable, there would likely be some loss of burrows used by blunt-nosed leopard lizards. Exclusion barriers would keep animals adjacent to the construction footprint from wandering onto the edge of the construction area where they could be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations. Drilling activities typically last up to 20 days per well. Once a well is drilled, operations and maintenance activities may occur daily.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by blunt-nosed leopard lizards within several months.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

Oil development activities on 30 acres of the valley floor would have minor impacts to the local and Monument-wide populations of blunt-nosed leopard lizards considering the extensive distributions (over 85,000 acres) within the central and southern portions of the CPNM. The disturbance of 6.5 acres in the Russell Ranch oilfield would not impact or would have negligible impacts to blunt-nosed leopard lizards since this area is outside the current range of the species.

Geophysical activities would have a transient impact on 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing 50-foot buffer avoidance requirements would have negligible to minor impacts on blunt-nosed leopard lizards at the site-specific and population levels. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than ten feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. While the detonation of the charges is perceptible to humans within 200 feet of a shot hole, the effects of the noise on the blunt-nosed leopard lizard is unknown. Specific monitoring of blunt-nosed leopard lizard activity response to shot hole drilling and detonations has not been conducted to date. Vibroseis source point generation would only occur on existing roads in the Monument. Although the impacts of shot hole source point generation are expected to be substantially less than vibroseis, focused studies on shot hole impacts on blunt-nosed leopard lizards have not been conducted to date.

4.2.5.4 San Joaquin Antelope Squirrel

Impacts to the San Joaquin Antelope Squirrel Common to All Action Alternatives

Impacts to the San Joaquin Antelope Squirrel from Implementing the Wildlife Program

Wildlife. The wildlife management goals to manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, rare natural communities, and conservation of the regional landscape would have major beneficial impacts to the conservation and recovery of the San Joaquin antelope squirrel. The Carrizo Plain is one of the two largest populations of antelope squirrels remaining within their range and appropriate habitat management is a key recovery action (USFWS 1998).

There would be major beneficial impacts to San Joaquin antelope squirrel by implementing the specific objectives to:

- identify core geographic areas for endangered species population management and recovery;
- give endangered species habitat primary management priority in core areas;
- maintain and enhance viable populations within core areas; and
- allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values).

The designation and management of the three listed species core areas on 29,800 acres of BLM lands (19 percent of the antelope squirrel habitat in the Monument) would maintain San Joaquin antelope squirrel populations within the Monument in the long term. However, our ability to achieve effective vegetation management varies from Alternative 1 compared to the proposed plan (Alternative 2) and Alternative 3. In the absence of prescribed fire and livestock grazing as vegetation management tools in Alternative 1, it

is unknown whether effective habitat management can be implemented to provide suitable habitat for San Joaquin antelope squirrel when nonnative grasses and herbaceous vegetation reduce habitat quality.

The management of the core areas applies a strategy of effective habitat management to improve habitat conditions when necessary. In most years, the amount of grass and herbaceous vegetation is in balance between providing seeds and green forage and a structure of low, patchy vegetation and bare ground favored by antelope squirrels. When rainfall is below or near the annual average, the amount of native annuals and nonnative grasses and herbs is fairly low and provides these conditions. However, when rainfall exceeds the average for several successive years or when the annual rainfall is far above the average, there is exceptionally high production of the annual native and nonnative vegetation. While most of the native annual flora in the Monument is small herbs and wispy-like grasses, the nonnative grasses (primarily red brome, ripgut brome, soft chess, foxtail barley, and wild oats) are more dense and persistent. The nonnative filaree can also cover a high percentage of the ground, and can be quite dense in the winter and spring seasons. However, filaree dries during the spring and shatters quite easily as summer progresses. Management of the core areas would trigger vegetation treatments by applying livestock grazing or prescribed fire to reduce the amount of persistent nonnative grasses. Since giant kangaroo rats can generally affect the amount of herbaceous vegetation when they are abundant, the strategy includes a provision to apply vegetation treatment when the amount of annual vegetation (primarily nonnative grasses) exceeds 1,600 pounds per acre and when the giant kangaroo rat population is at exceptionally low levels of fewer than 20 animals per hectare (8 animals per acre). Since San Joaquin antelope squirrels are associated with giant kangaroo rats (Rathbun 1998; USFWS 1998) and kangaroo rats in general (Harris and Stearns 1990), this strategy implies that managing the core areas for the habitat requirements of giant kangaroo rats would also meet the habitat requirements of San Joaquin antelope squirrels. Previous studies conducted on antelope squirrels in the CPNM (Langtimm and Rathbun 1995; Rathbun 1998) and the Lokern area in western Kern County (Germano et al. 2006), indicate antelope squirrels also decline when herbaceous vegetation structure becomes thick and dense (Cypher et al. 2003; Germano et al. 2002).

Studies on San Joaquin antelope squirrels and giant kangaroo rats in the Monument (Rathbun 1997; Germano and Saslaw 1996) and in the Lokern area in western Kern County (Germano et al. 2006; Germano and Saslaw 2007) have documented similar population declines and increases from 1995 through 2005. Vegetation management prescriptions are expected to be similar for the two species. It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire or livestock grazing to improve habitat conditions that may threaten San Joaquin antelope squirrel populations. It is unknown if low populations of antelope squirrels always coincide with periods of high grass production, but based on the last such period when populations were monitored and found to be mostly absent in the CPMN, it is prudent to target the nonnative grasses under these conditions.

The core areas were selected because they had consistently high populations in most years, appeared to have good long-term habitat quality, and were of a size that could be affected by fire or livestock grazing. The strategy is to have these areas as “safety nets” where there is a high likelihood that the vegetation can be reduced by fire or grazing when needed.

San Joaquin antelope squirrel populations would likely fluctuate in a manner observed in monitoring studies conducted on the CPNM and in the Lokern area. In most years, San Joaquin antelope squirrel populations would be fairly abundant across the landscape on the Elkhorn Plain and in the central portion of the Carrizo Plain, with or without livestock grazing or prescribed fires to manage vegetation. Giant

kangaroo rats generally maintain adequate vegetation structure that would support antelope squirrel populations. It is expected that during periods of prolonged drought, populations would decline to low numbers with scattered individuals or small colonies that would serve as “founders” to repopulate the landscape when more favorable conditions return. In periods of extremely high precipitation and high biomass of persistent nonnative vegetation, the application of vegetation management (at 1,600 pounds/acre) to reduce the amount of residual dry matter to around 500 to 1,000 pounds per acre in the core areas would create suitable habitat conditions to curtail widespread declines where the treatments occur. While this approach would focus habitat management on 19 percent of the San Joaquin antelope squirrel habitat in the Monument, it would likely avoid landscape-scale population and distribution declines similar to those observed during the 1994 to 2000 period. This is expected to reduce the risk of localized and/or more extensive short-term extirpations of giant kangaroo rats across the Monument during unfavorable wet-grassy periods. Thus, San Joaquin antelope squirrel populations would be maintained, at least in the core areas, in all but prolonged periods of drought. The persistence of these animals in the core areas would help repopulate antelope squirrels into the adjacent non-core areas as well.

The wildlife management objectives that enhance or maintain the variety of animals within the Monument are likely to have minor to moderate benefit to San Joaquin antelope squirrels throughout the life of the plan. For example, the management of low habitat structure for mountain plovers in upland areas outside of the core areas will provide suitable habitat for antelope squirrels. Fencing and signing projects would avoid burrows and minimize take of antelope squirrels and thus would have negligible effects.

Research and monitoring activities that address habitat quality and ecology of San Joaquin antelope squirrels and associated listed and non-listed species would have a moderate to major long-term benefit to this species. Any take or project effects would be authorized under state and federal permitting requirements and would be evaluated and mitigated in project-specific environmental analyses.

Management for a diversity of wildlife habitats would have moderate to major benefit to San Joaquin antelope squirrels in those areas where there is an objective to create a low structure of vegetation. Since the overall objective is to create a diversity of habitat structure within the Monument, a large portion of the Monument would be managed to benefit this species. The creation and maintenance of a mosaic of grassland and shrubland habitats would likely maintain San Joaquin antelope squirrels across the Monument landscape. Population monitoring and AM would indicate habitat management prescriptions to help meet population and distribution objectives.

Impacts to the San Joaquin Antelope Squirrel from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities may disturb habitat along fire control lines, at staging areas, in retardant drops, and in cross-country travel. Burrows may be crushed, animals entombed, and vehicle strikes may occur. In grassland habitats the suppression activities are usually kept to the least amount of disturbance needed to control the fire with mobile attack, retardant, or a single dozer line. These impacts are temporary in duration and are usually revegetated naturally by annual plants within one to three years. Antelope squirrels often reoccupy the disturbed sites immediately following the suppression activities. Restoration of firelines may occur with native plant seedings, which would have negligible impacts similar to those described for restoration activities. Fire control impacts a very small amount of habitat in the landscape and would have negligible effects at the population level. Fire suppression often benefits San Joaquin antelope squirrels and the associated San Joaquin Valley listed animals by minimizing the loss of saltbush plants which are intolerant of fire (Germano et al. 2001). Scattered saltbush or linear stands along drainages are important habitat features for antelope squirrels and would be given high priority for protection during fire suppression activities.

Cultural Resources. Habitat disturbance associated with protection, movement, or removal of historic farming equipment or buildings and construction of barriers, boardwalks, or interpretive panels would result in minimal impacts to San Joaquin antelope squirrels inhabiting the sites. Activities may cause the collapse and entombment of animals and vehicles strikes may occur. Cultural resource excavations and site facilities may remove habitat for a short period of time. However, implementation of SOP avoidance criteria would be implemented to have negligible project impacts.

Livestock Grazing. The impacts would be the same as described for giant kangaroo rat.

Recreation. The placement of informational signs and the development of potable water at dispersed camping sites and at existing campgrounds would have negligible impacts on San Joaquin antelope squirrels. There could be some instances where these projects would occur in antelope squirrel habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect San Joaquin antelope squirrels at the population level. The indirect effects of greater recreational activities near upgraded water sources would have a wider area of human impacts on antelope squirrel habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The expansion of the visitor center would have localized impacts on individual animals inhabiting the site. However, mitigation measures would be implemented to minimize take and efforts would be made to move these animals into adjacent habitat around the visitor center, if warranted. There would be benefits to listed species through improved visitor and environmental education opportunities at the center, which may help implement conservation and recovery of the CPNM species.

Minerals. The impacts would be the same as described in the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Potential impacts to San Joaquin antelope squirrels include direct mortality, loss of burrow systems, loss or alteration of habitat, and harassment. The construction and maintenance of well pads, access roads, pipelines, and other oil field structures may trap or bury antelope squirrels in their burrows. Antelope squirrels can also drown or become entrapped in spilled oil or tarry substances. Antelope squirrels may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. Although BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, and avoid antelope squirrels burrows (and thus San Joaquin antelope squirrels), and minimize take to the greatest extent practicable, the density of antelope squirrels in many areas of the Monument would still result in the loss of some burrows. However, mitigation measures that require the avoidance of take of antelope squirrels from within and directly adjacent to the construction footprint would be implemented. Exclusion barriers may be constructed to remove and exclude antelope squirrels from the construction area. These measures have been applied in western Kern County as a measure to protect antelope squirrels. This measure has been effective when the barriers are properly installed so that the animals cannot dig under the flashing. Construction activities would result in a loss of animals directly within the footprint with some disruption to animals directly adjacent to the well locations. Animals adjacent to the construction footprint may wander onto the edge of the construction area and may be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations when nighttime activities and

lighting occur. Drilling activities typically last up to 20 days per well. Once a well is drilled, maintenance activities would occur on a daily basis. Slow vehicle speed would reduce impacts from vehicle strikes.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by antelope squirrels within several months.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

Oil development activities on 30 acres of the valley floor would have minor impacts to the local and Monument-wide populations of San Joaquin antelope squirrels considering the extensive distributions (over approximately 116,000 acres) and their relatively common abundance within the central and southern portions of the Carrizo Plain. The disturbance of 6.5 acres in the Russell Ranch oilfield would not impact San Joaquin antelope squirrels since this activity is outside of their occupied range.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing 50-foot buffer avoidance requirements would have minor impacts on San Joaquin antelope squirrels at the site-specific and population levels. The extent of the impacts would depend on the project design, primarily the number of shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than 10 feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. While the detonation of the charges is somewhat perceptible to humans within 200 feet of a shot hole, the effects of the noise on antelope squirrel hearing is unknown. However, biologists accompanying seismic crews have not reported animals exiting burrows after detonation. Specific monitoring of San Joaquin antelope squirrel activity response to shot hole drilling and detonations has not been conducted to date. Monitoring studies on geophysical projects in western Kern County surveyed with vibroseis and shot hole source methods reported a decline in the number of burrows within vibroseis corridors 90 days and 1 year following surveys compared to adjacent sample areas. However, there was a substantial increase in new burrows along the routes when they were resampled one year later (Tabor and Thomas 2002). Following vibroseis activities, small mammal burrows are commonly seen within disturbed soils from vehicle travel and vibroseis pad placement (digging into the side of the depressions). However, vibroseis source point generation would only occur on existing roads in the Monument. Although the impacts of shot hole source point generation are expected to be substantially less than vibroseis, focused studies on shot hole impacts on San Joaquin antelope squirrels have not been conducted to date.

Impacts to the San Joaquin Antelope Squirrel under the Proposed Plan (Alternative 2)

Impacts to the San Joaquin Antelope Squirrel from Implementing the Wildlife Program

Wildlife. Management of the non-core areas to maintain populations of giant kangaroo rats would have moderate to major beneficial impacts to San Joaquin antelope squirrels. The application of livestock grazing and prescribed fire as vegetation management tools would provide options to apply effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would be the same as described in Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to antelope squirrels. Pronghorn fawning habitat is best when vegetation height is between 15 and 25 inches tall over up to 80 percent of the fawning area. This structure is too high and thick for suitable San Joaquin antelope squirrel habitat. While antelope squirrels would be scattered in low numbers in the Carrizo Plain North and Caliente Foothill North subregions, these areas would be considered marginal habitat and San Joaquin antelope squirrels populations and distributions would likely be at low numbers when tall/abundant vegetation is present. The removal of fences would remove artificial perches used by raptors to hunt these animals. The overall impacts of managing pronghorn and tule elk habitat in these two subregions would have negligible to minor detrimental impacts to San Joaquin antelope squirrels since these areas are on the edge of their current occupied area. However, this is similar to the existing situation, and overall antelope squirrel populations within the Monument would be maintained in the core and non-core areas to the south.

Impacts to the San Joaquin Antelope Squirrel from Implementing Other Programs

Vegetation. Restoration activities to reintroduce native plants into previously cultivated farm fields or in habitats with a low proportion of native plant species would have minor to moderate beneficial impacts on San Joaquin antelope squirrels. The use of a tractor-pulled range drill/seeder may run over and collapse giant kangaroo rat burrows. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Where burrows are scattered, they are easily avoided if collapse is observed to occur. Strip seeding, leaving large areas untreated, would be used in more densely populated giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, or other special status animal species habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely benefit San Joaquin antelope squirrels with a more diverse array of cover as well as plant, insect, and seed foods.

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off-road travel) could disturb habitat, crush vegetation, collapse burrows, entomb animals, or result in vehicle strikes. The activities would be kept to a minimum and the effects to San Joaquin antelope squirrels would be negligible.

Mowing vegetation may cause burrow collapse, entombment, and vehicle strikes. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. The 350 acres to be mowed is a very small portion of the landscape and thus the effects to San Joaquin antelope squirrel populations would be negligible. Mowing would reduce the thick cover along travel routes, especially

along Soda Lake Road, allowing better visibility for animals to avoid vehicles and for motorists to see antelope squirrels and avoid striking them.

The effects from pile burns would be the same as described in Alternative 1, as below:

Impacts under Alternative 1 (for reference):

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill animals in the direct heat of the burn. However, burrows and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. Antelope squirrels are active during the day and would likely move away from the immediate project area unless during the early spring when young animals have emerged from breeding burrows and remain in that particular site. The timing of project activities and avoidance measures (SOPs) would mitigate these impacts. In general, the impact to a small amount of acreage would have negligible effects on San Joaquin antelope squirrel populations.

The 1,000 acres of prescribed burns and 5 miles of dozer line would have impacts similar to those described for wildfire (see Impacts Common to All Action Alternatives), but the damage to saltbush plants may be avoided by placement of fire control lines and by excluding saltbush from within the burn area. Prescribed fire has been observed to maintain a more open habitat structure favorable to San Joaquin antelope squirrels. The burn effects usually last between 3 to 5 years, depending on subsequent annual rainfall. Direct mortality from fire could occur, but such direct effects have not been studied. While there could be a loss of scattered saltbush shrubs or stringers along drainages in some burn areas, shrub stands would be protected with firelines or would be avoided in burn design. Prescribed fire would have moderate to major beneficial impacts to San Joaquin antelope squirrels.

Livestock Grazing. Under the proposed plan (Alternative 2), livestock grazing may be occasionally applied in the core areas and adjacent non-core areas to maintain habitat conditions for San Joaquin antelope squirrels so that they would not disappear from the Monument. Based on objectives and management prescriptions described in the Conservation Target Table, vegetation management may be applied when there are low numbers of giant kangaroo rats and biomass is in excess of 1,600 pounds per acre. It is estimated that excessive amounts of standing vegetation biomass may occur in high rainfall periods on average about two years in ten. During these conditions, livestock grazing may be applied to reduce high amounts of standing biomass to improve habitat conditions for antelope squirrels. When such conditions occur, approximately 58,000 acres would be potentially treated in pastures that contain the core areas. If additional treatment is needed, it would most likely be applied in the adjacent non-core areas. Under this scenario, approximately 29,000 acres may be treated with livestock grazing (in addition to the core areas) in pastures that contain the adjacent non-core areas. However, the non-core areas that may be treated may change as habitat conditions, antelope squirrel distributions, and management prescriptions change over time.

The impacts of livestock grazing in the vegetation management areas under this alternative would be the same as those described in the No Action Alternative.

Impacts under No Action Alternative (for reference):

Livestock grazing would have negligible to major positive effects to San Joaquin antelope squirrels, depending on rainfall and vegetation biomass. Livestock grazing can affect San Joaquin antelope squirrels in several ways. Collapsing of burrows can occur but there is no evidence to support that this has a negative effect on antelope squirrel populations. In a study by Langtimm and Rathbun (1995), squirrels were found to use a number of different night burrows and many different burrows during the day, suggesting flexibility to move if a used burrow becomes collapsed. Also, the giant kangaroo rat burrow

systems contain numerous burrow openings allowing for other means of escape (USFWS 1998). Shrub communities can be seriously impacted by livestock. Rubbing, scratching, and trampling can break branches, remove foliage, and sometimes destroy plants completely. Indirectly, if a shrub or group of shrubs is removed from the plant community so that it no longer supports insects, an important part of the antelope squirrel's diet (Harris and Stearns 1990). Shrub impacts could also reduce cover for squirrels. This would not affect squirrels that occupy areas where shrubs are not the dominant landscape feature, such as in open grassland. Giant kangaroo rats and their burrow systems may be the key component in the squirrels' habitat in these areas suggesting that what is beneficial for one animal also benefits the other. Where grazing reduces dense, herbaceous ground cover, antelope squirrels could be affected in a positive way. Cypher et al. (2003), found a negative relationship between high, dense vegetation and San Joaquin antelope squirrel abundance. Dense nonnative grasses and other annuals could greatly diminish the inability of squirrels to escape their predators.

There is evidence to suggest that populations of small mammals and reptiles throughout the southern San Joaquin Valley were in decline from 1996 to 2001 (Germano et al. 2001). Giant kangaroo rats, San Joaquin antelope squirrels, blunt-nosed leopard lizards, and other lizard species suffered declines within the Monument. Following the drought in the late 1980s, antelope squirrels were seen in many areas within the known range for antelope squirrels on the Carrizo and Elkhorn Plains. Trapping and tagging of antelope squirrels in the same locations over a period of five years (1994 through 1998) detected a steady decline in the number of antelope squirrels captured (Rathbun 1997). When portions of the study area were included in a prescribed burn to eliminate stands of dense nonnative grasses, more animals were captured in the burned areas. However antelope squirrel numbers continued to decline across the entire region where they were once abundant. Other surveys also show the decline in antelope squirrel abundance on the Carrizo Plain (Langtimm and Rathbun 1995; Rathbun 1997). The actual cause for the declines is not completely understood, though a number of factors suggest that periods of above-average rainfall followed by tall, dense growth of nonnative grasses impeded movement for foraging as well as for escaping from predators (Germano et al. 2001; Cypher et al. 2003). During the same period, giant kangaroo rats also disappeared from the study sites on the Monument, though at a slower rate. In the Lokern Natural Area, studies on the effect of livestock used as a management tool to reduce the dominance of nonnative grasses and to benefit listed species showed positive results. In the absence of tall, dense vegetation, numbers of small mammals and reptiles have increased, including San Joaquin antelope squirrels (Germano et al. 2006). In the *Recovery Plan for Upland Species of the San Joaquin Valley, California*, controlled livestock grazing is treated as a potential conservation effort needed for giant kangaroo rats (USFWS 1998). Close association between giant kangaroo rats and antelope squirrels implies a positive impact to San Joaquin antelope squirrels from reduced vegetation by grazing or other means.

Application of the Conservation Target Table would refine management prescriptions to maintain suitable antelope squirrel habitat and viable populations. Thus, livestock grazing in the vegetation management areas would have moderate to major beneficial impacts to maintain antelope squirrel populations on the Monument.

Livestock grazing in the Section 15 Recruit, South Anderson, South Selby, and Sulphur Canyon pastures under this alternative would likely occur in five of ten years. There would be moderate to major beneficial impacts to maintaining San Joaquin antelope squirrels in these areas in the occasional wet years with high vegetation biomass. There would be negligible to moderate beneficial impacts when livestock grazing occurs in years of less than high vegetation biomass.

A more focused giant kangaroo rat study was initiated in 2006 by the managing partners and the University of California, Berkeley, to evaluate livestock grazing between grazed and ungrazed plots in the central Carrizo Plain core area. This study is researching the interactions of cattle grazing and giant

kangaroo rat grazing on vegetation composition and structure and on giant kangaroo rat populations in paired grazed and ungrazed (cattle excluded) plots. San Joaquin antelope squirrels are also being studied to determine the associated habitat and grazing effects. This information will be incorporated into future management prescriptions designed to maintain giant kangaroo rat and San Joaquin antelope squirrel populations through habitat management practices.

Travel Management. The closure and limited designation of roads in San Joaquin antelope squirrel habitat in the Monument would have the same impacts described in Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

The closure and limited designation of roads in San Joaquin antelope squirrel habitat in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. San Joaquin antelope squirrels are active during daylight hours when visitor use and vehicle travel is highest. The restricted vehicle access would have a minor positive effect, reducing the risk of vehicle strikes in the Monument.

Impacts to the San Joaquin Antelope Squirrel under Alternative 1

Impacts to the San Joaquin Antelope Squirrel from Implementing the Wildlife Program

Wildlife. Management of the non-core areas to maintain populations of giant kangaroo rats would have moderate to major beneficial impacts to San Joaquin antelope squirrels. However, the elimination of livestock grazing and prescribed fire as vegetation management tools would hinder effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

The management of the Carrizo Plain North and Caliente Foothills North subregions for the benefit of pronghorn and tule elk would result in habitat structure not generally favorable to antelope squirrels. Pronghorn fawning habitat is best when vegetation height is between 15 and 25 inches tall over up to 80 percent of the fawning area. This structure is too high and thick for suitable San Joaquin antelope squirrel habitat. While antelope squirrels would be scattered in low numbers in the Carrizo Plain North and Caliente Foothill North subregions, these areas would be considered marginal habitat and San Joaquin antelope squirrel populations and distributions would likely be at low numbers when tall/abundant vegetation is present. The removal of fences would remove artificial perches used by raptors to hunt these animals. The overall impacts of managing pronghorn and tule elk habitat in these two subregions would have negligible to minor detrimental impacts to San Joaquin antelope squirrels since these areas are on the edge of their current occupied area. However, this is similar to the existing situation, and overall antelope squirrel populations within the Monument would be maintained in the core and non-core areas to the south.

Impacts to the San Joaquin Antelope Squirrel from Implementing Other Programs

Fire and Fuels Management. Fire suppression activities (dozer line, handline, mobile attack, fire retardant, off-road travel) could disturb habitat, crush vegetation, collapse burrows, entomb animals, or result in vehicle strikes. The activities would be kept to a minimum and the effects to San Joaquin antelope squirrels would be negligible.

The elimination of prescribed fire to manage the nonnative grass and herbaceous vegetation within the San Joaquin antelope squirrel core and likely non-core treatment areas would have major detrimental impacts to this species. While there is no need to apply prescribed fire in most years when rainfall is

below average or when annual vegetation is not tall and thick, the use of prescribed fire is considered a valuable management tool when thick grassy conditions occur. It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire to improve habitat conditions that may threaten San Joaquin antelope squirrel populations.

Mowing vegetation may cause burrow collapse, entombment, and vehicle strikes. Since these activities usually occur when soils are somewhat dry and firm, collapse would not be widespread. The 25 acres to be treated is a very small portion of the landscape and thus the effects to San Joaquin antelope squirrel populations would be negligible.

Pile burns may disturb habitat during the piling process and the area under the piles would receive intensive heat that would likely kill animals in the direct heat of the burn. However, burrows and habitat features are avoided and previously disturbed sites are used to the maximum extent practicable. Antelope squirrels are active during the day and would likely move away from the immediate project area unless during the early spring when young animals have emerged from breeding burrows and remain in that particular site. The timing of project activities and avoidance measures (SOPs) would mitigate these impacts. In general, the impact to a small amount of acreage would have negligible effects on San Joaquin antelope squirrel populations.

Livestock Grazing. The elimination of livestock grazing in the Monument would result in higher amounts of herbaceous vegetation across the landscape in wet years and as residual dry matter accumulates through time. In areas with high giant kangaroo rat abundance, the accumulation would be much less or would not occur. In exceptionally dry rainfall years or in a series of below-average rainfall years, livestock grazing would not typically occur or would not be a factor in maintaining favorable habitat conditions. Giant kangaroo rats appear to be able to successfully manipulate herbaceous vegetation on their precincts in most years to help maintain habitat for San Joaquin antelope squirrels. The elimination of livestock grazing would become a factor in San Joaquin antelope squirrel habitat suitability in the exceptionally wet years when herbaceous plant cover would produce less-than-optimum, or unfavorable, habitat conditions. The drastic giant kangaroo rat and San Joaquin antelope squirrel population declines and contracted distributions experienced from 1994 to 1999 occurred during a period of above-average rainfall and exceptionally high herbaceous plant production (Christian et al., in prep.; Rathbun 1997). The amount of excessive herbaceous plant cover is likely a factor in poor habitat conditions and low populations (Single et al. 1996; Germano et al. 2001). Elimination of livestock grazing would not allow Monument managers to apply a common management tool or prescription for the benefit of these species. In the absence of livestock grazing, some amount of active habitat management to control a thick ground cover of nonnative grasses is necessary in high rainfall years to maintain suitable habitat for kangaroo rats (Germano et al. 2001). It is unknown whether mechanical control methods (mowing) would be practical and cost effective in maintaining the core areas as suitable habitat for kangaroo rats. Past livestock grazing use in the Monument has demonstrated that prescribed livestock grazing can be applied at a scale large enough to reduce ground cover and biomass. Elimination of this tool, applied in a prescribed manner for the benefit of giant kangaroo rats and San Joaquin antelope squirrels, could impose risks to sustaining these populations through prolonged periods of extensive rainfall and high grass production. The impact of this alternative would be negligible to minor in most years, but could be moderate to major in periods of persistent high biomass structure. The elimination of livestock grazing on the southern alluvial fans and flat-bottomed drainages of the Caliente Range on the northern fringe of the Cuyama Valley would be the same as described for the giant kangaroo rat.

Recreation. The Primitive recreation zones to be managed as having wilderness characteristics overlap with the core area for giant kangaroo rats in the West Well, Silver Gate, East Painted Rock, East Cochora, West Cochora, South Cousins, Kinney-Hahl, and Van Matre pastures. If mowing of vegetation is required to implement core area habitat management actions, this would not be consistent with the wilderness objectives.

Travel Management. The closure and limited designation of roads in San Joaquin antelope squirrel habitat in the Monument would reduce the risk of vehicle collisions and inadvertent burrow collapse on road edges. San Joaquin antelope squirrels are active during daylight hours when visitor use and vehicle travel is highest. The restricted vehicle access would have a minor positive effect, reducing the risk of vehicle strikes in the Monument.

Impacts to the San Joaquin Antelope Squirrel under Alternative 3

Impacts to the San Joaquin Antelope Squirrel from Implementing the Wildlife Program

Wildlife. The impacts would be the same as described for the proposed plan (Alternative 2).

Impacts to the San Joaquin Antelope Squirrel from Implementing Other Programs

Fire and Fuels Management. The impacts from prescribed fire would be similar to those described in the proposed plan (Alternative 2), but prescribed fire may be used in a larger area of suitable habitat if needed to maintain populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 29,000 acres of core areas and 67,000 acres of suitable San Joaquin antelope squirrel and giant kangaroo rat habitat outside of the core areas on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama Valley.

Livestock Grazing. The impacts from livestock grazing in the vegetation management areas would be similar to those described in the proposed plan (Alternative 2), but prescribed grazing may be used in a larger area of suitable habitat if needed to maintain populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 115,000 acres of suitable habitat (58,000 acres of pastures containing core areas plus 57,000 acres of suitable antelope squirrel and giant kangaroo rat habitat on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama valley outside of the core areas). Livestock grazing in the vegetation management area as prescribed in the Conservation Target Table would have moderate to major beneficial impacts on maintaining San Joaquin antelope squirrel populations on the Monument.

Livestock grazing in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment, the South Selby pasture of the Selby allotment, and Sulphur Canyon allotment under this alternative would be the same as described in the No Action Alternative: there may be moderate to major beneficial impacts to maintaining San Joaquin antelope squirrels in these areas in the occasional wet years with high vegetation biomass. There would be negligible to moderate beneficial impacts when livestock grazing occurs in years of less than high vegetation biomass.

Recreation. Under Alternative 3, there would be no acres of San Joaquin antelope squirrel habitat in the Primitive recreation zone and no impacts to this species.

Dispersed vehicle camping in the Backcountry zone in San Joaquin antelope squirrel habitat could be eliminated if problems are documented during monitoring. Site-specific closures could be made if impacts are unacceptable. Vehicle camping activities would have localized, but negligible effects on San Joaquin

antelope squirrels. There is a small chance of inadvertent damage to habitat features (burrows) from vehicle-related camping activities.

The development of water, signs, and overlooks would have negligible impacts on San Joaquin antelope squirrel. There could be some instances where these projects would occur in San Joaquin antelope squirrel habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect antelope squirrels at the population level. The indirect effects of greater recreational activities near upgraded facilities would have a wider area of human impacts on San Joaquin antelope squirrel habitat, but this is expected to be at a very small scale and would not affect populations of this species.

The development of recreational activities within the Frontcountry zone would be expanded through the Elkhorn Plain and additional impacts to San Joaquin antelope squirrels would be expected. New facilities and visitor services would likely result in more vehicle use during daytime hours. The possibility of more direct and indirect impacts from increased visitor activities on the Elkhorn Plain could have minor effects to this species by vehicle collisions, trampling of burrows, and general disturbance from visitor activities. There could be some instances where new projects would occur in San Joaquin antelope squirrel habitat, but nearly all the direct impacts would be localized, may be avoidable, and would not affect San Joaquin antelope squirrels at the population level. The indirect effects of greater recreational activities near upgraded facilities would increase the area of human impacts on San Joaquin antelope squirrel habitat, but this is still expected to be at a very small scale and would not affect populations of this species.

Travel Management. The impacts to San Joaquin antelope squirrel would be the same as the No Action Alternative.

Impacts to the San Joaquin Antelope Squirrel under the No Action Alternative

Impacts to the San Joaquin Antelope Squirrel from Implementing the Wildlife Program

Wildlife. The current Monument goal to contribute to the recovery of listed species by achieving long-term, viable populations of all extant listed species in the Monument would have major beneficial impacts to the conservation and recovery of the San Joaquin antelope squirrel, which is a California-listed threatened species. Current management is implementing the objectives to manage locations and habitat features of listed species to allow for their continued existence and maintenance of viability, provide for the natural expansion and fluctuations of listed species consistent with species recovery, and reduce human-caused hazards to core species.

Impacts to the San Joaquin Antelope Squirrel from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have major beneficial impacts to San Joaquin antelope squirrels across the Monument in the short and long term. It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species would provide high quality habitat for this species. The most important element of these objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for antelope squirrels. Under this mosaic, the antelope squirrels would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain San Joaquin antelope squirrel populations across the Monument landscape considering the high amount of climatic variation and vegetation biomass production and decomposition.

It should be noted that, while extensive dense cover and tall structure of nonnative grasses may pose problems for antelope squirrels, nonnative filaree and grasses can be a substantial part of their diet. Management has focused on maintaining suitable open ground cover within whatever mix of natives or nonnatives may occur. Monitoring of San Joaquin antelope squirrel populations and plant community composition and structure would be conducted to inform vegetation/habitat management prescriptions for the benefit of this species.

Restoration activities to reintroduce native plants into previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species would have minor impacts on San Joaquin antelope squirrels. The use of a tractor-pulled range drill/seeders may run over and collapse burrows. However, monitoring of recent restoration projects has not found burrow collapse to occur if soils are firm and dry. Restoration activities generally occur in the late fall or early winter seasons prior to significant rainfall events when soils are usually quite hard. Where burrows are scattered, they are easily avoided if collapse is observed to occur. Strip seeding, leaving large areas untreated, would be used in more densely populated San Joaquin antelope squirrel habitats if avoidance is warranted. The long-term improvement in native plant community composition would likely provide moderate beneficial impacts to antelope squirrels with a more diverse array of seeds, but this is presently unknown.

Fire and Fuels Management. In most cases prescribed burns would have minor direct effect on antelope squirrels. Fire would be used to reduce an overabundance of nonnative plant growth in an effort to reduce the negative effects this growth has on listed species such as antelope squirrels. An exception to this is the removal of piles of dead tumbleweeds. Antelope squirrels tend to use tumbleweeds as cover and perches. During a grass fire, antelope squirrels are apt to immediately retreat into a burrow to escape the flames, but fire engulfing a massive pile of tumbleweed may confuse the antelope squirrels causing them to retreat into other tumbleweeds to escape fire rather than immediately retreating into a burrow. Moving piles to displace any wildlife harbored underneath prior to burning would reduce the risk of mortality.

Cultural Resources. There are negligible impacts from current visitation to Painted Rock or other cultural sites. There are three areas near Painted Rock that are open to visitation when visitors are accessing Painted Rock: the Goodwin Education Center, the Ranch pasture, and the Painted Rock pasture. Antelope squirrels have occurred in the immediate vicinity of the Goodwin Education Center and in portions of the Ranch pasture. However, slope and soil type make the area closed off to protect Painted Rock marginal to unsuitable habitat. In all three locations, squirrel populations have fluctuated in the past 15 years from frequently seen to rarely or not seen at all. At present, squirrels have been seen in the area again (BLM staff, personal observation, 2004-2007). There have not been any recent surveys to show current numbers of squirrels.

Several studies have shown that antelope squirrels and other rodents often take advantage of the loose soil in berms along the edges of unimproved roads (Rathbun 1997; USFWS 1998). In all of the above-mentioned access areas, vehicles pose the most threat to antelope squirrels during years when squirrels are abundant. Painted Rock gets most of its visitors in the spring, which coincides with the time of year when juveniles emerge from burrows. Under Alternative 1, Painted Rock is open to unsupervised access 7.5 months of the year. During this time, visitors may drive to and from the Painted Rock parking area. Between 700 and 900 such trips were estimated from traffic counter data during this period (BLM 2002/2003). Increased visitor use could require more road maintenance and mowing along the edge to reduce hazardous fuels. The number of squirrel fatalities caused by vehicles is not known but, given the small amount of habitat in the area, it is unlikely that many would occur. San Joaquin antelope squirrels are small and fast-moving and their diurnal habits make them easier to see than nocturnal animals. Current night visitation to Painted Rock does not impact antelope squirrels because they are diurnal.

Painted Rock is open only to guided tours for the remaining 4.5 months of the year (200 to 300 vehicles estimated to use the road during this period). During this period, juvenile squirrels, as well as adults, are out of their burrows. Given the small number of vehicles allowed, as well as the large amount of roadless area available to squirrels, mortality by vehicle strike would be highly unlikely.

The road through the Painted Rock pasture does not pass through San Joaquin antelope squirrel habitat, and traffic would have no effects to antelope squirrels in this area.

Livestock Grazing. Livestock grazing would have negligible to major positive effects to San Joaquin antelope squirrels, depending on rainfall and vegetation biomass. Livestock grazing can affect San Joaquin antelope squirrels in several ways. Collapsing of burrows can occur but there is no evidence to support that this has a negative effect on antelope squirrel populations. In a study by Langtimm and Rathbun (1995), squirrels were found to use a number of different night burrows and many different burrows during the day, suggesting flexibility to move if a used burrow becomes collapsed. Also, the giant kangaroo rat burrow systems contain numerous burrow openings allowing for other means of escape (USFWS 1998). Shrub communities can be seriously impacted by livestock. Rubbing, scratching, and trampling can break branches, remove foliage, and sometimes destroy plants completely. Indirectly, if a shrub or group of shrubs is removed from the plant community so that it no longer supports insects, an important part of the antelope squirrel's diet (Harris and Stearns 1990). Shrub impacts could also reduce cover for squirrels. This would not affect squirrels that occupy areas where shrubs are not the dominant landscape feature, such as in open grassland. Giant kangaroo rats and their burrow systems may be the key component in the squirrels' habitat in these areas suggesting that what is beneficial for one animal also benefits the other. Where grazing reduces dense, herbaceous ground cover, antelope squirrels could be affected in a positive way. Cypher et al. (2003), found a negative relationship between high, dense vegetation and San Joaquin antelope squirrel abundance. Dense nonnative grasses and other annuals could greatly diminish the inability of squirrels to escape their predators.

There is evidence to suggest that populations of small mammals and reptiles throughout the southern San Joaquin Valley were in decline from 1996 to 2001 (Germano et al. 2001). Giant kangaroo rats, San Joaquin antelope squirrels, blunt-nosed leopard lizards, and other lizard species suffered declines within the Monument. Following the drought in the late 1980s, antelope squirrels were seen in many areas within the known range for antelope squirrels on the Carrizo and Elkhorn Plains. Trapping and tagging of antelope squirrels in the same locations over a period of five years (1994 through 1998) detected a steady decline in the number of antelope squirrels captured (Rathbun 1997). When portions of the study area were included in a prescribed burn to eliminate stands of dense nonnative grasses, more animals were captured in the burned areas. However antelope squirrel numbers continued to decline across the entire region where they were once abundant. Other surveys also show the decline in antelope squirrel abundance on the Carrizo Plain (Langtimm and Rathbun 1995; Rathbun 1997). The actual cause for the declines is not completely understood, though a number of factors suggest that periods of above-average rainfall followed by tall, dense growth of nonnative grasses impeded movement for foraging as well as for escaping from predators (Germano et al. 2001; Cypher et al. 2003). During the same period, giant kangaroo rats also disappeared from the study sites on the Monument, though at a slower rate. In the Lokern Natural Area, studies on the effect of livestock used as a management tool to reduce the dominance of nonnative grasses and to benefit listed species showed positive results. In the absence of tall, dense vegetation, numbers of small mammals and reptiles have increased, including San Joaquin antelope squirrels (Germano et al. 2006). In the *Recovery Plan for Upland Species of the San Joaquin Valley, California*, controlled livestock grazing is treated as a potential conservation effort needed for giant kangaroo rats (USFWS 1998). Close association between giant kangaroo rats and antelope squirrels implies a positive impact to San Joaquin antelope squirrels from reduced vegetation by grazing or other means.

Minerals. Potential impacts to San Joaquin antelope squirrels include direct mortality, loss of burrow systems, loss or alteration of habitat, and harassment. The construction and maintenance of well pads, access roads, pipelines, and other oil field structures may trap or bury antelope squirrels in their burrows. Antelope squirrels can also drown or become entrapped in spilled oil or tarry substances. Antelope squirrels may also be killed by vehicles. Burrows can also be damaged or destroyed by project activities. Some habitat may also be lost or altered.

The construction and operation of the projected oil development activities would result in 30 acres of habitat disturbance in the valley floor portion of the Monument. On the valley floor, the construction of 8 miles of roads, 6 exploration well pads, 2 tank batteries, and 10 development well pads would result in habitat disturbance that would destroy burrows and remove vegetation within the construction footprint. Although BLM has SOPs to use existing roads and disturbed sites if possible, minimize the size of the footprint, and avoid antelope squirrels burrows (and thus San Joaquin antelope squirrels), and minimize take to the greatest extent practicable, the density of antelope squirrels in many areas of the Monument would still result in the loss of some burrows. However, mitigation measures that require the avoidance of take of antelope squirrels from within and directly adjacent to the construction footprint would be implemented. Exclusion barriers may be constructed to remove and exclude antelope squirrels from the construction area. These measures have been applied in western Kern County as a measure to protect antelope squirrels. This measure has been effective when the barriers are properly installed so that the animals cannot dig under the flashing. Construction activities would result in a loss of animals directly within the footprint with some disruption to animals directly adjacent to the well locations. Animals adjacent to the construction footprint may wander onto the edge of the construction area and may be harmed by subsequent construction, drilling, operations, maintenance, or restoration activities. There may be some disturbance to the adjacent animals during the drilling operations when nighttime activities and lighting occur. Drilling activities typically last up to 20 days per well. Once a well is drilled, maintenance activities would occur on a daily basis. Slow vehicle speed would reduce impacts from vehicle strikes.

The duration of the impacts would depend on whether the wells find economic reserves that will be produced. The impacts would be long-term over the life of the well if it has economic reserves. The impacts would be considered temporary if no economic reserves are found. Restoration would be initiated immediately and the site would likely be inhabited by antelope squirrels within several months.

Vehicle travel to the well locations within the Monument (on county roads, on existing BLM roads, and on newly constructed roads) may result in some vehicle strikes and mortality. BLM requires project vehicle speeds below 20 miles per hour and biological monitors to escort vehicles off of county roads to minimize the risk of vehicle strikes of listed species. These measures have been seen to be quite effective when applied to BLM-authorized activities in endangered species habitats in western Kern County. In addition, BLM requires an employee-contractor endangered species awareness training that emphasizes slower speeds to avoid vehicle strikes. Additional mitigation measures to reduce speeds on Soda Lake and Elkhorn county roads may be required under project-specific permitting.

Oil development activities on 30 acres of the valley floor would have minor impacts to the local and Monument-wide populations of San Joaquin antelope squirrels considering the extensive distributions (over approximately 116,000 acres) and their relatively common abundance within the central and southern portions of the Carrizo Plain. The disturbance of 6.5 acres in the Russell Ranch oilfield would not impact San Joaquin antelope squirrels since this activity is outside of their occupied range.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods and implementing 50-foot buffer avoidance requirements would have minor impacts on San Joaquin antelope squirrels at the site-specific and population levels. The extent of the impacts would depend on the project design, primarily the number of

shot holes and number, length, and distance between seismic source lines. Recent methods using small tractor-mounted drill rigs leave little surface impact as they travel between source points and at the drilling locations. The small tractor vehicles are lightweight and maneuverable and usually able to successfully avoid burrows and cause minimal burrow collapse. The amount of drill tailings and disturbance is typically less than 10 feet in diameter. The duration of drilling at any one point is typically less than 20 minutes. While the detonation of the charges is somewhat perceptible to humans within 200 feet of a shot hole, the effects of the noise on antelope squirrel hearing is unknown. However, biologists accompanying seismic crews have not reported animals exiting burrows after detonation. Specific monitoring of San Joaquin antelope squirrel activity response to shot hole drilling and detonations has not been conducted to date. Monitoring studies on geophysical projects in western Kern County surveyed with vibroseis and shot hole source methods reported a decline in the number of burrows within vibroseis corridors 90 days and 1 year following surveys compared to adjacent sample areas. However, there was a substantial increase in new burrows along the routes when they were resampled one year later (Tabor and Thomas 2002). Following vibroseis activities, small mammal burrows are commonly seen within disturbed soils from vehicle travel and vibroseis pad placement (digging into the side of the depressions). However, vibroseis source point generation would only occur on existing roads in the Monument. Although the impacts of shot hole source point generation are expected to be substantially less than vibroseis, focused studies on shot hole impacts on San Joaquin antelope squirrels have not been conducted to date.

Travel Management. Though some antelope squirrels prefer to inhabit burrows along the edges of roads, it is not known how many fatalities occur due to vehicle strikes but it's believed to be minimal. Though numbers of squirrels utilizing road berms is not constant, surveys conducted in 1994 over a 3-month period counted an average of 65 squirrels per transect ranging from 0.6 to 1.1 miles long. The animals were observed crossing roads, using burrows along the edge of roads, or in some way using the road's edge.

Many of the BLM roads on the valley floor and foothill regions of the Monument cross antelope squirrel habitat. Soda Lake Road and Elkhorn Road are the major roads through the Monument and contain the longest distance through antelope squirrel habitat. Traffic on these county roads constitutes the greatest threat to squirrels. However, these roads are not subject to BLM authorizations and are not affected by the BLM access designations.

If traffic numbers remain the same, impacts to squirrels would not change from current impacts. If traffic numbers increase, there may be minor to moderate impacts to antelope squirrels, but the extent is not known.

4.2.5.5 Pallid Bat, Western Mastiff Bat, and Other Bats

Impacts to Bats Common to All Action Alternatives

Impacts to Bats from Implementing the Wildlife Program

Wildlife. Under all action alternatives, actions will be taken to maintain or increase viable populations of bats. Bat roosts will be periodically monitored to determine continued use. Natural bat roosts will be protected, actions may be taken to prolong the usefulness of important human-made roosts, and additional roosts may be constructed. Important bat roosts may be protected with grates or other means to limit human disturbance. Action will be taken to ensure accessible water is available near known and suspected bat roosts. This would have a moderate to major positive impact on bat populations.

Impacts to Bats from Implementing Other Programs

Under all action alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on bat populations: Vegetation, Fire and Fuels Management, Air Quality, Soils, Water Resources, Paleontology/Geology, Cultural Resources, Travel Management, Minerals, and Lands and Realty.

Impacts to Bats under the Proposed Plan (Alternative 2)

Impacts to Bats from Implementing the Wildlife Program

See impacts to bats common to all action alternatives.

Impacts to Bats from Implementing Other Programs

Cultural Resources. Under the proposed plan (Alternative 2), Painted Rock and other rocks used by bats are likely to receive some visitation associated with cultural resource monitoring, research, or rock art restoration. Such use will have a minor negative effect on bat populations.

Under the proposed plan, fewer structures will be razed but more may be restored than under the No Action Alternative and Alternative 1, resulting in more structures being unavailable to bats as potential roosts. This may be offset by the retention of non-eligible structures, such as the Traver Ranch and KCL Shed, which are important roosts for bats. Under the proposed plan, cultural resources actions may have a minor to moderate negative effect on bat populations.

Visual Resources and WSA/Other Lands with Wilderness Characteristics. Under the proposed plan (Alternative 2), structures that fall within VRM Class I or lands having wilderness characteristics are located within the Caliente Mountain WSA or at the Cochora Ranch. Impacts would be the same as discussed under Alternative 1 and result in a minor to moderate negative effect on bat populations.

Impacts under Alternative 1 (for reference):

Under Alternative 1, structures that fall within VRM Class I or lands having wilderness characteristics are located within the Caliente Mountain WSA or at the Cochora Ranch. Management for VRM Class I and wilderness characteristics may require these structures to be removed. The loss of the structures within the Caliente Mountain WSA may only have a minor negative effect since they are located in the Caliente Range and in close proximity to rock faces that may be suitable as natural roost sites. The loss of the structures at Cochora Ranch may have a moderate negative impact as bats have been documented from the general area and the nearby Temblor Range does not contain many rocky features.

The remaining structures fall within VRM Class II or III and outside lands having wilderness characteristics. Impacts to bat populations would be the same as under the No Action Alternative and have minor to moderate negative impacts to bat populations.

Impacts under No Action Alternative (for reference):

The remaining structures fall within VRM Class II and outside lands with wilderness characteristics. Structures within VRM Class II may be allowed to remain, but may need to be modified so as not to attract the attention of the casual user. Some of these structures may be retained because of their value to other programs. Should the only value be potential bat roosting habitat, it is likely that only structures known to be important bat roosts will be retained. Other potential roosts or less important roosts will probably be removed. The loss of these structures may result in minor to moderate negative impacts to bat populations.

Livestock Grazing. Under the proposed plan (Alternative 2), grazing would continue and effects to bat populations would be similar to those described under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Bats require roosting habitat and foraging habitat. Open water sources are also important as they frequently concentrate insects and provide fresh water for bats. Under the No Action Alternative, livestock grazing is not expected to affect bat roosting habitat on the CPNM. The pallid bat feeds predominately on ground-dwelling arthropods. Grazing may promote foraging conditions preferred by pallid bats by reducing the height and density of vegetation. Water troughs, as a byproduct of livestock grazing, provide open water where bats can drink and forage. It is unknown how grazing affects the availability of nocturnal invertebrates. The continuation of livestock grazing will have a minor positive effect on bat populations.

The continuation of livestock grazing will have a minor positive effect on bat populations.

Recreation. The effects to bat populations from implementation of recreation management zones (RMZs) will be the same as discussed under Wilderness and may result in a minor to moderate negative impact on bat populations.

Under the proposed plan (Alternative 2), potential impacts to bats from recreation activities would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Potential impacts to bat populations from the recreation program include vandalism of roosts, disturbance at roosts, and purposeful displacement. Vandalism and disturbance at natural roosts has not been reported within the Monument, although it is a common problem in other locations. Vandalism of structures used by roosting bats has occurred at the KCL, Van Matre, and Traver Ranches. Removal of wood from the KCL barn eventually contributed to the collapse of the building, rendering it unsuitable for continued bat use. Shooting of the metal shed at Van Matre has created large holes in the walls that modify airflow patterns and weaken the structure. Despite the placement of metal grates and gates at openings at the Traver Ranch, the structure has been repeatedly vandalized. Vandalism contributes to an attitude that such structures are “attractive nuisances” that should be removed from the landscape. Structures that are vandalized are viewed as unattractive, a bother to secure, and not worth retaining. The vandalism probably results from the repeated actions of a few individuals. Continued vandalism, due to public use of the Monument, could result in a moderate to major negative change in bat populations.

Disturbance at roosts can occur as a result of vandalism or authorized incompatible human activity in the vicinity of roosts. For example, at the KCL Ranch, placement of new campsites in the vicinity of the shed used by roosting bats may introduce disturbances. Such disturbance could include light from campsites, smoke from campfires, pets such as dogs, and sounds from campers that makes the KCL shed less suitable for night roosting bats. Although the KCL shed has been secured against human entrance, curious campers may still attempt to enter the closed areas. Human presence could result in bats choosing not to use a site on a given night. Repeated discouragement is likely to result in the abandonment of the roost site. Disturbance at roosts, due to public use of the Monument, could result in a moderate to major negative change in bat populations.

Bats sometimes choose to night roost within porches and entryways of recreational facilities. Although the animal is not present during daylight hours, the small amount of guano deposited during the night has been viewed as a nuisance to some. In some instances, the situation is used as an educational opportunity,

which results in a minor positive impact on bat populations. In other instances, attempts have been made to preclude use by bats, which results in a minor negative impact on bat populations.

The opportunity to provide environmental education on bats is a positive aspect of the recreation program. The Traver Ranch kiosk provides information on Monument bats and bat ecology. Periodically, bats are featured in Monument newsletters. Exposing the public to environmental education on bats has a minor to moderate positive effect.

Impacts to Bats under Alternative 1

Impacts to Bats from Implementing the Wildlife Program

See impacts to bats common to all action alternatives.

Impacts to Bats from Implementing Other Programs

Cultural Resources. Under Alternative 1, Painted Rock and other rocks used by bats are likely to receive some visitation associated with cultural resource monitoring, research, or rock art restoration. Such use will have a minor negative effect on bat populations.

Under Alternative 1, more structures will be razed and slightly fewer may be restored than under the No Action Alternative, resulting in about the same number of structures being unavailable to bats as potential roosts. Non-eligible structures, such as the Traver Ranch and KCL Shed, which are important roosts for bats, may not be retained. The loss of potential roosts and potential lack of retention of non-eligible structures, which are important bat roosts, may have a moderate negative effect on bat populations.

Visual Resources and WSA/Other Lands with Wilderness Characteristics. Under Alternative 1, structures that fall within VRM Class I or lands having wilderness characteristics are located within the Caliente Mountain WSA or at the Cochora Ranch. Management for VRM Class I and wilderness characteristics may require these structures to be removed. The loss of the structures within the Caliente Mountain WSA may only have a minor negative effect since they are located in the Caliente Range and in close proximity to rock faces that may be suitable as natural roost sites. The loss of the structures at Cochora Ranch may have a moderate negative impact as bats have been documented from the general area and the nearby Temblor Range does not contain many rocky features.

The remaining structures fall within VRM Class II or III and outside lands having wilderness characteristics. Impacts to bat populations would be the same as under the No Action Alternative and have minor to moderate negative impacts to bat populations.

Livestock Grazing. Under Alternative 1, grazing would be discontinued on the CPNM. With cessation of a grazing program, water troughs may be eliminated or reduced in number. The reduction in water may reduce the quality of foraging habitat for bats on the CPNM. Bats may need to fly further from suitable roosts to forage or access open water. Except for water troughs, open water areas accessible to bats are scarce on the CPNM. The lack of grazing may also allow vegetation to grow taller or denser in some years. Such areas might become unsuitable as foraging habitat for the pallid bat. The discontinuation of grazing, if it leads to a reduction in water troughs, will have a moderate negative effect on bat populations.

Recreation. The effects to bat populations from implementation of RMZs will be the same as discussed under Visual Resources and Wilderness and may result in a minor to moderate impact on bat populations.

Under Alternative 1, potential impacts to bats from recreation activities would be the same as the No Action Alternative. The lack of dispersed camping may focus more use at KCL Ranch.

Impacts under Alternative 3

Impacts to Bats from Implementing the Wildlife Program

See impacts to bats common to all action alternatives.

Impacts to Bats from Implementing Other Programs

Cultural Resources. Under Alternative 3, Painted Rock and other rocks used by bats are likely to receive some visitation associated with cultural resource monitoring, research, or rock art restoration. Such use will have a minor negative effect on bat populations.

Under Alternative 3, the greatest number of structures will be razed or restored. Additionally, non-eligible structures, such as the Traver Ranch and KCL shed would not be saved. Under Alternative 3, Cultural Resources actions may have a moderate to major negative effect on bat populations.

Visual Resources and WSA/Other Lands with Wilderness Characteristics. Under Alternative 3, the only structures that fall within VRM Class I or Lands having Wilderness Characteristics are located within the Caliente Mountain WSA. Impacts would be the same as discussed under the No Action Alternative and result in a minor negative impact to bat populations.

The remaining structures fall within VRM Class II or III and outside lands having wilderness characteristics. Impacts to bat populations would be the same as under the No Action Alternative and have minor to moderate negative impacts to bat populations.

Livestock Grazing. Under Alternative 3, grazing would continue and effects to bat populations would be similar to those described under the No Action Alternative. The continuation of grazing will have a minor positive effect on bat populations.

Recreation. The effects to bat populations from implementation of RMZs will be the same as discussed under Visual Resources and WSA/Lands with Wilderness Characteristics and may result in a minor to moderate negative impact on bat populations.

Under Alternative 3, potential impacts to bats from recreation activities could be slightly greater than the No Action Alternative, Alternative 1 and the proposed plan alternative (Alternative 2). The increased emphasis on providing recreation facilities, allowance of dispersed camping, additional trails, and improvements will increase visitor use. Increased visitor use may increase the likelihood of vandalism, disturbance, and purposeful displacement. Increased visitor use will also, however, increase the number of people that can be provided with environmental education on bats.

Impacts to Bats under the No Action Alternative

Impacts from Implementing the Wildlife Program

Wildlife. Under the No Action Alternative, actions will be taken to maintain viable populations of bats. Occasional surveys to monitor populations and to assess habitat quality and threats may be completed. Support for research and education will be provided. Actions may be taken to protect natural roosts and important human-made roosts. Structures may be retained if they are important bat roosts. Open water

(troughs and ponds) near known roosts would be made safe and accessible to bats. This would have a moderate to major positive impacts on bat populations.

Impacts to Bats from Implementing Other Programs

Under the No Action Alternative, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on bat populations: Vegetation, Fire and Fuels Management, Air Quality, Soils, Water Resources, Geology and Paleontology, Cultural Resources, Travel Management, Minerals, and Lands and Realty.

Cultural Resources. Bats roost at Painted Rock and other rocks with cultural features, but there have been no reported impacts to bats or bat roosts from Painted Rock monitoring, research, or restoration. Under the No Action Alternative, cultural resource monitoring, research, or restoration at rock art sites will have a minor negative effect on bat populations.

Bats make use of many ranching and farming structures. Removal of these structures will eliminate existing or potential bat roosts. Allowance will be made to retain important bat roosts as long as the structure remains useful. Restoration of structures may result in the loss of bat roosts. After a structure is restored, bats that may have roosted in the structure would be discouraged from using the restored structure. Under the No Action Alternative, Cultural Resources actions may have a minor to moderate negative effect on bat populations.

Visual Resources and WSA/Other Lands with Wilderness Characteristics. Under the No Action Alternative, the only structures that fall within VRM Class I, or are lands having wilderness characteristics, are located within the Caliente Mountain WSA. Management for VRM Class I and wilderness characteristics may require these structures to be removed. If such structures are used by bats, roosting habitat will be lost. The loss of these structures may only have a minor effect since they are located in the Caliente Range and in close proximity to rock faces that may be suitable as natural roost sites.

The remaining structures fall within VRM Class II and outside lands with wilderness characteristics. Structures within VRM Class II may be allowed to remain, but may need to be modified so as not to attract the attention of the casual user. Some of these structures may be retained because of their value to other programs. Should the only value be potential bat roosting habitat, it is likely that only structures known to be important bat roosts will be retained. Other potential roosts or less important roosts will probably be removed. The loss of these structures may result in minor to moderate negative impacts to bat populations.

Livestock Grazing. Bats require roosting habitat and foraging habitat. Open water sources are also important as they frequently concentrate insects and provide fresh water for bats. Under the No Action Alternative, livestock grazing is not expected to affect bat roosting habitat on the CPNM. The pallid bat feeds predominately on ground-dwelling arthropods. Grazing may promote foraging conditions preferred by pallid bats by reducing the height and density of vegetation. Water troughs, as a byproduct of livestock grazing, provide open water where bats can drink and forage. It is unknown how grazing affects the availability of nocturnal invertebrates. The continuation of livestock grazing will have a minor positive effect on bat populations.

Recreation. Potential impacts to bat populations from the recreation program include vandalism of roosts, disturbance at roosts, and purposeful displacement. Vandalism and disturbance at natural roosts has not been reported within the Monument, although it is a common problem in other locations. Vandalism of structures used by roosting bats has occurred at the KCL, Van Matre, and Traver Ranches.

Removal of wood from the KCL barn eventually contributed to the collapse of the building, rendering it unsuitable for continued bat use. Shooting of the metal shed at Van Matre has created large holes in the walls that modify airflow patterns and weaken the structure. Despite the placement of metal grates and gates at openings at the Traver Ranch, the structure has been repeatedly vandalized. Vandalism contributes to an attitude that such structures are “attractive nuisances” that should be removed from the landscape. Structures that are vandalized are viewed as unattractive, a bother to secure, and not worth retaining. The vandalism probably results from the repeated actions of a few individuals. Continued vandalism, due to public use of the Monument, could result in a moderate to major negative change in bat populations.

Disturbance at roosts can occur as a result of vandalism or authorized incompatible human activity in the vicinity of roosts. For example, at the KCL Ranch, placement of new campsites in the vicinity of the shed used by roosting bats may introduce disturbances. Such disturbance could include light from campsites, smoke from campfires, pets such as dogs, and sounds from campers that makes the KCL shed less suitable for night roosting bats. Although the KCL shed has been secured against human entrance, curious campers may still attempt to enter the closed areas. Human presence could result in bats choosing not to use a site on a given night. Repeated discouragement is likely to result in the abandonment of the roost site. Disturbance at roosts, due to public use of the Monument, could result in a moderate to major negative change in bat populations.

Bats sometimes choose to night roost within porches and entryways of recreational facilities. Although the animal is not present during daylight hours, the small amount of guano deposited during the night has been viewed as a nuisance to some. In some instances, the situation is used as an educational opportunity, which results in a minor positive impact on bat populations. In other instances, attempts have been made to preclude use by bats, which results in a minor negative impact on bat populations.

The opportunity to provide environmental education on bats is a positive aspect of the recreation program. The Traver Ranch kiosk provides information on Monument bats and bat ecology. Periodically, bats are featured in Monument newsletters. Exposing the public to environmental education on bats has a minor to moderate positive effect.

4.2.5.6 California Condor

Impacts to the California Condor Common to All Action Alternatives

Impacts to the California Condor from Implementing the Wildlife Program

Under All Action Alternatives, unobstructed flight paths and suitable foraging habitat will be maintained on the Monument. The placement of new transmission lines, towers, or other potentially disruptive structures will be restricted or prohibited in condor habitat. Support will be provided to the USFWS in the implementation of recovery actions, such as the establishment of supplemental feeding stations or condor monitoring. These actions should have a moderate positive effect on condor foraging habitat.

Impacts to the California Condor from Implementing Other Programs

Under All Action Alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will result in negligible impacts on condors: Vegetation, Fire and Fuels Management, Air Quality, Soils, Water, Paleontology/Geology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, and Travel Management.

Recreation. After July 2008, the use of lead ammunition for hunting deer, wild pig, elk, pronghorn, coyote, ground squirrel, and non-game wildlife within the Monument will be prohibited by the Ridley-

Tree Condor Preservation Act. Potential sources of lead exposure will be limited to jackrabbits, cottontail, and game birds that are shot by hunters but not retrieved. The risk of lead exposure from hunting activities on the Monument is expected to be minor.

Minerals. Impacts to condors would be the same as the No Action alternative.

Impacts under No Action Alternative (for reference):

Condors are not known to make significant use (currently or historically) of the oilfield areas within the Monument (Chris Barr, USFWS, personal communication, 15 May 2009). Occasionally, a young bird released from Bittercreek National Wildlife Refuge may get pushed down the canyon and end up at the oilfields along the Cuyama Valley (Chris Barr, USFWS, personal communication, 15 May 2009). Risks to condors associated with oilfields include contamination by or ingestion of harmful liquids (such as oil or antifreeze), collisions with power lines and poles, electrocution, and ingestion of trash. Activity and noise associated with oil and gas drilling can disrupt nesting behavior. Condors can become habituated to human activity which exacerbates the risks and impacts listed above. These risks and impacts most often occur in oilfields near nesting locations, such as in the Hopper Mountain area.

The nearest roosting location is the Bittercreek National Wildlife Refuge, approximately 20 miles from the Monument oilfields. GPS and satellite data include nine records for two individual condors within the Carrizo in 2008. The 2008 records are located in the eastern portion of the Monument, approximately 12 miles from the existing oilfields in Morales Canyon. Since there are no historic or likely condor nesting locations near the Monument oilfields, the nearest roosting location is the Bittercreek National Wildlife Refuge, and condors only occasionally fly over the Monument, impacts to condors from minerals actions under the No Action Alternative are expected to be minor.

In addition, all oil and gas related actions will require individual consultations with the USFWS under Section 7 of the Endangered Species Act. Programmatic consultation will not be used for oil and gas related actions. This will ensure that impacts to condors from oil and gas activities are minor.

Lands and Realty. Right-of-way actions and other land uses would only be authorized if they are compatible with maintaining unobstructed flight paths and suitable foraging habitat for condors. Realty actions are expected to have a minor negative effect on condors.

Impacts to the California Condor under Proposed Plan (Alternative 2)

Impacts to the California Condor from Implementing the Wildlife Program

Under the proposed plan (Alternative 2), management actions will be taken to provide habitat sufficient to support a pronghorn herd of 250 and an elk herd of 500. This will retain the availability of pronghorn and elk carcasses and have a minor positive effect on condor foraging habitat.

Impacts to the California Condor from Implementing Other Programs

Livestock Grazing. Under the proposed plan (Alternative 2), in the absence of adequate native ungulate numbers, livestock grazing will remain available as a tool to manage condor foraging habitat and the opportunity to provide carcasses as a byproduct of grazing will remain an option.

Under this Alternative, it is estimated that, in 2 years out of every 10 years, livestock grazing could occur within some of the area historically used by foraging condors on the Carrizo. In such years, livestock carcasses, as a byproduct of grazing, may potentially be available for condors. Other areas within the

Monument, such as within the Section 15 allotments in the North Temblor, Caliente, and portions of the Panorama Hills, may be grazed 5 years out of every 10 years.

The maintenance of pronghorn and elk populations will provide potential carcasses for condors in the long term. In the absence of adequate numbers of native ungulates, continuation of grazing is expected to have a minor positive effect on maintaining the vegetation structure of condor foraging habitat. The continued availability of livestock carcasses may have a minor positive effect on the suitability of historical foraging habitat until adequate numbers of native ungulates are established. Continuation of grazing may have a short-term minor negative impact on establishing adequate numbers of native ungulates to provide a long-term food source and habitat management tool.

Impacts to the California Condor under Alternative 1

Impacts to the California Condor from Implementing the Wildlife Program

Under Alternative 1, pronghorn and elk numbers will be allowed to naturally fluctuate, including allowing the populations to disappear if dictated by natural conditions. This may reduce the availability of pronghorn and elk carcasses and have a minor negative effect on condors.

Impacts to the California Condor from Implementing Other Programs

Livestock Grazing. Under Alternative 1, potential condor foraging habitat will remain available, but livestock carcasses, as a byproduct of grazing would not be available in the future. The lack of cattle carcasses may have a negligible effect as the hide of mature cattle tends to be too tough for condors to penetrate (Jesse Grantham, USFWS, personal communication, 22 April 2008). Potential large food items on BLM lands would be pronghorn, deer, and elk. Pronghorn are not very numerous within the Monument and may not provide many carcass opportunities. Deer are preferred by condors, but have the tendency to die in canyon bottoms, which are inaccessible to condors (USFWS 1984). Deer are also not numerous within the Monument. Elk currently have a tendency to use the northwest portion of the Monument, which was historically less used by condors. Livestock grazing on private lands may still provide some food items in the region. Condors are capable of landing on slopes with woody vegetation (Jesse Grantham, USFWS, personal communication, 22 April 2008). If larger food items are restricted to the foothill regions, condors may still be able to access such carcasses. Under Alternative 1, the discontinuation of grazing is expected to have a minor negative effect on condor foraging habitat.

Impacts to the California Condor under Alternative 3

Impacts to the California Condor from Implementing the Wildlife Program

Under Alternative 3, management actions will be taken to provide habitat sufficient to support a pronghorn herd of 250 and an elk herd of 500. This will retain the availability of pronghorn and elk carcasses and have a minor positive effect on condor foraging habitat.

Impacts to the California Condor from Implementing Other Programs

Livestock Grazing. Under Alternative 3, it is estimated that 2 years out of every 10 years, livestock grazing could occur within most of the area historically used by foraging condors on the CPNM. In such years, livestock carcasses, as a byproduct of grazing, may potentially be available for condors. Other areas within the Monument, such as within the Section 15 allotments in the North Temblor, Caliente, and portions of the Panorama Hills, may be grazed more frequently.

The maintenance of pronghorn and elk populations will continue to provide potential carcasses for condors. The reduced availability of livestock carcasses may have a minor negative effect on the suitability of historical foraging habitat.

Impacts to the California Condor under the No Action Alternative

Impacts to the California Condor from Implementing the Wildlife Program

Under the No Action Alternative, the placement of new transmission lines, towers, or other potentially disruptive structures may be restricted or prohibited in condor habitat. Support will be provided to the USFWS in the implementation of recovery actions, such as the establishment of supplemental feeding stations or condor monitoring. These actions should have a moderate positive effect on condor foraging habitat.

Under the No Action Alternative, management actions will be taken to provide habitat sufficient to support California Department of Fish and Game (CDFG) herd unit objectives for pronghorn and elk. CDFG's current objectives target a pronghorn herd of 250 and an elk herd of 500. This will retain the availability of pronghorn and elk carcasses and have a minor positive effect on condor foraging habitat.

Impacts to the California Condor from Implementing Other Programs

Under the No Action Alternative, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will result in negligible impacts on condors: Vegetation, Fire and Fuels Management, Air Quality, Soils, Water, Geology and Paleontology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, and Travel Management.

Livestock Grazing. Under the No Action Alternative, potential condor foraging habitat will remain available and the opportunity to provide carcasses as a byproduct of grazing will remain an option.

California condors historically foraged primarily over rangelands and often depended on dead livestock as a primary food source (USFWS 1984; USFWS 1994). The Carrizo Plain, the Panorama Hills, and the Elkhorn Hills were all important condor foraging areas (USFWS 1984). Livestock carcasses probably were the major food item, as pronghorn had not yet been reintroduced and few deer and elk occur in these flatter regions. Historically, livestock grazing occurred throughout the year and more livestock grazed in the area. This probably resulted in more carcasses being available at more times of the year. On the CPNM, the current grazing management and stocker operations provide a few livestock carcasses a year. Condors do not currently make use of these carcasses.

Under the No Action Alternative, the areas historically used by foraging condors on the CPNM would continue to be grazed. The USFWS 1994 Biological Opinion concluded that livestock grazing on the CPNM could benefit the California condor by providing a potential source of food (USFWS 1994). The nearby Bittercreek National Wildlife Refuge, which is managed by the USFWS as condor foraging habitat, is also grazed by domestic livestock. Although livestock operations on the CPNM do not currently provide an important source of food for condors, it would remain a potential source of food in the future.

Under the No Action Alternative, continuation of grazing is expected to have a minor positive effect on condor foraging habitat.

Recreation. After July 2008, the use of lead ammunition for hunting deer, wild pig, elk, pronghorn, coyote, ground squirrel, and non-game wildlife within the Monument will be prohibited by the Ridley-

Tree Condor Preservation Act. Potential sources of lead exposure will be limited to jackrabbits, cottontail, and game birds that are shot by hunters but not retrieved. The risk of lead exposure from hunting activities under the No Action Alternative on the Monument is expected to be minor.

Minerals. Condors are not known to make significant use (currently or historically) of the oilfield areas within the Monument (Chris Barr, USFWS, personal communication, 15 May 2009). Occasionally, a young bird released from Bittercreek National Wildlife Refuge may get pushed down the canyon and end up at the oilfields along the Cuyama Valley (Chris Barr, USFWS, personal communication, 15 May 2009). Risks to condors associated with oilfields include contamination by or ingestion of harmful liquids (such as oil or antifreeze), collisions with power lines and poles, electrocution, and ingestion of trash. Activity and noise associated with oil and gas drilling can disrupt nesting behavior. Condors can become habituated to human activity which exacerbates the risks and impacts listed above. These risks and impacts most often occur in oilfields near nesting locations, such as in the Hopper Mountain area.

The nearest roosting location is the Bittercreek National Wildlife Refuge, approximately 20 miles from the Monument oilfields. GPS and satellite data include nine records for two individual condors within the Carrizo in 2008. The 2008 records are located in the eastern portion of the Monument, approximately 12 miles from the existing oilfields in Morales Canyon. Since there are no historic or likely condor nesting locations near the Monument oilfields, the nearest roosting location is the Bittercreek National Wildlife Refuge, and condors only occasionally fly over the Monument, impacts to condors from minerals actions under the No Action Alternative are expected to be minor.

Lands and Realty. Right-of-way actions and other land uses would only be authorized if they are compatible with maintaining unobstructed flight paths and suitable foraging habitat for condors. Under the No Action Alternative, realty actions are expected to have a minor negative effect on condors.

4.2.5.7 Greater Sandhill Crane and Lesser Sandhill Crane

With the exception of those impacts discussed under the General Wildlife Impacts or avoided through implementation of SOPs the following programs will have negligible to no effect on greater and lesser sandhill cranes: Air Quality, Soils, Water, Geology and Paleontology, Cultural Resources, Visual, WSA/Lands with Wilderness Characteristics, Travel Management, Minerals, and Lands and Realty.

Impacts to Sandhill Cranes Common to All Action Alternatives

Impacts to Sandhill Cranes from Implementing the Wildlife Program

Actions common to all action alternatives to maintain roosting and foraging habitat within the Monument for sandhill cranes include identifying roost areas and protecting them from human disturbances, conducting annual surveys, and supporting research to learn habitat needs. These actions would have a minor positive impact on wintering sandhill cranes.

Impacts to Sandhill Cranes from Implementing Other Programs

Fire and Fuels Management. Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Fire management actions under the No Action Alternative currently protect saltbush and the rare plant community surrounding Soda Lake. Soda Lake and adjacent lands are used by sandhill cranes for roosting, feeding, and resting, resulting in major beneficial impacts to sandhill cranes.

Livestock Grazing. Under all action alternatives, livestock grazing would have negligible impacts on sandhill crane numbers and distribution in the Monument

Recreation and Administrative Facilities. Soda Lake and its system of satellite ponds were once used as roosting sites for thousands of wintering sandhill cranes. Several factors, including the cessation of dryland farming within the Monument, reduced grain available to cranes in adjacent lands and the availability of water and grain at nearby USFWS wildlife refuges have resulted in most cranes passing over Soda Lake and wintering at Pixley and Kern National Wildlife Refuges (P. Williams, personal communication, 2006). The CPNM now receives on average fewer than 500 cranes per year (BLM staff, personal observation, 2008). Future management actions encouraging cranes to return will place roosting sites within the proposed Frontcountry zone, which contains the highest concentration of visitor facilities, kiosks, and interpretation. All proposed recreation actions and uses however, must be compatible with all Monument Proclamation cultural and biological resource objectives including protecting sandhill crane roosting sites from human disturbance and minimizing any detrimental impacts from interactions with humans and pets. As a result, actions in the Frontcountry zone are expected to have negligible impacts to wintering sandhill cranes.

Impacts to Sandhill Cranes under the Proposed Plan (Alternative 2)

Impacts to Sandhill Cranes from Implementing the Wildlife Program

See impacts under Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

Actions proposed under Alternative 1 and the proposed plan (Alternative 2) include restricting the release of native animals that have previously been held in captivity to prevent the spread of disease. A separate action would allow measures to be implemented if necessary to protect wildlife from visitor or free-roaming pets. These actions would have a minor positive impact on sandhill cranes.

Impacts to Sandhill Cranes from Implementing Other Programs

Fire and Fuels Management. Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Fire management actions under the No Action Alternative currently protect saltbush and the rare plant community surrounding Soda Lake. Soda Lake and adjacent lands are used by sandhill cranes for roosting, feeding, and resting, resulting in major beneficial impacts to sandhill cranes.

Livestock Grazing. See impacts under the No Action Alternative, as described below:

Impacts under No Action Alternative, for reference:

Livestock grazing would have negligible impacts on sandhill crane distribution in the Monument under the No Action Alternative (and the proposed plan [Alternative 2] and Alternative 3). These birds are most often associated with cultivated grain crops north of the Monument and the shallow roosting sites in Soda Lake. While upland habitat use of the grasslands occurs in the green season, the density and distribution of livestock to the west of Soda Lake are minimal. The area around Soda Lake (12,880 acres) is ungrazed, and there are an additional 5,440 acres of ungrazed CDFG lands adjacent to Soda Lake. The availability of water in Soda Lake and grain crops on adjacent private lands are the primary factors that determine crane numbers in the Monument.

Recreation and Administrative Facilities. Actions proposed under the proposed plan (Alternative 2) would increase the acreage of the Frontcountry zone and nearly double the number of overlooks and interpretive sites from 10 to 20 and trail heads and staging areas from 5 to 10. Increased acreage and interpretive sites implies more visitors, or at least that visitors will be drawn to these sites for information, but this is not known. This analysis assumes that some of these sites will be at or near Soda Lake and sandhill cranes. Cranes are huge and beautiful birds that understandably attract visitors. If sites are placed relatively close to where cranes are using the lake, visitors may disturb the cranes. Sites are expected to be compatible with the Monument Proclamation and any biological resource objectives including protecting Soda Lake and sandhill crane roosting sites from human disturbance and pets. At this writing, wintering crane numbers on the CPNM are low, still, disturbance of birds during important activities such as resting (from migratory travels) and “loafing” or engaging in social behaviors important to breeding success in the spring, could be problematic. Different species of birds and different individuals respond to humans in various ways, and many visitors may not be able to detect when birds are stressed. Animals that are stressed are often at risk of predation (Rosenfield et al. 2007). As a result, cranes may choose another part of the lake to rest or they may leave altogether. Impacts as a result of actions proposed under the proposed plan are expected to be negligible (if no disturbance to cranes) to moderate for sandhill cranes visiting or wintering on the Monument.

Impacts to Sandhill Cranes under Alternative 1

Impacts to Sandhill Cranes from Implementing the Wildlife Program

Actions proposed under Alternative 1 and the proposed plan (Alternative 2) include restricting the release of native animals that have previously been held in captivity to prevent the spread of disease. A separate action would allow measures to be implemented if necessary to protect wildlife from visitor or free-roaming pets. These actions would have a minor positive impact on sandhill cranes.

Impacts to Sandhill Cranes from Implementing Other Programs

Fire and Fuels Management. There will be no authorized prescribed fire under Alternative 1. Wild or human-caused fires would be suppressed along roads or natural barriers. Other fire suppression tactics such as the use of dozers or mobile attack would be reserved to protect life or property or when suppression at barriers would be hazardous. These actions could result in a potential loss of saltbush and other alkali sink plants that grow near Soda Lake. Soda Lake and adjacent lands are used by sandhill cranes for roosting, feeding, and resting. Since many of the alkali sink plants are not fire tolerant the result of these actions are expected to be a moderate, long-term change. Depending on the extent of the damage to the alkali sink community, negligible to major negative impacts to wintering cranes may result.

Livestock Grazing. There will be no authorized grazing under Alternative 1. Impacts from no grazing are expected to have negligible or no impacts to greater or lesser sandhill cranes on the Monument.

Recreation and Administrative Facilities. All proposed recreation actions and uses must be compatible with all Monument Proclamation cultural and biological resource objectives including protecting sandhill crane roosting sites from human disturbance and minimizing any detrimental impacts from interactions with humans and pets. As a result, actions in the Frontcountry zone under Alternative 1 are expected to have negligible impacts to sandhill cranes.

Impacts to Sandhill Cranes under Alternative 3

Impacts to Sandhill Cranes from Implementing the Wildlife Program

Alternative 3 proposes to coordinate with private landowners outside of the Monument to plant grain as forage for sandhill cranes on land already in production for farming and in close proximity to Soda Lake. This action would provide an alternate food source for cranes. The action would first be identified as a priority in the Conservation Target Table. If funds are needed, it would be implemented as funds become available. Crane monitoring will take place to determine effectiveness. This action is expected to have a moderate to major positive impact on wintering and migrating sandhill cranes by providing additional foraging grounds.

Impacts to Sandhill Cranes from Implementing Other Programs

Fire and Fuels Management. Impacts would be the same as impacts under the No Action Alternative.

Livestock Grazing. See impacts under the No Action Alternative.

Recreation and Administrative Facilities. Actions proposed under Alternative 3 would increase the acreage of the Frontcountry zone by 10,560 acres (total of 29,741) and increase from 15 to 25 the number of overlooks and interpretive sites, and from 8 to 15 the number of trail heads and staging areas. Impacts from Alternative 3 would be similar to the proposed plan (Alternative 2) but the probability increases as to impacts occurring from the potential and assumed increased access to Soda Lake. Impacts as a result of these actions proposed under Alternative 3 are expected to be negligible (if no disturbance to cranes) to moderate for sandhill cranes visiting or wintering on the Monument. Alternative 1 has the least impact to sandhill cranes.

Impacts to Sandhill Cranes under the No Action Alternative

Impacts to Sandhill Cranes from Implementing the Wildlife Program

Under the No Action Alternative, viable populations will continue to be maintained by providing wintering habitat for greater and lesser sandhill cranes. Actions include conducting surveys including the Breeding Bird Survey, monitoring and surveying wintering cranes to document presence and to determine numbers of both species, and coordinating survey efforts with other agencies such as USFWS and CDFG. Roosting sites will be protected from human disturbance (primarily in and around Soda Lake). There will be support for crane research including long-term studies of species as well as roosting and foraging habitat features. Management actions will be designed to result in minimal impacts to cranes especially at roosting sites. Private lands will be acquired as they become available. These actions would have a moderate to major positive impact on wintering cranes.

Impacts to Sandhill Cranes from Implementing Other Programs

Vegetation. Current actions under the No Action Alternative call for the eradication of noxious weeds including tamarisk, which occurs in different areas at the edge of Soda Lake and some of its ponds. This action is expected to have minor positive impacts to sandhill cranes.

Fire and Fuels Management. Fire management actions under the No Action Alternative currently protect saltbush and the rare plant community surrounding Soda Lake. Soda Lake and adjacent lands are used by sandhill cranes for roosting, feeding, and resting, resulting in major beneficial impacts to sandhill cranes.

Livestock Grazing. Livestock grazing would have negligible impacts on sandhill crane distribution in the Monument under the No Action Alternative (and the proposed plan [Alternative 2] and Alternative 3). These birds are most often associated with cultivated grain crops north of the Monument and the shallow roosting sites in Soda Lake. While upland habitat use of the grasslands occurs in the green season, the density and distribution of livestock to the west of Soda Lake are minimal. The area around Soda Lake (12,880 acres) is ungrazed, and there are an additional 5,440 acres of ungrazed CDFG lands adjacent to Soda Lake. The availability of water in Soda Lake and grain crops on adjacent private lands are the primary factors that determine crane numbers in the Monument.

4.2.5.8 Mountain Plover

Impacts to Mountain Plovers Common to All Action Alternatives

Impacts to Mountain Plovers from Implementing the Wildlife Program

The wildlife management goals to manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, for rare natural communities, and for conservation of the regional landscape, would have major beneficial impacts to the conservation of the mountain plover. There would be major beneficial impacts to mountain plovers by implementing the specific objectives to:

- identify core geographic areas for endangered species population management and recovery;
- give endangered species habitat primary management priority in core area;
- maintain and enhance viable populations within core areas; and
- allow the populations of these target species to naturally fluctuate up and down, in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values).

The designation and management of mountain plover core areas and the three listed species core areas would maintain mountain plover wintering habitat within the Monument in the long term. However, our ability to achieve effective vegetation management varies from Alternative 1 compared to the proposed plan (Alternative 2) and Alternative 3. In the absence of prescribed fire and livestock grazing as vegetation management tools in Alternative 1, it is unknown whether effective habitat management can be implemented to provide suitable habitat for mountain plover when nonnative grasses and herbaceous vegetation reduce habitat quality.

The management of the core areas applies a strategy of effective habitat management to improve habitat conditions when necessary. In most years, giant kangaroo rat activity would provide the amount of low vegetation or bare ground required by wintering mountain plovers somewhere within the Monument. When rainfall is below or near the annual average, the amount of native annuals and nonnative grasses and herbs is fairly low and provides these conditions. However, when rainfall exceeds the average for several successive years or when the annual rainfall is far above the average, there is exceptionally high production of the annual native and nonnative vegetation. This can occur prior to or during the late fall/early winter when mountain plovers arrive on the Monument. Both nonnative grasses and nonnative filaree can cover a high percentage of the ground and can be quite dense in the winter and spring seasons. Management decisions prescribed in the Conservation Target Table to improve mountain plover habitat would be applied to reduce standing residual dry matter in the fall or the amount of new annual herbaceous plant growth in at least one mountain plover or listed species core area in the early winter. Treatments may include livestock grazing in the early winter season or apply prescribed fire in the summer or fall seasons to reduce the amount of new annual vegetation or persistent nonnative grasses.

It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire or livestock grazing to improve habitat conditions for wintering mountain plovers during the winter season before giant kangaroo rat activity would create suitable habitat. The extent of treatment would likely vary from year to year, depending on how many core areas would have suitable habitat with or without vegetation treatments.

The core areas were selected because they had consistent annual use by wintering mountain plovers and were of a size that could be affected by fire or livestock grazing. The strategy is to have these areas as “safety nets” where there is a high likelihood that the vegetation can be reduced by fire or grazing when needed.

Research and monitoring activities that address the habitat quality and ecology of mountain plovers would have a long-term benefit to this species. Any take or project effects would be authorized under state and federal permitting requirements and would be evaluated and mitigated in project-specific environmental analyses.

Management for a diversity of wildlife habitats would have moderate benefit to mountain plovers in those areas where there is an objective to create a low structure of vegetation. Since the overall objective is to create a diversity of habitat structure within the Monument, a portion of the Monument would be managed to benefit this species. The creation and maintenance of a mosaic of grassland and shrubland habitats would likely maintain mountain plover winter habitat across the Monument landscape. Population monitoring and AM would indicate habitat management prescriptions to help meet habitat and distribution objectives.

Impacts to Mountain Plovers from Implementing Other Programs

Livestock Grazing. The impacts would be the same as described in the General Wildlife section.

Impacts to Mountain Plovers under the Proposed Plan (Alternative 2)

Impacts to Mountain Plovers from Implementing the Wildlife Program

Management of the non-core areas to maintain populations of giant kangaroo rats and provide suitable winter habitat for mountain plovers would have moderate to major beneficial impacts to mountain plovers. The application of livestock grazing and prescribed fire as vegetation management tools would provide options to apply effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require the use of livestock grazing or prescribed fire to maintain suitable habitat conditions for this species.

Impacts to Mountain Plovers from Implementing Other Programs

Fire and Fuels Management. The 1,000 acres of prescribed burns and 5 miles of dozer line would have moderate to major beneficial impacts to mountain plovers. Previous studies on the Monument showed that mountain plovers prefer heavily grazed annual grasslands or burned fields (Knopf and Rupert 1995). In this study, prescribed fire was used to provide suitable roosting habitat so that birds could be captured and marked for the study. Burn effects of providing low vegetation cover and structure for mountain plovers usually last between one to three years, depending on subsequent annual rainfall.

Livestock Grazing. Under the proposed plan (Alternative 2), livestock grazing may be occasionally applied in the core areas and adjacent non-core areas to maintain habitat conditions for giant kangaroo rats and wintering mountain plovers so that they would not disappear from the Monument. Based on objectives and management prescriptions described in the Conservation Target Table, vegetation management may be applied to maintain three core areas for wintering mountain plovers. It is estimated that excessive amounts of standing vegetation biomass may occur in high rainfall periods on average about two years in ten. During these conditions, livestock grazing may be applied to reduce high amounts of standing biomass to improve habitat conditions for mountain plovers. When such conditions occur, approximately 58,000 acres would be potentially treated in pastures that contain the core areas. If additional treatment is needed, it would most likely be applied in the adjacent non-core areas identified in Map 4-1. Under this scenario, approximately 29,000 acres may be treated with livestock grazing (in addition to the core areas) in pastures that contain the adjacent non-core areas. However, the non-core areas that may be treated could be different than those identified in Map 4-1 if habitat conditions, habitat needs of mountain plovers, and management prescriptions change over time.

The impacts of livestock grazing in the vegetation management areas under this alternative would be the same as those described in the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Under current management, livestock grazing would be used as a vegetation management tool to reduce standing biomass of persistent nonnative grasses for the benefit of mountain plovers. Monitoring data and research on mountain plovers indicate that they do not use areas with dense vegetation. Foraging generally occurs in habitats with bare ground and less than 1 inch of vegetation, in disturbed kangaroo rat precincts, on sites of heavy sheep or cattle grazing or concentrations around water facilities, on dirt or gravel roads, and in plowed or fallowed fields.

Vegetation management could help provide winter habitat for mountain plovers in periods or in areas where giant kangaroo rat clipping activity would not reduce residual dry matter. Giant kangaroo rats would likely provide suitable habitat in the fall in nearly all but the wettest of years with high biomass production. In years of greater vegetation production and buildup of residual dry matter over successive years, livestock grazing and prescribed fire could be used to reduce standing biomass for the benefit of mountain plovers. In periods of drought and during many near-normal precipitation years, there would likely be no need for livestock grazing. Livestock grazing as a vegetation management tool for the benefit of mountain plovers could be critical to avoid an accumulation of standing nonnative grass ground cover during wet years when few areas of low habitat structure would be available. In exceptionally wet years, grazed areas to create suitable habitat would be especially important if dry playas and bare areas are under water and would not be used by mountain plovers.

Current management of the Monument would continue to provide habitat for wintering mountain plovers. The adaptive management process of assessing vegetation objectives, evaluating pasture resources, applying current scientific knowledge, applying management prescriptions, and evaluating monitoring data, would have minor to moderate benefit by providing suitable winter habitat within the Monument landscape. The mosaic of vegetation communities, the grazed and ungrazed pastures, the patchiness of standing vegetation in grazed areas, and occasional fire treatments, would be expected to maintain sustainable habitat within the Monument but management decisions must be made early in the growing season (winter) if management is to be effective for this winter visitor.

Application of the Conservation Target Table would refine management prescriptions to maintain mountain plover habitat and wintering populations. Thus, livestock grazing in the vegetation management

areas would have moderate to major beneficial impacts to maintain habitat for wintering mountain plovers on the Monument.

Livestock grazing in the Section 15 Recruit, and South Anderson pastures under this alternative would likely occur in five of ten years. There would be moderate to major beneficial impacts to maintaining mountain plover winter habitat in these areas in the occasional wet years with high vegetation biomass.

Impacts to Mountain Plovers under Alternative 1

Impacts to Mountain Plovers from Implementing the Wildlife Program

Management of the likely non-core treatment areas to provide suitable wintering habitat for mountain plovers would have moderate to major beneficial impacts to mountain plovers. However, the elimination of livestock grazing and prescribed fire as vegetation management tools would hinder effective habitat management in these areas. As described in the Fire/Fuels Management and Livestock Grazing sections, there are periods of rainfall and vegetation production and cover that require vegetation treatments to maintain suitable habitat conditions for this species. Repeated mowing of one or more grassland core areas to a height of less than 1 inch would be required when winter herbaceous production would exceed mountain plover habitat requirements. Treatment areas would probably range from 30 to 100 acres in size. The effectiveness is unknown since this treatment has not been applied in the Monument to date.

Impacts to Mountain Plovers from Implementing Other Programs

Fire and Fuels Management. The elimination of prescribed fire to manage the nonnative grass and herbaceous vegetation within the mountain plover and listed species core and areas would have moderate detrimental impacts to mountain plover. While there is no need to apply prescribed fire in most years when rainfall is below average or when annual vegetation is not tall and thick, the use of prescribed fire is considered a valuable management tool when thick grassy conditions occur. Prescribed fire has been successfully applied to provide mountain plover habitat (Knopf and Rupert 1995). It is estimated that exceptionally high herbaceous vegetation production may occur about 20 percent of the time (2 years in 10). Based on past rainfall recorded at Bakersfield from 1889 to 2008, it is estimated that high amounts of nonnative persistent grass cover may have occurred in only 6 periods (totaling 25 years) in 118 years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire to improve habitat conditions for wintering mountain plovers.

Livestock Grazing. The elimination of livestock grazing in the Monument would result in higher amounts of herbaceous vegetation across the landscape in wet years and as residual dry matter accumulates through time. In areas with high giant kangaroo rat abundance, the accumulation would be much less or would not occur. In exceptionally dry rainfall years, or in a series of below-average rainfall years, livestock grazing would not typically occur or would not be a factor in maintaining favorable habitat conditions for mountain plovers. Giant kangaroo rats appear to be able to successfully manipulate herbaceous vegetation on their precincts in all but the wettest years. The elimination of livestock grazing would become a factor in providing mountain plover habitat in the exceptionally wet years when herbaceous plant cover would produce less-than-optimum, or unfavorable, habitat conditions and if giant kangaroo rats are unable to provide suitable habitat conditions. On their winter ranges on the CPNM, mountain plovers prefer heavily grazed annual grasslands or burned fields (Knopf and Rupert 1995). Foraging generally occurs in habitats with bare ground and less than 1 inch of vegetation, in disturbed kangaroo rat precincts, on sites of heavy sheep or cattle grazing or concentrations around water facilities, on dirt or gravel roads, and in plowed or fallowed fields.

Prey items are primarily invertebrates such as crickets, beetles, centipedes, scorpions, and others. Insect abundance is increased with the burrowing activities of kangaroo rats, which provide underground habitat. Also, in the absence of burrows, or a cracked soil profile that also creates insect habitat, abundant cattle dung can compensate by providing habitat for insect prey and scarab beetles, which can be tremendously abundant in heavily grazed areas (S. Fitton, BLM, personal communication, 2008).

It is unknown whether mechanical control methods (mowing) would be practical and cost effective in maintaining the core areas as suitable habitat for mountain plovers. Past livestock grazing use in the Monument has demonstrated that prescribed livestock grazing can be applied at a scale large enough to reduce ground cover of nonnative grasses. Elimination of this tool, applied in a prescribed manner for the benefit of mountain plovers, could impose risks to providing suitable winter habitat during prolonged periods of extensive rainfall and high grass production. The elimination of this management tool would have moderate detrimental effects to mountain plovers in the Monument.

Impacts to Mountain Plovers under Alternative 3

Impacts to Mountain Plovers from Implementing the Wildlife Program

The impacts would be the same as described for the proposed plan (Alternative 2).

Impacts to Mountain Plovers from Implementing Other Programs

Fire and Fuels Management. The impacts would be the same as described for the proposed plan (Alternative 2).

Livestock Grazing. The impacts from livestock grazing in the vegetation management areas would be similar to those described in the proposed plan (Alternative 2), but prescribed grazing may be used in a larger area of suitable habitat if needed to maintain populations in areas of suitable habitat (Map 4-1). Vegetation management may be applied to approximately 115,000 acres of suitable giant kangaroo rat habitat (58,000 acres of pastures containing core areas plus 57,000 acres of suitable giant kangaroo rat habitat on the Carrizo Plain, Elkhorn Plain, and alluvial plains of the Cuyama valley outside of the core areas). Livestock grazing in the vegetation management area as prescribed in the Conservation Target Table would have moderate to major beneficial impacts to maintain giant kangaroo rat populations on the Monument.

Livestock grazing in the Section 15 Recruit and South Anderson pastures of the North Temblor allotment under this alternative would be the same as described in the No Action Alternative: there may be moderate to major beneficial impacts to maintaining mountain plover habitat in these pastures in the occasional wet years with high vegetation biomass.

Impacts to Mountain Plovers under the No Action Alternative

Impacts to Mountain Plovers from Implementing the Wildlife Program

The current Monument goal to contribute to the recovery of listed species by achieving long-term, viable populations of all extant listed species in the Monument would have major beneficial impacts to mountain plovers as a conservation measure to avoid the need to list the mountain plover as a threatened or endangered species. Current management is implementing the objectives to manage locations and habitat features of listed species to allow for their continued existence and maintenance of viability, provide for the natural expansion and fluctuations of listed species consistent with species recovery, and reduce human-caused hazards to core species. Although the USFWS determined that listing this species was not

warranted at this time (USFWS 2003a), conservation measures on the CPNM would contribute to ongoing conservation measures so that listing is not warranted.

Impacts to Mountain Plover from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have major beneficial impacts to mountain plovers across the Monument in the short and long term. The most important element of these objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for mountain plovers. Under this mosaic, the plovers would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to provide winter habitat to mountain plovers at various locations within the Monument landscape. This is considered to be an important conservation measure to provide alternative wintering sites to the San Joaquin Valley where the use of pesticides is common on the agricultural fields where these birds often forage and roost (Knopf and Ruppert 1995).

Fire and Fuels Management. The use of prescribed fire on 30,000 acres within the Monument would have major benefits to mountain plover populations. Monitoring studies of a prescribed fire in the West Well pasture from 1993 to 1996 indicated that mountain plovers used the burned sites for foraging and roosting (Knopf and Rupert 1995). Current management emphasizes the need to maintain a large percentage of the Monument as suitable habitat for wintering mountain plovers. The amount of open habitat with low vegetative structure is a key factor in habitat use by this species. Vegetation management that reduces the extent of thick grass cover would benefit mountain plovers. Studies in the Monument (Knopf and Rupert 1995) indicate that mountain plovers prefer heavily grazed annual grasslands or burned fields. The application of prescribed fire within the Valley/Plains subregions would benefit this species in years when nonnative grasses and filaree create an unsuitable structure. Burning would not be required in dry years or in periods when persistent grasses are absent. Maintaining suitable habitat in the Monument may reduce pesticide exposure that may occur when these birds use the San Joaquin Valley if the CPNM does not provide suitable habitat.

Livestock Grazing. Under current management, livestock grazing would be used as a vegetation management tool to reduce standing biomass of persistent nonnative grasses for the benefit of mountain plovers. Monitoring data and research on mountain plovers indicate that they do not use areas with dense vegetation. Foraging generally occurs in habitats with bare ground and less than 1 inch of vegetation, in disturbed kangaroo rat precincts, on sites of heavy sheep or cattle grazing or concentrations around water facilities, on dirt or gravel roads, and in plowed or fallowed fields.

Vegetation management could help provide winter habitat for mountain plovers in periods or in areas where giant kangaroo rat clipping activity would not reduce residual dry matter. Giant kangaroo rats would likely provide suitable habitat in the fall in nearly all but the wettest of years with high biomass production. In years of greater vegetation production and buildup of residual dry matter over successive years, livestock grazing and prescribed fire could be used to reduce standing biomass for the benefit of mountain plovers. In periods of drought and during many near-normal precipitation years, there would likely be no need for livestock grazing. Livestock grazing as a vegetation management tool for the benefit of mountain plovers could be critical to avoid an accumulation of standing nonnative grass ground cover during wet years when few areas of low habitat structure would be available. In exceptionally wet years, grazed areas to create suitable habitat would be especially important if dry playas and bare areas are under water and would not be used by mountain plovers.

Current management of the Monument would continue to provide habitat for wintering mountain plovers. The adaptive management process of assessing vegetation objectives, evaluating pasture resources, applying current scientific knowledge, applying management prescriptions, and evaluating monitoring data, would have minor to moderate benefit by providing suitable winter habitat within the Monument landscape. The mosaic of vegetation communities, the grazed and ungrazed pastures, the patchiness of standing vegetation in grazed areas, and occasional fire treatments, would be expected to maintain sustainable habitat within the Monument but management decisions must be made early in the growing season (winter) if management is to be effective for this winter visitor.

Minerals. Oil exploration and development would have negligible impacts to wintering mountain plovers in the Monument. Oil development activities on 30 acres of the valley floor would have negligible impacts to the amount of wintering habitat. Mountain plovers do not avoid areas with human disturbance or activity such as farm fields being cultivated or areas near ongoing oil operations. There are no Mountain Plovers in the Russell Ranch Unit area.

Geophysical activities would have a transient impact of 115 acres from cross-country and shot hole drilling. Oil exploration using shot hole seismic methods would have negligible impacts since the activities would likely occur at times of the year when mountain plovers are not present.

4.2.5.9 Western Burrowing Owl

Impacts to Burrowing Owls Common to All Action Alternatives

Impacts to Burrowing Owls from Implementing the Wildlife Program

Under All Action Alternatives, actions will be taken to maintain or increase viable populations of burrowing owls. Periodic surveys to monitor populations and to assess habitat quality and threats will be completed. Support for research and education will be provided. Actions will be taken to ensure adequate burrows are available and measures will be taken to protect against vehicle strikes. This would have a moderate to major positive effect on burrowing owl populations.

On the CPNM, owls use burrows created primarily by California ground squirrels. California ground squirrels and their burrows are abundant on the CPNM. Under All Action Alternatives, California ground squirrel burrows are expected to remain abundant.

Prey items are expected to remain available. Although insect and rodent species composition may shift, burrowing owls are opportunistic feeders and can adjust to many types of change.

Impacts to Burrowing Owls from Implementing Other Programs

Under all action alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will result in negligible impacts on burrowing owls: Vegetation, Air Quality, Soil, Water, Geology and Paleontology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, Minerals, and Lands and Realty.

Impacts to Burrowing Owls under the Proposed Plan (Alternative 2)

Impacts to Burrowing Owls from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to Burrowing Owls from Implementing Other Programs

Fire and Fuels Management. Under the proposed plan (Alternative 2), prescribed burning would continue to be conducted. Impacts from wildland fire activities would be similar to those discussed under the No Action Alternative and have a moderate positive effect on burrowing owl habitat but a minor to moderate short-term negative impact to any burrowing owls in the fire area.

Impacts under No Action Alternative (for reference):

Potential impacts to burrowing owls from wildland fire include disturbance by fire activity, vehicle strikes, burrow collapse, and smoke inhalation. Under the No Action Alternative, prescribed fires would be designed to minimize direct impacts to burrowing owls. The project area would be surveyed for owls, fire lines would avoid burrows, and vegetation around burrows would be removed by hand to reduce fire intensity in the vicinity of the burrow entrance. Active burrows in the vicinity of access roads would be flagged and personnel would be advised to drive with caution when driving past the burrow. Where possible, fires would be timed to avoid the period between hatching and when chicks are 4 weeks old and able to fly.

Not much is known about how owls react to fire. Jim Belthoff, Boise State University, provides some observations from a study site in Idaho after wildfires in 1996, 2002 and 2003 (J. Belthoff, Boise State University, personal communication, 14 June 2006). These fires occurred at various stages of the nesting cycle, but tended to be later in the year. In the case of the 1996 fire, some of the owls had radio collars, allowing examination of movements. In all cases, owls escaped effects of the fire and remained in the same location they were before the fires. Belthoff presumes the owls weathered the fires below ground, but cannot be certain since he was not able to track the owls during the burn. The owls were in the vicinity of their burrows the day following the fire.

Disturbance by fire activity, vehicle strikes, burrow collapse, and smoke inhalation may result in a minor to moderate short-term negative impact to burrowing owls.

Burrowing owls prefer areas characterized by short, sparse vegetation and open ground. In spite of the potential for direct impacts to burrowing owls immediately before and during wildland fire, the resulting habitat change should have a moderate positive effect on burrowing owls.

Livestock Grazing. Under the proposed plan (Alternative 2), grazing would continue and effects to burrowing owls would be similar to those described under the No Action Alternative.

Impacts under the No Action Alternative (for reference):

Grazing by domestic livestock, prairie dogs, and other grazing species has historically been an important mechanism in the maintenance of suitable burrowing owl habitat in natural landscapes. Within the Monument, clipping by giant kangaroo rats may also play a role in maintaining suitable burrowing owl habitat. In areas managed to promote burrowing owls, grazing and mowing are commonly used to maintain an appropriate vegetation structure. At Wildlands Inc.'s Haera and Brushy Creek Conservation Banks, California, for burrowing owls, grazing is used to reduce vegetation height to approximately 3 inches (Craig Bailey, Wildlands Inc., personal communication, November 2003). Regular mowing of airport infields maintains suitable habitat for burrowing owls at San Jose International Airport (Jack Barclay, Albion Environmental, personal communication, November 2003). Similarly, regular mowing of grounds provides habitat for owls at Allensworth State Historical Park (Jeannine Koshear, California State Parks, personal communication, November 2003). In years with rainfall patterns that result in taller grasses and vegetation, owls will move to areas with lower grass and sparser vegetation. At Whelan Lake in San Diego County, burrowing owls disappeared after grazing was discontinued and the vegetation became tall (Jeff Lincer, Wildlife Research Institute, personal communication, November 2003). Under

the No Action Alternative, grazing should continue to promote a vegetation structure preferred by burrowing owls.

There is some suggestion that burrowing owls may favor areas of livestock use. At the Brushy Creek and Haera Conservation Banks, burrowing owl use was greater in areas used more heavily by livestock, including around water troughs (Craig Bailey, Wildlands Inc., personal communication, November 2003). At Altamont Pass, owls were found to favor the base of wind turbines where cattle tend to congregate (Shawn Smallwood, biological consultant, personal communication, November 2003). Heavy cattle use at the base of the turbines may promote herbaceous vegetation that is favored by rodents. Owls could then be attracted by the availability of rodents. Areas that are too heavily stocked, however, could result in burrow collapse. Moderate grazing to maintain a short vegetation structure is probably key to maintaining owl habitat (Dan Rosenberg, Oregon State University, personal communication, 25 January 2004). In the CPNM, ground squirrels are also important in this regard (Dan Rosenberg, personal communication, 25 January 2004.). Giant kangaroo rats also play a role in modifying habitat on the CPNM.

In addition to modifying vegetation structure, livestock grazing may have other effects on burrowing owls. During the 2000 field season, 51 historic nest locations were checked and 19 of these were found to be collapsed (Ronan and Rosenberg 2000). Some of the collapses appeared to be cattle related (Ronan and Rosenberg 2000). Although the percentage of collapsed burrows was relatively high, this may not greatly affect owls in an environment that is not burrow limited. The collapsed burrow would no longer be available for nesting, but in many cases another burrow nearby may be chosen, and this was repeatedly observed by Ronan and Rosenberg during their study. In addition, nest burrow fidelity does not appear to be high in the CPNM (Ronan and Rosenberg 2000; Tice and Rosenberg 2002). Another effect of burrow collapse is that owls could become entombed inside collapsed burrows. In 2000, a radio-marked female was exhumed from a satellite burrow that appeared to have naturally collapsed (Rosier et al. 2001).

Nest tunnels in the CPNM often exhibit nest decoration, most often pieces of cow manure (Tice and Rosenberg 2002). Burrowing owls commonly use shredded manure to line their nest and burrow entrances, possibly to mask nest odors from predators (Haug et al. 1993; Dechant et al. 1999). Management guidelines for the Columbia Basin in Oregon recommend that fresh cattle dung be provided near nesting areas if mammalian predators, especially badgers, occur in the area (Green and Anthony 1997). Nests, however, can often be lined with materials other than manure, and may represent a means of maintaining nest defense from conspecifics rather than predators (Dan Rosenberg, Oregon State University, personal communication, 25 January 2004). Predation appears to be a cause of low nest success at CPNM, with mammalian, avian, and reptilian predation being the most common cause of mortality (Ronan 2002). The continuation of grazing will provide a source of manure that may play a role in reducing nest predation or maintaining nest defense from conspecifics.

The continuation of livestock grazing should have a moderate positive effect on burrowing owl populations.

Recreation. Under the proposed plan (Alternative 2), potential impacts to burrowing owls from recreation activities would be the same or slightly greater than the No Action Alternative.

Impacts under No Action Alternative (for reference):

Potential impacts to burrowing owls from recreation activities include harassment by pets, disturbance by human activity, and accidental shooting. Pets, including dogs are required to be under the control of their owners while on the Monument. Some owls do make use of recreation sites, such as the Painted Rock parking lot. These owls may be subject to some disturbance or harassment by human use. Concern for accidental shooting, as ground squirrels and burrowing owls can look similar from a distance, has been

expressed, although no instances have been reported or discovered. Under the No Action Alternative, educational materials, such as posters and information on the webpage, can be provided to hunters to reduce the likelihood of accidental shootings. Under the No Action Alternative, Recreation is expected to have a minor negative impact to burrowing owls.

The allowance of dispersed camping and additional trails and improvements may increase visitor use. Under the proposed plan, Recreation is expected to have a minor negative effect on burrowing owls.

Travel Management. The effects would be the same or slightly greater than the No Action Alternative as Soda Lake Road would continue to be used by vehicles and visitor use may slightly increase. This may have a minor to moderate negative impact on burrowing owls.

Impacts under No Action Alternative (for reference):

Vehicle caused mortality is a concern as many owls on the CPNM select nest sites next to roads (Ronan and Rosenberg 2000) and forage extensively on roads. Soda Lake Road is the primary road of concern. A common behavior noted on the CPNM was that as chicks become capable of flight, family groups begin to hunt on roads (Ronan and Rosenberg 1999). It is estimated that many owls per year are struck by vehicles traveling on Soda Lake Road, although no data has been collected on the numbers (Dan Rosenberg, Oregon State University, personal communication, 2004).

Under the No Action Alternative, as the speed limit and condition for Soda Lake Road is not expected to change, burrowing owls will continue to be occasionally struck and killed by vehicles. This may have a minor to moderate negative effect on burrowing owls.

Impacts to Burrowing Owls under Alternative 1

Impacts to Burrowing Owls from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to Burrowing Owls from Implementing Other Programs

Fire and Fuels Management. Under Alternative 1, prescribed burning would not be conducted. Impacts from wildland fire activities would be restricted to those associated with fire suppression. In certain years, when the precipitation pattern promotes denser and taller vegetation (average 2 years out of 10), there could be fewer acres of suitable nesting habitat for burrowing owl. This could have a moderate negative impact on burrowing owl populations.

Livestock Grazing. Under Alternative 1, grazing would be discontinued on the CPNM. Vegetation management, including prescribed burning and mowing, would also be discontinued.

In certain years, when the precipitation pattern promotes denser and taller vegetation (average 2 years out of 10), there could be fewer acres of suitable nesting habitat for burrowing owl. Over time, if the density and height of vegetation persists, the reduction in suitable nesting habitat could result in reduced burrowing owl populations on the CPNM.

The absence of grazing would reduce the availability of manure used to line nest burrows. If manure helps to mask nest odors from predators, or plays a role in nest defense from conspecifics, the discontinuation of grazing would make manure less available for such uses.

Prey items are expected to be available. Although insect and rodent species composition may shift with the discontinuation of grazing, burrowing owls are opportunistic feeders and can adjust to many types of change. Burrowing owls forage in a variety of habitats. Vegetation greater than 1 meter may be too tall for burrowing owls to locate or catch prey (Dechant et al. 1999). In certain high rainfall years (average 2 years out of 10), there may be some areas of the CPNM that produce tall vegetation, such as prickly lettuce (*Lactuca serriola*), that grow greater than 1 meter. Many of the nonnative annual grasses can also grow tall and dense which negatively affects owl nesting and foraging habitat (Dan Rosenberg, Oregon State University, personal communication, 25 January 2004).

Discontinuation of grazing may have a moderate negative effect on burrowing owl populations.

Recreation. Under Alternative 1, potential impacts to burrowing owls from recreation activities would be the same or slightly less than the No Action Alternative. The lack of dispersed camping, fewer trails and improvements, may prevent visitor use from increasing. Under Alternative 1, Recreation is expected to have a minor negative effect on burrowing owls.

Travel Management. The effects would be the same as the No Action Alternative as Soda Lake Road would continue to be used by vehicles under Alternative 1 and visitor use may not increase. This may have a minor to moderate negative effect on burrowing owls.

Impacts to Burrowing Owls under Alternative 3

Impacts to Burrowing Owls from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to Burrowing Owls from Implementing Other Programs

Fire and Fuels Management. Under Alternative 3, prescribed burning would continue to be conducted. Impacts from wildland fire activities would be similar to those discussed under the No Action Alternative and have a moderate positive effect on burrowing owl habitat but a minor to moderate short-term negative impact to any burrowing owls in the fire area.

Livestock Grazing. Under Alternative 3, grazing would continue and effects to burrowing owls would be similar to those described under the No Action Alternative. The continuation of grazing should have a moderate positive effect on burrowing owl populations.

Recreation. Under Alternative 3, potential impacts to burrowing owls from recreation activities would be slightly greater than the No Action Alternative and the proposed plan (Alternative 2). The increased emphasis on providing recreation facilities, allowance of dispersed camping, and additional trails and improvements will increase visitor use. Under Alternative 3, Recreation is expected to have a minor to moderate negative effect on burrowing owls.

Travel Management. The effects would be the slightly greater than the No Action Alternative and the proposed plan (Alternative 2) as Soda Lake Road would continue to be used by vehicles and visitor use may increase. This may have a moderate negative effect on burrowing owls.

Impacts to Burrowing Owls under the No Action Alternative

Impacts to Burrowing Owls from Implementing the Wildlife Program

Under the No Action Alternative, actions will be taken to maintain viable populations of burrowing owls. Occasional surveys to monitor populations and to assess habitat quality and threats may be completed. Support for research and education will be provided. Actions will be taken to ensure adequate burrows are available and to reduce vehicle strikes. This would have a moderate to major positive effect on burrowing owl populations.

On the CPNM, owls use burrows created primarily by California ground squirrels. California ground squirrels and their burrows are abundant on the CPNM. Under the No Action Alternative, California ground squirrel burrows are expected to remain abundant.

Prey items on the CPNM include a variety of insects and small mammals. Ronan (2002) observed that when nests were successful on the CPNM, productivity appeared to be influenced by the higher proportion of rodents in the diet. Under the No Action Alternative, the availability of prey items, including small rodents, would remain the same as in previous years.

Burrowing owl populations on the CPNM appear to be stable (Ronan and Rosenberg 2000; Klute et al. 2003). Although the density of owls in the CPNM is low when compared to other study sites in California, this may be normal for large natural landscapes (Dan Rosenberg, Oregon State University, personal communication, 25 January 2004). Under the No Action Alternative, the CPNM burrowing owl population is expected to remain stable.

Impacts to Burrowing Owls from Implementing Other Programs

Under the No Action Alternative, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will result in negligible impacts on burrowing owls: Vegetation, Air Quality, Soil, Water, Geology and Paleontology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, Minerals, and Lands and Realty.

Fire and Fuels Management. Potential impacts to burrowing owls from wildland fire include disturbance by fire activity, vehicle strikes, burrow collapse, and smoke inhalation. Under the No Action Alternative, prescribed fires would be designed to minimize direct impacts to burrowing owls. The project area would be surveyed for owls, fire lines would avoid burrows, and vegetation around burrows would be removed by hand to reduce fire intensity in the vicinity of the burrow entrance. Active burrows in the vicinity of access roads would be flagged and personnel would be advised to drive with caution when driving past the burrow. Where possible, fires would be timed to avoid the period between hatching and when chicks are 4 weeks old and able to fly.

Not much is known about how owls react to fire. Jim Belthoff, Boise State University, provides some observations from a study site in Idaho after wildfires in 1996, 2002 and 2003 (J. Belthoff, Boise State University, personal communication, 14 June 2006). These fires occurred at various stages of the nesting cycle, but tended to be later in the year. In the case of the 1996 fire, some of the owls had radio collars, allowing examination of movements. In all cases, owls escaped effects of the fire and remained in the same location they were before the fires. Belthoff presumes the owls weathered the fires below ground, but cannot be certain since he was not able to track the owls during the burn. The owls were in the vicinity of their burrows the day following the fire.

Disturbance by fire activity, vehicle strikes, burrow collapse, and smoke inhalation may result in a minor to moderate short-term negative impact to burrowing owls.

Burrowing owls prefer areas characterized by short, sparse vegetation and open ground. In spite of the potential for direct impacts to burrowing owls immediately before and during wildland fire, the resulting habitat change should have a moderate positive effect on burrowing owls.

Livestock Grazing. Grazing by domestic livestock, prairie dogs, and other grazing species has historically been an important mechanism in the maintenance of suitable burrowing owl habitat in natural landscapes. Within the Monument, clipping by giant kangaroo rats may also play a role in maintaining suitable burrowing owl habitat. In areas managed to promote burrowing owls, grazing and mowing are commonly used to maintain an appropriate vegetation structure. At Wildlands Inc.'s Haera and Brushy Creek Conservation Banks, California, for burrowing owls, grazing is used to reduce vegetation height to approximately 3 inches (Craig Bailey, Wildlands Inc., personal communication, November 2003). Regular mowing of airport infields maintains suitable habitat for burrowing owls at San Jose International Airport (Jack Barclay, Albion Environmental, personal communication, November 2003). Similarly, regular mowing of grounds provides habitat for owls at Allensworth State Historical Park (Jeannine Koshear, California State Parks, personal communication, November 2003). In years with rainfall patterns that result in taller grasses and vegetation, owls will move to areas with lower grass and sparser vegetation. At Whelan Lake in San Diego County, burrowing owls disappeared after grazing was discontinued and the vegetation became tall (Jeff Lincer, Wildlife Research Institute, personal communication, November 2003). Under the No Action Alternative, grazing should continue to promote a vegetation structure preferred by burrowing owls.

There is some suggestion that burrowing owls may favor areas of livestock use. At the Brushy Creek and Haera Conservation Banks, burrowing owl use was greater in areas used more heavily by livestock, including around water troughs (Craig Bailey, Wildlands Inc., personal communication, November 2003). At Altamont Pass, owls were found to favor the base of wind turbines where cattle tend to congregate (Shawn Smallwood, biological consultant, personal communication, November 2003). Heavy cattle use at the base of the turbines may promote herbaceous vegetation that is favored by rodents. Owls could then be attracted by the availability of rodents. Areas that are too heavily stocked, however, could result in burrow collapse. Moderate grazing to maintain a short vegetation structure is probably key to maintaining owl habitat (Dan Rosenberg, Oregon State University, personal communication, 25 January 2004). In the CPNM, ground squirrels are also important in this regard (Dan Rosenberg, personal communication, 25 January 2004.). Giant kangaroo rats also play a role in modifying habitat on the CPNM.

In addition to modifying vegetation structure, livestock grazing may have other effects on burrowing owls. During the 2000 field season, 51 historic nest locations were checked and 19 of these were found to be collapsed (Ronan and Rosenberg 2000). Some of the collapses appeared to be cattle related (Ronan and Rosenberg 2000). Although the percentage of collapsed burrows was relatively high, this may not greatly affect owls in an environment that is not burrow limited. The collapsed burrow would no longer be available for nesting, but in many cases another burrow nearby may be chosen, and this was repeatedly observed by Ronan and Rosenberg during their study. In addition, nest burrow fidelity does not appear to be high in the CPNM (Ronan and Rosenberg 2000; Tice and Rosenberg 2002). Another effect of burrow collapse is that owls could become entombed inside collapsed burrows. In 2000, a radio-marked female was exhumed from a satellite burrow that appeared to have naturally collapsed (Rosier et al. 2001).

Nest tunnels in the CPNM often exhibit nest decoration, most often pieces of cow manure (Tice and Rosenberg 2002). Burrowing owls commonly use shredded manure to line their nest and burrow entrances, possibly to mask nest odors from predators (Haug et al. 1993; Dechant et al. 1999). Management guidelines for the Columbia Basin in Oregon recommend that fresh cattle dung be provided near nesting areas if mammalian predators, especially badgers, occur in the area (Green and Anthony 1997). Nests, however, can often be lined with materials other than manure, and may represent a means of

maintaining nest defense from conspecifics rather than predators (Dan Rosenberg, Oregon State University, personal communication, 25 January 2004). Predation appears to be a cause of low nest success at CPNM, with mammalian, avian, and reptilian predation being the most common cause of mortality (Ronan 2002). The continuation of grazing will provide a source of manure that may play a role in reducing nest predation or maintaining nest defense from conspecifics.

The continuation of livestock grazing should have a moderate positive effect on burrowing owl populations.

Recreation. Potential impacts to burrowing owls from recreation activities include harassment by pets, disturbance by human activity, and accidental shooting. Pets, including dogs are required to be under the control of their owners while on the Monument. Some owls do make use of recreation sites, such as the Painted Rock parking lot. These owls may be subject to some disturbance or harassment by human use. Concern for accidental shooting, as ground squirrels and burrowing owls can look similar from a distance, has been expressed, although no instances have been reported or discovered. Under the No Action Alternative, educational materials, such as posters and information on the webpage, can be provided to hunters to reduce the likelihood of accidental shootings. Under the No Action Alternative, Recreation is expected to have a minor negative impact to burrowing owls.

Travel Management. Vehicle caused mortality is a concern as many owls on the CPNM select nest sites next to roads (Ronan and Rosenberg 2000) and forage extensively on roads. Soda Lake Road is the primary road of concern. A common behavior noted on the CPNM was that as chicks become capable of flight, family groups begin to hunt on roads (Ronan and Rosenberg 1999). It is estimated that many owls per year are struck by vehicles traveling on Soda Lake Road, although no data has been collected on the numbers (Dan Rosenberg, Oregon State University, personal communication, 2004).

Under the No Action Alternative, as the speed limit and condition for Soda Lake Road is not expected to change, burrowing owls will continue to be occasionally struck and killed by vehicles. This may have a minor to moderate negative effect on burrowing owls.

4.2.5.10 Western Spadefoot Toad

Impacts to the Western Spadefoot Toad Common to All Action Alternatives

Impacts to the Western Spadefoot Toad from Implementing the Wildlife Program

Implementation of actions common to all action alternatives will result in minor to major positive impacts for spadefoot toads such as maintaining current protections in place for vernal pools; instigating a more rigorous monitoring program to detect any negative changes to toad populations or habitat; protecting areas that collect and maintain water during very wet years (these areas can be used by spadefoot toads for breeding and reproduction); maintaining the ecological processes and hydrologic vitality of Soda Lake and nearby pools; determining the role of livestock grazing in vernal pools; and improving our knowledge of species through research.

Impacts to the Western Spadefoot Toads from Implementing Other Programs

Vegetation. Actions proposed under the vegetation program common to all action alternatives are expected to have positive impacts for spadefoot toads. By eliminating noxious weeds that occur near pools and in upland habitat, the integrity of the habitat is maintained. This action along with maintaining a mosaic of habitat structure and diversity will allow for toad migration as well as providing a more diverse prey base available throughout the year.

Fire and Fuels Management. There is little known about the effect of wildfire on spadefoot toads. Most CPNM wildfires have occurred in the dry months of late spring to early fall (BLM 2006) and since this species of toad is generally underground or dormant from May through November (Stebbins 1985) when most wildfires occur, it is generally believed that toads are not likely to be directly affected by fire (Howard 1996; Pilliod et al. 2003). However, little is known about adult toad above-ground foraging and migration activities before and after the breeding season. It is also unclear how far newly metamorphosed toads disperse from their birth pond or how deep underground they are by the time fires are most likely to occur. Impacts of some large California wildfires have been analyzed on different types of amphibians and have been found to be negative or positive depending on the timing, location, size, and duration (Pilliod et al. 2003). Benefits have been shown when fire has reduced effects of evapotranspiration resulting in water remaining in pools longer (Pilliod et al. 2003).

The average fire of 500 acres is expected to have negligible to no impact (if outside of toad habitat) or minor impacts (if occurrence is in spadefoot toad habitat). Minor impacts are expected to be short-term but could range to long-term if a period of drought occurs in years following the fire. Larger fires of 500 to 5,000 acres are expected to have the same effects as an average fire with the highest impacts occurring if the fire is within spadefoot toad habitat. Due to the sensitivity of vernal pools as habitat for fairy shrimp and spadefoot toads, it is not expected that prescribed fire would be used in these areas. SOPs restrict the use of dozers and foam and retardant chemicals in sensitive habitat. Potential impacts include direct mortality caused by vehicles or heavy equipment collapsing shallow burrows, possibly entombing or crushing individuals; damage to habitat from possible dozer activity; and loss of vegetation that may reduce insect prey. Unless drought occurs following fire, this is expected to be a temporary and negligible effect. Changes in the landscape following a fire may impact toads positively (by removing thick vegetation difficult to move through) or negatively (by creating barriers to movement or restructuring migration corridors or pathways).

Livestock Grazing. Livestock grazing under all action alternatives is expected to have positive or negligible impacts to spadefoot toads. Monitoring of grazing and compliance, or adjusting fence boundaries will likely result in benefits to toads.

Recreation and Administrative Facilities. Activities and impacts associated with those activities common to all action alternatives vary by zone. Cache activities (in any zone) will be prohibited in sensitive areas, including habitat of sensitive species such as the spadefoot toad, resulting in no impacts. Activities in the Primitive zone are expected to have negligible to no impacts to spadefoot toads. If SOPs are followed when developing potable water at high use dispersed camping areas in the Backcountry, impacts to spadefoot toads are expected to be negligible. The development of two or three driving/riding tours in the Backcountry could cause a slight increase in traffic on some roads, which could potentially increase mortality to adult and immature toads in areas where and when migration occurs. This would be a localized impact only in those areas where pools are in the roads or in very close proximity (approximately 30 percent of pools), and generally late winter to late spring. An increase in vehicles may also cause an increase in off-road use, potentially damaging habitat and causing direct mortality to toads during the times when toads are active above ground. However, driving/riding tours have the potential to also provide an opportunity to educate visitors about the sensitivity of the habitat damage that can result from driving off roads. Overnight camping fees may result in a reduction of dispersed camping, reducing traffic in and around toad habitat. Recreational activities common to All Action Alternatives proposed for the Frontcountry are expected to have negligible or no impacts to spadefoot toads, as most occur outside of habitat.

Travel Management. Actions common to All Action Alternatives are expected to result in minor to moderate positive impacts for natural resources and spadefoot toads. Travel information, signage, a road

maintenance plan to protect natural and cultural resources, and temporary closures during wet periods will aid in protection of toads, pools, and upland habitat.

Impacts to the Western Spadefoot Toad under the Proposed Plan (Alternative 2)

Impacts to the Western Spadefoot Toad from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to the Western Spadefoot Toad from Implementing Other Programs

Vegetation. Providing SOPs are adhered to when implementing the use of herbicides or prescribed fire, these actions are expected to have negligible to no impacts on spadefoot toads. Vernal pools and amphibians are regarded as sensitive, resulting in the use of fire and herbicides under strict guidelines only such as no surface disturbance (by fire equipment and vehicles); using herbicides that would cause the least amount of harm to toads; and application of herbicides only when water and toads are not present.

Fire and Fuels Management. Implementing actions under the proposed plan (Alternative 2) for wildfire suppression could result in the following impacts to spadefoot toads: minor to moderate but localized, could be long-term from one mile of dozer line or if followed by drought. If SOPs are adhered to, 1 mile of dozer and 3 miles of handline, as well as the use of foam and fire retardant would be avoided in areas of vernal pools. Off-road travel by engines and command vehicles would be reduced as much as possible resulting in a negligible to minor impact of crushing or entombing toads in burrows.

Livestock Grazing. Actions to implement Livestock Grazing under the proposed plan (Alternative 2) are expected to have negligible to minor but short-term impacts to toads. Temporary use of livestock to graze at vernal pools to reduce vegetation will result in a longer hydroperiod and maintain a water chemistry believed to be beneficial for toads. If livestock grazing is determined to be detrimental to toads or other vernal pool species, grazing will be no longer used. A minor, short-term, negative impact may result through crushing or drinking egg masses or trampling on tadpoles. Impacts resulting from trespass sheep grazing to spadefoot toads in the Foothill pasture will be the same as under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

One pool in the Foothill pasture experienced drawdown from sheep trespass and has been posted to prevent sheep from further using the pool as a water source. Adult toads, however, have persisted in using these pools for reproduction though it is not known how many individuals successfully reach metamorphosis, then adulthood, to continue the cycle. It's unclear how spadefoot toads will be affected by removing livestock grazing from the other pastures. (Pools can go for many years without sufficient rain to fill them; the last year tadpoles metamorphosed from a non-grazed pasture [the MU House] was in 2005). These pools will be monitored and grazing applied if evapotranspiration is determined to be accelerating drawdown. Likewise, pools will be monitored to ensure that livestock be pulled off prior to noticeable drawdown or when tadpoles begin to metamorphose.

Recreation and Administrative Facilities. Actions to implement Recreation and Administrative Facilities uses under the proposed plan (Alternative 2) are expected to have negligible to no impacts to spadefoot toads in the Primitive, Backcountry, and Frontcountry zones if all overlooks, interpretive sites, trail head staging sites, and hiking trails are developed in a manner that follows SOPs by avoiding vernal pools and adjacent habitat at critical stages of toad migration and development. If the above actions result

in focusing or directing visitors away from sensitive areas and pools, these actions may have a minor to moderate positive impact for toads.

Travel Management. Impacts to spadefoot toads under the proposed plan (Alternative 2) would be similar to the No Action Alternative but with added protections proposed as common to All Action Alternatives of fewer miles of roads open to the public.

Impacts under No Action Alternative (for reference):

Effects to spadefoot toads are expected to be negligible to minor under current management actions. Approximately 30 percent of pools that have supported toads at one time are located near or along the edge of roads currently classified as open to the public. It is unknown however, to what degree mortality occurs to adult and juvenile toads migrating in and along roads. Adult toads, eggs, tadpoles, and juvenile toads using pools on the edge of roads (less than 1 percent), may experience minor to moderate, localized impacts such as direct mortality by crushing or displacement of water. Impacts to the remainder of pools would occur when toads are using the road or as a result of illegal off-road use.

There would be negligible to minor impacts to the toad population overall with expected minor to moderate, localized impacts to pools in roads and habitat adjacent to roads. There would be minor to moderate positive impacts resulting from additional protection measures.

Impacts to the Western Spadefoot Toad under Alternative 1

Impacts to the Western Spadefoot Toad from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to the Western Spadefoot Toad from Implementing Other Programs

Vegetation. Actions to remove 10 to 100 acres of noxious weeds are expected to have a positive impact on spadefoot toads in those cases where weeds occur near pools and in upland habitat. Noxious weeds may make migration to and from different ponds during breeding difficult. A monoculture of weeds would reduce the quality of habitat by eliminating a more diverse prey base that would be available throughout the year from having a variety of native plant species.

Fire and Fuels Management. Implementing actions under Alternative 1 for wildfire suppression could result in the following impacts to spadefoot toads: minor to moderate, but localized, impacts from 1 mile of dozer line that could be long-term if followed by drought. If SOPs are adhered to, 1 mile of dozer line and 3 miles of handline, as well as the use of foam and fire retardant, would be avoided in areas of vernal pools. Off-road travel by engines and command vehicles would be reduced as much as possible resulting in a negligible to minor impact of crushing or entombing toads in burrows.

Livestock Grazing. There will be no authorized livestock grazing under Alternative 1. Impacts resulting from trespass sheep grazing to spadefoot toads in the Foothill pasture will be the same as the No Action Alternative. Actions to remove grazing from vernal pools may result in accumulation of vegetation and a reduction in hydroperiod, though other means may be used to remove vegetation such as hand removal or mowing. Water chemistry may change, which may result in impacts to toads ranging from negligible to major.

Recreation and Administrative Facilities. Actions to implement Recreation and Administrative Facilities uses under Alternative 1 are expected to have negligible to no impacts to spadefoot toads in the Primitive, Backcountry, and Frontcountry zones if all overlooks, interpretive sites, trail head staging sites,

and hiking trails are developed in a manner that follows SOPs by avoiding vernal pools and adjacent habitat or are closed at critical stages of toad migration and development. If the above actions result in focusing or directing visitors away from sensitive areas and pools, these actions may have a minor to moderate positive impact for toads.

Travel Management. Actions to implement Alternative 1 are expected to result in minor to moderate positive impacts for natural resources and spadefoot toads. Certain prohibited activities in the Backcountry, such as riding vehicles registered through the green or red sticker state off-highway vehicle (OHV) program (off-road motorcycles, four wheelers, and other OHVs) are expected to result in fewer visitors using Backcountry roads and less illegal off-road use that can cause habitat destruction and mortality to some individuals. Alternative 1 offers the most protection for toads.

Impacts to the Western Spadefoot Toad under Alternative 3

Impacts to the Western Spadefoot Toad from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to the Western Spadefoot Toad from Implementing Other Programs

Vegetation. Impacts to spadefoot toads under Alternative 3 are the same as the proposed plan (Alternative 2).

Fire and Fuels Management. Implementing actions under Alternative 3 for wildfire suppression could result in the following impacts to spadefoot toads: minor to moderate but localized, could be long-term from 1 mile of dozer line or if followed by drought. If SOPs are adhered to, 1 mile of dozer line and 3 miles of handline, as well as the use of foam and fire retardant would be avoided in areas of vernal pools. Off-road travel by engines and command vehicles would be reduced as much as possible resulting in a negligible to minor impact of crushing or entombing toads in burrows.

Livestock Grazing. Actions to implement Livestock Grazing under Alternative 3 are expected to have similar effects as the proposed plan (Alternative 2). Temporary use of livestock to graze at vernal pools to reduce vegetation will result in a longer hydroperiod and maintain a water chemistry believed to be beneficial for toads. If grazing is determined to be detrimental to toads or other vernal pool species, grazing will be no longer used. A minor, short-term, negative impact may result through crushing or drinking egg masses or trampling on tadpoles.

Recreation and Administrative Facilities. Actions to implement Recreation and Administrative Facilities uses under Alternative 3 are expected to have negligible to no impacts to spadefoot toads in the primitive, Backcountry, and Frontcountry zones if all overlooks, interpretive sites, trail head staging sites, and hiking trails are developed in a manner that follows SOPs by avoiding vernal pools and adjacent habitat at critical stages of toad migration and development. If the above actions result in focusing or directing visitors away from sensitive areas and pools, these actions may have a minor to moderate positive impact for toads.

Travel Management. There would be negligible to minor impacts to the toad population overall with expected minor to moderate, localized impacts to pools in roads and in habitat adjacent to roads. The same number of miles of roads would open to the public as are currently open. There would be minor to moderate positive impacts resulting from additional protection measures.

Impacts to the Western Spadefoot Toad under the No Action Alternative

Impacts to the Western Spadefoot Toad from Implementing the Wildlife Program

There are no actions specifically targeted for spadefoot toads in the current management plan; however, management actions that protect vernal pools and fairy shrimp species also provide the basis for protection of spadefoot toads. Western spadefoot toads are for most of their lives terrestrial animals but reproduction and early developmental life stages occur in temporary (lentic) pools and ponds including sag ponds, man-made stock ponds, or playas in low-lying areas that collect water (referred to as vernal pools or pools in the remaining text). Since little is known about the terrestrial activities of toads, management is focused on the reproductive cycle and the habitat requirements necessary for the cycle to occur. These actions are designed to minimize negative impacts and to ultimately have positive outcomes for vernal pool species within the Monument while providing long-term protection within the state. The current management plan lists several actions for vernal pools (affecting spadefoot toads) to achieve the goals of increasing the importance of native species in communities, increasing our understanding, and for managing habitat.

Impacts to the Western Spadefoot Toad from Implementing Other Programs

Under the No Action Alternative, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will result in negligible impacts on spadefoot toads: Vegetation, Air Quality, Soils, Water, Cultural Resources, WSA/Lands with Wilderness Characteristics, and Minerals.

Fire and Fuels Management. Under current management practices, areas with vernal pools are restricted from the use of fire retardant chemicals, the use of dozers, or other forms of surface disturbance. There is no known history of wildfire or prescribed fires in areas of vernal pools. Impacts resulting from actions under fire and fuels management are expected to be negligible.

Livestock Grazing. Western spadefoot toads occupy two types of habitat over the course of their lives. For eight or more months, spadefoot toads are subterranean, using burrows in upland habitat “spaded” out by them or utilizing a burrow created by some other animal including ground squirrel, kangaroo rat, or gopher (Stebbins 1985). In years with sufficient rainfall, spadefoot toads will leave their upland burrows and descend into lentic pools that have accumulated enough water to potentially last long enough for reproduction to occur, eggs to be laid, and for tadpoles to develop and reach metamorphosis. Tadpoles can develop into toads in just 30 to 79 days with the average of 58 days (Morey 1998). Toads generally come above ground in nighttime to reproduce or, if conditions outside the burrow are cool and moist, they will emerge to forage. Most of the known CPNM populations of western spadefoot toads occur within the southwestern half of the Monument. There have been a few known sightings of adult toads near the southern end of Soda Lake and tadpoles of spadefoot toads have been documented in some of the pools located north of Soda Lake with some occurring outside of the Monument boundaries. Tadpoles have also been documented in one of the natural basins in a rock outcropping, but these did not reach to metamorphose. It is likely there are more pools that support toads near Soda Lake and in the eastern foothills of the Caliente Mountains.

Little is known about the habitat requirements of the Western spadefoot toad including the number, location, and suitability of breeding sites. The CPNM populations are generally found to breed in lowland areas of the valley floor or sag ponds and alkali flats in the foothills of the Caliente Mountains. On the southeast end of the Monument there are over 20 pools of different sizes and depths that span an area of several thousand acres. These “complexes” of pools are important for the conservation of metapopulations. It’s believed that adults migrate to different pools resulting in genetic variation within the population but little is known about the migratory habits or what factors might act as barriers to migration. Pool requirements are also unknown. It is assumed that pool chemistry, pool depth, and pool

longevity or hydroperiod are all important factors necessary for successful reproduction and complete metamorphosis of larvae.

There are a number of possible impacts to toads from livestock grazing. According to USFWS (2005), grazing may play an important role in maintaining the necessary hydroperiod by reducing vegetation surrounding pools, thereby preventing water loss due to evapotranspiration. Conversely, livestock may also cause premature drawdown of the pool through drinking, preventing complete metamorphosis (and desiccation), or causing accelerated metamorphosis resulting in less fit individuals (Morey 1998). Livestock may also crush eggs, larvae, and adult or juvenile toads by trampling. As newly developed juvenile toads begin to leave their pool environment, they often spend the first few days going from water to pool's edge and back again, making them vulnerable to trampling (BLM staff, personal observation, 2005). The incorporation of urine and fecal material by livestock may also play a role. Though the exact food habits of western spadefoot toad larvae are unknown (USFWS 2005), other spadefoot species consume fairy shrimp. Eriksen and Belk (1999), in their discussion of longhorn fairy shrimp, a federally listed species which often co-occurs with spadefoot toads, suggested that livestock may be necessary to create the water chemistry needed to support them and advised against changing historic use patterns. This may also be true for spadefoot toads, though Morey's study appears to indicate that toads may benefit from a longer hydroperiod where tadpoles can accumulate larger fat stores resulting in fitter individuals at metamorphosis (Morey 1998).

There are no known pools that support spadefoot toads within any of the Section 15 allotments. Pastures within vegetation management areas identified as having vernal pools that have been used for breeding by spadefoot toads include: MU House, MU Horse, Hostetter, Calf Shed, Quail Springs, Padrone, and Foothill. The historic grazing regime has been maintained within pastures with known locations of longhorn fairy shrimp (Calf Shed and Hostetter). Water drawdown from livestock use at these pools has not been noticeable.

Impacts to spadefoot toads under current livestock management are expected to range from negligible to minor. All pastures with the exception of the Foothill pasture have been grazed historically and one pool in the Foothill pasture experienced drawdown from sheep trespass and has been posted to prevent sheep from further using the pool as a water source. Adult toads, however, have persisted in using these pools for reproduction though it is not known how many individuals successfully reach metamorphosis, then adulthood, to continue the cycle. It's unclear how spadefoot toads will be affected by removing livestock grazing from the other pastures. (Pools can go for many years without sufficient rain to fill them; the last year tadpoles metamorphosed from a non-grazed pasture [the MU House] was in 2005). These pools will be monitored and grazing applied if evapotranspiration is determined to be accelerating drawdown. Likewise, pools will be monitored to ensure that livestock be pulled off prior to noticeable drawdown or when tadpoles begin to metamorphose.

Recreation and Administrative Facilities. Recreational activities such as dispersed camping and hunting are expected to have a negligible impact on adults migrating to and from pools during breeding and a negligible impact on juvenile toads as they disperse away from pools. Individuals may be crushed by camping activities or passing traffic but it is unknown to what degree this occurs. Monitoring shows that adults continue to use the pools to breed when conditions are suitable. Eggs hatch and some tadpoles are able to metamorphose if the pool level is sufficient. With these factors, and the assumption that recreation user numbers will level off, the number of toad mortalities is not expected to be measurable.

Travel Management. Effects to spadefoot toads are expected to be negligible to minor under current management actions. Approximately 30 percent of pools that have supported toads at one time are located near or along the edge of roads currently classified as open to the public. It is unknown however, to what degree mortality occurs to adult and juvenile toads migrating in and along roads. Adult toads, eggs,

tadpoles, and juvenile toads using pools on the edge of roads (less than 1 percent), may experience minor to moderate, localized impacts such as direct mortality by crushing or displacement of water. Impacts to the remainder of pools would occur when toads are using the road or as a result of illegal off-road use.

4.2.5.11 Kern Primrose Sphinx Moth

Impacts to the Kern Primrose Sphinx Moth Common to All Action Alternatives

Impacts to the Kern Primrose Sphinx Moth from Implementing the Wildlife Program

Under all action alternatives, actions will be taken to maintain or increase viable populations of Kern primrose sphinx moths. When appropriate conditions exist, surveys will be conducted for sphinx moths adults, larva, and host plants. Support for research and education will be provided. Sphinx moth habitat will be protected from surface impacts (such as livestock, horses, walking) during critical stages of reproduction and development. This would have a moderate to major positive impact on moth populations.

Impacts to the Kern Primrose Sphinx Moth from Implementing Other Programs

Under all action alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on sphinx moth populations: Vegetation, Fire and Fuels Management, Air Quality, Soil, Water, Geology and Paleontology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, and Minerals.

Impacts to the Kern Primrose Sphinx Moth under the Proposed Plan (Alternative 2)

Impacts to the Kern Primrose Sphinx Moth from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to the Kern Primrose Sphinx Moth from Implementing Other Programs

Livestock Grazing. Under the proposed plan (Alternative 2), livestock grazing could occur within some sphinx moth pastures (Fault, West Cochora, and Calf Shed), but only in a manner that protects moth habitat. For example, fencing may be installed to partition off the moth habitat from the rest of the pasture. Grazing would not be authorized in the Foothills pasture. Grazing on private lands could occur at any time. Under the proposed plan, livestock grazing could have a minor to moderate negative impact on moth populations.

Recreation. Under the proposed plan (Alternative 2), moth drainages would continue to be open to public use. Impacts would be the same as described under the No Action Alternative and could result in minor to moderate negative impacts on moth populations.

Impacts under No Action Alternative (for reference):

Walking, horseback riding, and pet travel down moth washes can trample food plants, moth eggs, and larvae. Soil crust becomes broken up and the disturbed areas may be less suitable for germination and establishment of *Camissonia* plants. Under the No Action Alternative, moth drainages would continue to be open to public use. This could result in a minor to moderate negative impacts on moth populations.

Travel Management. Under the proposed plan (Alternative 2), Soda Lake Road, Calf Shed road and the road that crosses the Elkhorn Scarp would remain available for vehicles use. The potential impacts would

be the same as in the No Action Alternative and could result in minor to moderate negative impacts to moth populations.

Impacts under No Action Alternative (for reference):

There has been some unauthorized vehicle travel down a portion of the Agave moth wash where it crosses Soda Lake Road. Vehicle travel can trample *Camissonia* plants, and potentially moth eggs and larvae. Soil crust becomes broken up and the disturbed areas may be less suitable for germination and establishment of *Camissonia* plants. Unauthorized vehicle travel has also occurred in the Calf Shed moth wash. Vehicles access the wash where the roads cross the moth wash. At both locations, BLM has installed signs and barriers to prevent additional travel down the washes. Both Soda Lake Road and Calf Shed road will remain available for vehicles to use under the No Action Alternative, providing a potential source of unauthorized vehicle use. The barriers that have been installed, however, should prevent additional travel down the washes. It is possible that the barriers could be damaged or driven around by vehicles.

The wash inhabited by the unconfirmed Elkhorn Scarp population is crossed several times by a rugged, dirt road. The road receives little use due to the roughness of the road, and availability of other roads in better condition. Unauthorized vehicle travel into the wash has not been a problem. It is possible that vehicles could travel off the road and into the wash, in the future. Vehicle travel in the moth wash could result in trampling of *Camissonia* plants, larvae, and soil crust.

Under the No Action Alternative, Travel Management could result in a minor to moderate negative impact on moth populations.

Lands and Realty. Under the proposed plan (Alternative 2), acquisition efforts would be directed to those lands with important biological resources, such as sphinx moth habitat. This would have a moderate to major positive effect on the rate and amount of sphinx moth habitat acquired. Acquisition of privately owned moth habitat would allow BLM to discontinue detrimental practices, such as sheep grazing. This would have a moderate to major positive impact on moth populations.

Impacts to the Kern Primrose Sphinx Moth under Alternative 1

Impacts to the Kern Primrose Sphinx Moth from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to the Kern Primrose Sphinx Moth from Implementing Other Programs

Livestock Grazing. Under Alternative 1, grazing would not be authorized on BLM lands and there would be no impacts to sphinx moths from BLM authorized grazing. Grazing on private lands, however, may still occur. Because the moth drainages are naturally sparsely vegetated, vegetation management, including grazing, is not necessary to maintain the open structure preferred by the moths and its host plant, *Camissonia*.

Recreation. Under the Alternative 1, moth drainages would continue to be open to public use. Impacts would be the same as described under the No Action Alternative and could result in a minor to moderate negative impacts on moth populations.

Travel Management. Under Alternative 1, Soda Lake Road, and Calf Shed Road would remain available for vehicles use. The potential impacts in Agave Wash and Calf Shed Wash would be the same as in the No Action Alternative and could result in minor to moderate negative impacts to moth populations.

A road that crosses the Elkhorn Scarp wash would be closed under Alternative 1. This would remove the potential for unauthorized vehicles to drive down the moth wash. This could result in a minor positive impact to moth populations.

Lands and Realty. Under the Alternative 1, privately owned moth habitat could be acquired as the opportunity arises. Acquisition of privately owned moth habitat would allow BLM to discontinue detrimental practices, such as sheep grazing. This would have a moderate to major positive impact on moth populations. The actual rate and amount of sphinx moth habitat acquired is expected to be low based on past rates and patterns of acquisition.

Impacts to the Kern Primrose Sphinx Moth under Alternative 3

Impacts to the Kern Primrose Sphinx Moth from Implementation of Wildlife Program.

See Impacts Common to All Action Alternatives.

Impacts to the Kern Primrose Sphinx Moth from Implementing Other Programs

Livestock Grazing. The impacts would be the same as the proposed plan (Alternative 2) and could result in a minor to moderate impact on moth populations.

Recreation. Under Alternative 3, moth drainages would continue to be open to public use. Impacts would be slightly greater than the No Action Alternative. The increased emphasis on providing recreation facilities, allowance of dispersed camping, additional trails, and improvements will increase visitor use. Increased visitor use may increase the likelihood of travel down moth washes. This could result in moderate negative impacts on moth populations.

Travel Management. Under Alternative 3, Soda Lake Road, Calf Shed road and the road that crosses the Elkhorn Scarp would remain available for vehicles use. The potential impacts would be the same as in the No Action Alternative and could result in minor to moderate negative impacts to moth populations.

Lands and Realty. Under Alternative 3, acquisition efforts would be directed to those lands with important biological resources, such as sphinx moth habitat. This would have a moderate to major positive effect on the rate and amount of sphinx moth habitat acquired. Acquisition of privately owned moth habitat would allow BLM to discontinue detrimental practices, such as sheep grazing. This would have a moderate to major positive impact on moth populations.

Impacts to the Kern Primrose Sphinx Moth under the No Action Alternative

Impacts to the Kern Primrose Sphinx Moth from Implementing the Wildlife Program

Under the No Action Alternative, actions will be taken to maintain viable populations of Kern primrose sphinx moths. Occasional surveys to monitor populations and to assess habitat quality and threats may be completed. Support for research and education will be provided. Actions may be taken to protect sphinx moth habitat from surface impacts. This would have a moderate to major positive impact on moth populations.

Impacts to the Kern Primrose Sphinx Moth from Implementing Other Programs

Under the No Action Alternative, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on sphinx moth populations: Vegetation,

Fire and Fuels Management, Air Quality, Soil, Water, Geology and Paleontology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, and Minerals.

Livestock Grazing. Several moth populations are located within pastures (Fault and Foothills) that are not authorized for grazing by BLM. Sheep grazing on private lands, however, occurs within these pastures. Trampling of food plants, and presumably eggs and larva, occurs as a result of private grazing. BLM authorized grazing will have no effect on Kern primrose sphinx moth within these pastures.

One moth population is located in the Calf Shed pasture. Under the No Action Alternative, this pasture may be grazed by cattle. Cattle grazing use is not high in the moth washes as there is very little vegetation. Livestock, however, do travel in the washes, trampling *Camissonia* plants, and potentially moth eggs and larvae. Soil crust becomes broken up and the disturbed areas may be less suitable for germination and establishment of *Camissonia* plants. To address this effect, BLM has considered installing a fence that would segregate the moth population from the rest of the pasture. If installed, livestock impacts would no longer occur in the moth drainage. The entire pasture could also be removed from grazing or be prescribed with a different season of use.

An unconfirmed moth population is located in the West Cochora pasture. Under the No Action Alternative, the West Cochora pasture may be grazed by cattle. Adjacent drainages were also examined, but no moths were observed. Evidence of livestock use, such as hoof prints and fecal material, was observed in these adjacent drainages. It is possible that livestock use in these adjacent washes has precluded *Camissonia*, and subsequently moths, from these adjacent areas (Peter Jump, personal communication, 2003).

Under the No Action Alternative, grazing could result in minor to moderate negative impacts on moth populations.

Recreation. Walking, horseback riding, and pet travel down moth washes can trample food plants, moth eggs, and larvae. Soil crust becomes broken up and the disturbed areas may be less suitable for germination and establishment of *Camissonia* plants. Under the No Action Alternative, moth drainages would continue to be open to public use. This could result in a minor to moderate negative impacts on moth populations.

Travel Management. There has been some unauthorized vehicle travel down a portion of the Agave moth wash where it crosses Soda Lake Road. Vehicle travel can trample *Camissonia* plants, and potentially moth eggs and larvae. Soil crust becomes broken up and the disturbed areas may be less suitable for germination and establishment of *Camissonia* plants. Unauthorized vehicle travel has also occurred in the Calf Shed moth wash. Vehicles access the wash where the roads cross the moth wash. At both locations, BLM has installed signs and barriers to prevent additional travel down the washes. Both Soda Lake Road and Calf Shed road will remain available for vehicles to use under the No Action Alternative, providing a potential source of unauthorized vehicle use. The barriers that have been installed, however, should prevent additional travel down the washes. It is possible that the barriers could be damaged or driven around by vehicles.

The wash inhabited by the unconfirmed Elkhorn Scarp population is crossed several times by a rugged, dirt road. The road receives little use due to the roughness of the road, and availability of other roads in better condition. Unauthorized vehicle travel into the wash has not been a problem. It is possible that vehicles could travel off the road and into the wash, in the future. Vehicle travel in the moth wash could result in trampling of *Camissonia* plants, larvae, and soil crust.

Under the No Action Alternative, Travel Management could result in a minor to moderate negative impact on moth populations.

Lands and Realty. Under the No Action Alternative, privately owned moth habitat could be acquired as the opportunity arises. Acquisition of privately owned moth habitat would allow BLM to discontinue detrimental practices, such as sheep grazing. This would have a moderate to major positive impact on moth populations.

Impacts to the Kern Primrose Sphinx Moth Common to All Action Alternatives

Impacts to the Kern Primrose Sphinx Moth from Implementing the Wildlife Program

Under all action alternatives, actions will be taken to maintain or increase viable populations of Kern primrose sphinx moths. When appropriate conditions exist, surveys will be conducted for sphinx moth adults, larva, and host plants. Support for research and education will be provided. Sphinx moth habitat will be protected from surface impacts (such as livestock, horses, walking) during critical stages of reproduction and development. This would have a moderate to major positive impact on moth populations.

Impacts to the Kern Primrose Sphinx Moth from Implementing Other Programs

Under all action alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on sphinx moth populations: Vegetation, Fire and Fuels Management, Air Quality, Soil, Water, Geology and Paleontology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, and Minerals.

4.2.5.12 Longhorn, Vernal Pool, and Other Fairy Shrimp

Impacts to Fairy Shrimp Common to All Action Alternatives

Impacts to Fairy Shrimp from Implementing the Wildlife Program

Under All Action Alternatives, actions will be taken to maintain or increase viable populations of longhorn, vernal pool, and other shrimp species. When appropriate conditions exist, certain known locations will be checked for the presence fairy shrimp. Information, such as water quality and shrimp demographics, will be collected. Support for research and education will be provided. Vernal pools and sag ponds that provide fairy shrimp habitat will be protected. Current conditions will be maintained while the knowledge base is improved. Management will be modified to reflect new information. Vernal pool monitoring will be designed for the early detection of negative changes, such as reduced fairy shrimp numbers, altered hydrology, or detrimental nonnative species, and action will be taken to remedy negative changes. These actions will have a moderate to major positive effect on fairy shrimp populations.

Impacts to Fairy Shrimp from Implementing Other Programs

Under all alternatives, vernal pools and sag ponds that provide fairy shrimp and spadefoot toad habitat will be protected. Vernal pools that provide habitat for the longhorn fairy shrimp and spadefoot toad within the North Carrizo and south Carrizo Vernal Pool Core Areas will be managed consistent with the Vernal Pool Recovery Plan. BLM actions and authorizations will be designed to avoid impacts to vernal pools.

Under All Action Alternatives, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on fairy shrimp populations: Vegetation, Fire and Fuels Management, Air Quality, Soils, Water, Geology and Paleontology, Cultural Resources,

Visual Resources, WSA/Lands with Wilderness Characteristics, Recreation, Travel Management, and Minerals.

Impacts to Fairy Shrimp under the Proposed Plan (Alternative 2)

Impacts to Fairy Shrimp from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to Fairy Shrimp from Implementing Other Programs

Livestock Grazing. Under the proposed plan (Alternative 2), the existing grazing regime would be applied for known locations of longhorn, pouch-pocketed, and alkali fairy shrimp and brine shrimp. Longhorn fairy shrimp populations that have not been grazed (northern populations and Foothills pasture) would remain ungrazed. Longhorn fairy shrimp populations that have been grazed (Calf Shed and Hostetter pastures) would continue to be grazed. If monitoring or new information indicates a change is appropriate, the grazing treatment can be modified or discontinued. Grazing under the proposed plan is expected to maintain longhorn, pouch-pocketed, and alkali fairy shrimp and brine shrimp populations. Some of the versatile fairy shrimp locations that were grazed will no longer be grazed under the proposed plan. Since the versatile fairy shrimp is relatively common in the region, should there be a loss of a few locations due to the cessation of grazing, this would be only a minor impact.

Impacts to Fairy Shrimp under Alternative 1

Impacts to Fairy Shrimp from Implementing the Wildlife Program

See Impacts Common to All Action Alternatives.

Impacts to Fairy Shrimp from Implementing Other Programs

Livestock Grazing. Under Alternative 1, grazing would not be authorized on any BLM lands including the areas supporting fairy shrimp. Grazing is currently not authorized for the two northern longhorn fairy shrimp locations and the area with the highest potential for vernal pool fairy shrimp. The effects under Alternative 1 to the northern longhorn fairy shrimp locations and potential habitat for the vernal pool fairy shrimp are the same as described for the No Action Alternative.

The southern population of the longhorn fairy shrimp in the Foothills pasture would continue to be not authorized for grazing by BLM. Trespass private sheep grazing may still occasionally occur.

The southern populations of the longhorn fairy shrimp in the Calf Shed and Hostetter pastures would no longer be grazed. The resulting accumulation of vegetation could alter the hydrologic regime of the pools. Marty (2005) found that discontinuing grazing reduced pool inundation period by 50 to 80%. The primary cause of the decrease in pool hydroperiod may be the increased evapotranspiration rates that resulted from the abundance of vegetation, principally grasses, in and around the ungrazed pools. The removal of livestock fecal and urine from the area could alter water chemistry of the pools. Alteration of pool hydrology and water chemistry could alter the fairy shrimp composition of the pools. It is unknown how the longhorn fairy shrimp would respond. The longhorn fairy shrimp population could remain stable, increase or decrease, or disappear from some or all of the pools.

The remaining four species of fairy shrimp (versatile fairy shrimp, alkali fairy shrimp, pouch-pocketed fairy shrimp, and brine shrimp) occur at various grazed and ungrazed locations. There would be no change to the locations that are currently ungrazed and locations that are on private land. This includes all

of the pouch-pocketed and alkali fairy shrimp locations, half of the brine shrimp locations, and a few of the versatile fairy shrimp locations. The cessation of grazing at the remaining locations could alter pool hydrology and water chemistry. This includes three of the brine shrimp locations and several of the versatile fairy shrimp locations. It is unknown how the brine shrimp and versatile fairy shrimp populations would respond. The populations could remain stable, increase or decrease, or disappear from some or all of the locations. Since the versatile fairy shrimp and brine shrimp are relatively common in the region, should there be a loss of a few locations due to the cessation of grazing, this would be only a minor impact.

Impacts to Fairy Shrimp under Alternative 3

Impacts to Fairy Shrimp from Implementing the Wildlife Program

See impacts common to all action alternatives.

Impacts to Fairy Shrimp from Implementing Other Programs

Livestock Grazing. Under Alternative 3, the existing grazing regime would be applied for known locations of longhorn, pouch-pocketed, and alkali fairy shrimp and brine shrimp. The effects would be the same as the proposed plan (Alternative 2) and is expected to maintain longhorn, pouch-pocketed, alkali, and versatile fairy shrimp and brine shrimp populations.

Impacts to Fairy Shrimp under the No Action Alternative

Impacts to Fairy Shrimp from Implementing the Wildlife Program

Under the No Action Alternative, actions will be taken to maintain viable populations of longhorn, vernal pool, and other fairy shrimp species. Periodic surveys to confirm continued presence and to assess threats may be completed. Support for research will be provided. Actions may be taken to protect fairy shrimp habitat from surface impacts. This would have a moderate to major positive impact on shrimp populations.

Impacts to Fairy Shrimp from Implementing Other Programs

Under the No Action Alternative, with the exception of those impacts discussed under General Wildlife Impacts, the following programs will have a negligible effect on fairy shrimp populations: Vegetation, Fire and Fuels Management, Air Quality, Soil, Water, Paleontology/Geology, Cultural Resources, Visual Resources, WSA/Lands with Wilderness Characteristics, Recreation, Travel Management, and Minerals.

Livestock Grazing. Loss of vernal pool habitat is the primary factor affecting fairy shrimp conservation in California. Vernal pool habitat has been converted to agriculture, urban areas, or water supply and flood control projects (Eng et al. 1990). Off-road vehicle use and overgrazing has also been cited as a threat to some fairy shrimp populations (USFWS 2003b).

Water chemistry, pool depth, and pool longevity are the main factors that determine what species of shrimp, if any, will occur in a particular pool. Pool depth and pool longevity affect water temperature, which regulates cyst hatching. Pool longevity determines whether a species will be able to mature and reproduce before the pool becomes dry. Activities that alter water chemistry or the hydrologic regime of the pool can affect the fairy shrimp composition of the pool.

Fairy shrimp become established where water chemistry and hydrologic regime are appropriate for a given species. Maintaining the conditions that result in a particular water chemistry and hydrologic

regime should maintain an established fairy shrimp population. Conversely, if an environmental change occurs that alters water chemistry or hydrologic regime, the species may no longer hatch and reproduce in the pool. The environmental change could result in pool conditions where no cysts hatch at all.

Alternately, cysts could hatch but the new conditions could disrupt reproductive efforts and new cysts could fail to be produced. Even if new cysts are not produced, it is possible that old cysts in the soil bank would continue to hatch. This would give the appearance that the environmental change had no effect on the species. If reproduction is not occurring, new cysts do not replace those that hatch. Eventually, the cyst bank would be depleted, and the species would no longer occur in the pool. Since cysts in the soil bank could continue to hatch, it is important to evaluate a pool for a number of years after an environmental change to determine the effects of the environmental change.

Certain levels of livestock grazing are believed to have no impact on pool ecosystems (USFWS 2003b). California vernal pool species evolved in the presence of large ungulates. Grazing may also have beneficial effects. Grazing can deter encroachment of grass and other upland species into the vernal pool. Marty (2005) found that discontinuation of grazing reduced pool inundation period by 50 to 80%. The primary cause of the decrease in pool hydroperiod may be the increased evapotranspiration rates that resulted from the abundance of vegetation, principally grasses, in and around the ungrazed pools. The amount and timing of grazing is important. Heavy trampling by livestock could alter the micro topography of a pool complex, altering the hydrologic regime. Heavy use by livestock in the upland areas surrounding the pools could also alter hydrologic regimes. Livestock also deposit urine and fecal material that would alter water chemistry. Consumption of vernal pool water by livestock would reduce the pool duration. Shrimp could also be trampled or buried by livestock that walk in the pool.

The vernal pool fairy shrimp has not been documented from inside the Monument boundary. The most likely location for the species in the Monument is on the north end of the Monument, in and near the longhorn fairy shrimp locations. These areas are not currently grazed except for the occasional trespass of sheep from the adjacent private lands on to the location adjacent to Seven Mile Road.

The two northern locations of the longhorn fairy shrimp are not grazed except for the occasional trespass of sheep from private lands on the location adjacent to Seven Mile Road. The Seven Mile Road location is a vernal pool that often contains a sufficient amount of water to support mature fairy shrimp. Longhorn fairy shrimp were observed at the Seven Mile Road location in 1993, 1998, 2000, 2001, and 2003. The second location is a roadside ditch along Soda Lake Road that only fills with water in the wettest years. The Soda Lake Road location has not been monitored due to the lack of regular filling. The Soda Lake Road location may be occasionally modified by county road maintenance activities.

The southern locations of the longhorn fairy shrimp are located in the Calf Shed, Hostetter, and Foothill pastures. The Calf Shed and Hostetter areas were acquired by BLM in 1991. Prior to BLM acquisition, the area was heavily grazed by cattle for several decades. In 1992, BLM reduced the level and duration of livestock grazing in the area. Upon discovery of the longhorn fairy shrimp in the Hostetter pasture in 1995, BLM considered fencing the pools to remove grazing. Species expert Denton Belk advised against making any changes that could alter pool chemistry or hydrologic regime, including the removal of grazing. Based on this advice, BLM continued the grazing and began monitoring of the pools for longhorn fairy shrimp. Longhorn fairy shrimp were observed in the Hostetter pools in 1995, 1996, 1997, 2000, 2001, 2003, 2004, and 2005. Females with full egg sacs are often observed. Livestock continue to use the general pool area in the Hostetter pastures. It is not unusual to see a cow or two in the vicinity of Hostetter pools. Hoof prints and fecal material are often seen at the Hostetter pools. Livestock may consume some of the water in the pools. The amount of water consumed does not noticeably draw down the pools, perhaps because there is a livestock trough nearby. Removal of vegetation by grazing may also reduce the amount of water lost to evapotranspiration (Marty 2005), balancing any loss due to consumption.

The Calf Shed pool does not fill as often as the Hostetter pools. When the Calf Shed pool does fill, it supports fairy shrimp and spadefoot toad tadpoles. Spadefoot toad tadpoles will consume fairy shrimp. Fairy shrimp were observed in 1995, 1997, 1998, and 2005. The longhorn fairy shrimp was documented in 1995 and 2005. The species may have been present in 1997 and 1998, but pool sampling was minimized to avoid damaging spadefoot toad egg masses. Livestock hoof prints and fecal material are often seen at the Calf Shed pool. Livestock do not target this pool, but probably make regular use of the water in years where the grazing season extends into the warmer months.

Longhorn fairy shrimp were confirmed in the Foothills pasture pools in 2005. Grazing is not authorized on BLM lands in this pasture. Private land in this pasture is typically sheep grazed and occasionally sheep trespass and graze at the longhorn fairy shrimp locations. On at least once occasion, sheep use of one of the shrimp ponds appeared to accelerate the drying up of the pool. BLM has since posted “no grazing” signs at the boundaries of BLM lands in this area. BLM authorized grazing will have no effect on longhorn fairy shrimp since grazing is not authorized on BLM lands in the Foothills pasture. Trespass private grazing, however may continue to occur.

The current lack of grazing, with the exception of occasional trespass sheep grazing, appears to be compatible with longhorn fairy shrimp in the Seven Mile Road pool based on the persistence of the species in the pool from 1993 through 2003. The lack of grazing is suspected to be compatible with the longhorn fairy shrimp in the Soda Lake Road location, but this area has not been monitored. Maintenance activities conducted by the county are more likely to influence this location. The level and duration of grazing appears to be compatible with the longhorn fairy shrimp in the Hostetter pools based on the persistence of the species in these pools from 1995 through 2003, and the presence of females with full egg sacs. The current level and duration of grazing is suspected to be compatible with the longhorn fairy shrimp in the Calf Shed pool, although this area has not been intensely monitored. The lack of BLM authorized grazing appears to be compatible with longhorn fairy shrimp in the Foothills pasture.

The remaining four species of fairy shrimp (versatile fairy shrimp, alkali fairy shrimp, pouch-pocketed fairy shrimp, and brine shrimp) occur at various grazed and ungrazed locations. The versatile fairy shrimp and brine shrimp have been consistently observed in the documented locations from 1994 through 2003. The current level of grazing or lack of grazing, depending on the location, appears to be compatible with these two species given their persistence in the various locations. The pouch-pocketed fairy shrimp is located in Soda Lake, which is ungrazed, and on private land that is grazed. Three of the alkali fairy shrimp locations are ungrazed, and the fourth is grazed. The current ungrazed and grazed condition at each of these sites has been in place for several decades. A continuation of the historic grazed and ungrazed use patterns should preserve the pouch-pocketed and alkali fairy shrimp populations.

Lands and Realty. Under the No Action Alternative, privately owned fairy shrimp habitat could be acquired as the opportunity arises. Acquisition of privately owned fairy shrimp habitat would allow BLM to conduct monitoring of shrimp populations and protect against detrimental activities. This would have a moderate to major positive impact on fairy shrimp populations.

4.2.6 Featured Species

4.2.6.1 Pronghorn

Impacts to Pronghorn Common to All Action Alternatives

Impacts to Pronghorn from Implementing the Wildlife Program

The collective wildlife management objectives to maintain viable populations, provide habitat for mountain plover and California condor, protect roosting habitat, maintain habitat structural diversity, protect riparian habitat and vernal pools, and conduct research and inventory would have negligible to moderate beneficial impacts to pronghorn within the Monument over the long term.

Impacts to Pronghorn from Implementing Other Programs

Livestock Grazing. The impacts would be the same as described in the General Wildlife section.

Minerals. Pronghorn are likely to avoid the immediate area adjacent to oil and gas exploration, development and geophysical survey projects while there are vehicles, equipment, and people actively working at the sites. Once the geophysical surveys are completed, construction is finished, and ongoing operations commence, the adjacent habitat areas be used by pronghorn as is the surrounding area. Periodic visits by operations personnel would likely flush animals from the sites while there are human activities. The well pads themselves would not be used to any extent. However, the 30 acres of developed habitat on the valley floor represents a very minor amount of available pronghorn habitat in the Monument. These activities are not expected to affect reaching or maintaining population objectives.

Impacts to Pronghorn under the Proposed Plan (Alternative 2)

Impacts to Pronghorn from Implementing the Wildlife Program

Managing the pronghorn habitats in the Carrizo Plain North and Caliente Foothills North subregions to meet the herd objective of 250 pronghorn would have major beneficial impacts to pronghorn in the long term. Implementing management objectives and vegetation management guidelines included in the Conservation Target Table, habitat restoration (especially native forbs and shrubs), supplemental water and feeding prescriptions, and habitat improvements would provide critical forage, cover, and water requirements necessary to reach and maintain the herd objective. Considering the past herd population trends and recent habitat studies, implementing these actions may be necessary to provide suitable habitat.

The practice of supplying supplemental feed to pronghorn during periods of critically low natural forage availability could have major benefits and may determine if population objectives can be met. Although the Carrizo Plain North and Caliente Foothills regions receive consistently higher amounts of annual rainfall than the other portions of the Carrizo Plain proper, the 8.5 inches of rainfall appears to be marginal in most years to provide adequate succulent forage for pronghorn in the late spring and summer seasons when females are lactating and producing milk for fawns and when fawns are weaned onto forage plants. A general lack of native succulent forbs in the diet of pronghorn females and fawns is likely inhibiting fawn survivorship. Supplying the critical resource in years when herd viability is threatened may be needed not only to meet herd population objectives, but to maintain a smaller population of pronghorn on the Monument at all.

The modification of all fences to pronghorn passage standards or the realignment or removal some fences would provide moderate to major benefits to the pronghorn herd by facilitating movement and eliminating a risk of fence entanglements, being hindered in escape from coyotes or other predators, or trapped within

roadways and being killed by vehicle collisions. With the low numbers of pronghorn currently in the herd, these measures may be important in meeting and sustaining herd management objectives.

Measures to reduce vehicle-pronghorn collisions would provide moderate to major beneficial impacts to pronghorn if such measures would reduce pronghorn mortalities. In the currently low population levels, eliminating even low vehicle-induced mortality may help achieve herd management objectives.

Augmentation of pronghorn from other herds to achieve herd objectives would provide major beneficial impacts to the herd. The currently low population levels may be at a point where natural natality does not produce enough fawn production to increase the population. Augmentation of additional females would improve the likelihood to have an increasing herd population. This action, along with habitat improvements and altered grazing management prescriptions, may help reach and maintain the 250 member herd objective. However, the availability of surplus pronghorn from other regions of California or adjacent states would determine if augmentations are possible.

Impacts to Pronghorn from Implementing Other Programs

Vegetation. Restoration of native plant communities to restore shrubs, tall grasses and forbs, and perennial grasses; managing for a mosaic of forage resources; and maintaining adequate habitat structure and adequate fawning cover would provide major beneficial impacts to pronghorn in the long term. Promoting forb and perennial grass production by vegetation treatments would have positive impacts described for vegetation objectives under the current management alternative.

Fire and Fuels Management. The use of prescribed fire would have major beneficial impacts described in the Fire and Fuels Management section of the No Action Alternative.

Impacts under No Action Alternative (for reference):

Fire suppression activities that protect the loss of shrub communities would have moderate to major beneficial impacts to pronghorn. The construction of fire control lines, conducting mobile attack, and retardant drops would generally not affect pronghorn habitat use except during actual suppression activities. The animals would be expected to easily escape to areas away from suppression activities. Early season wildfires are extremely rare during the fawning season and disturbance to fawning habitat would be minimized if possible.

Prescribed fire would provide moderate to major beneficial impacts to pronghorn by improving forage species composition during the following winter and spring growing seasons for 1 to several years, depending on rainfall. Management practices that favor native forbs (and nonnative succulent forbs) may be helpful in providing for pronghorn habitat needs. Forbs are considered to be preferred forage and important in meeting nutritional needs. Management practices that favor succulent forbs could improve female body condition during gestation and lactation, and thus improve fawn survivorship. Fire could be an important tool to increase succulent forage. Several studies have shown a positive, but short-term, effect of fire on the composition of native annual forbs (D'Antonio et al., undated). Pronghorn make disproportionate use of recently burned rangelands for foraging, especially in the first growing season after fire (Kindschy et al. 1982).

Livestock Grazing. The maintenance and improvement of foraging and fawning habitat by prescribed grazing identified in the conservation target table would have moderate beneficial impacts. Some minor to moderate negative impacts would result from fencing, although they would be minimized by proper placement.

Impacts to Pronghorn under Alternative 1

Impacts to Pronghorn from Implementing the Wildlife Program

This alternative would allow pronghorn populations to naturally fluctuate and possibly disappear if dictated by natural conditions. While the CPNM herd has declined from the initial release population of 239 to a number between 54 and 150, prescribed burns, some supplemental feeding, and maintenance of water troughs and springs have been conducted to improve habitat conditions or help animals survive drought. The direct and indirect effects of these actions have not been studied, but monitoring has indicated an increase of the herd over the past several years. Factors affecting overall pronghorn herd condition and trends are currently being investigated. Without vegetation management tools to implement study results and possibly improve habitat conditions, it is likely that the CPNM herd would continue to decline below a viable number. Foregoing habitat management actions such as providing artificial waters sources, prescribed fire, restoration of previously cultivated fields, or interseeding with native forage species would result in major detrimental impacts to the CPNM pronghorn herd.

The removal of fences would provide moderate to major benefits to the pronghorn herd by eliminating a risk of fence entanglements, being hindered in escape from coyotes or other predators, or trapped within roadways and being killed by vehicle collisions. With the low numbers of pronghorn currently in the herd, these measures may be important in meeting and sustaining herd management objectives.

Not allowing herd augmentation could have major detrimental impacts to meeting the herd objective and would eliminate an important herd management option if the CDFG wishes to release animals on the Monument. It is unknown if this may be necessary in the future, but augmentation may be an option to reach herd viability. Under Alternative 1 it is likely that pronghorn would not continue to inhabit the Monument and animals may relocate to adjacent private, CDFG, or BLM lands outside of the Monument.

Impacts to Pronghorn from Implementing Other Programs

Vegetation. Under Alternative 1, the quality of pronghorn habitat on the Monument would be determined by natural conditions. Neither prescribed fire, prescribed livestock grazing, mechanical treatments, nor restoration of native plant communities would be conducted to improve or maintain pronghorn habitat. The elimination of livestock grazing could have variable effects on pronghorn populations. The removal of competing domestic grazers would be beneficial if there is a limitation of preferred forage, resulting in direct competition for food. However, it is not known whether or not forage competition with livestock is a factor in limiting this herd.

Fire and Fuels Management. The elimination of prescribed fire in the Monument would remove an important tool to improve forage quality and alter habitat structure and would have major detrimental impacts to pronghorn in the Monument. Management practices that favor the native forbs (and nonnative succulent forbs) may be helpful in providing for pronghorn habitat needs. Forbs are considered to be preferred forage and important in meeting nutritional needs. Management practices that favor succulent forbs could improve female body condition during gestation and lactation, and thus improve fawn survivorship. Fire could be an important tool to increase succulent forage. Several studies have shown a positive, but short-term, effect of fire on the composition of native annual forbs (D'Antonio et al., undated). Pronghorn make disproportionate use of recently burned rangelands for foraging, especially in the first growing season after fire (Kindschy et al. 1982).

Livestock Grazing. The elimination of grazing would have moderate to major benefit and could improve habitat structure for hiding fawns in wet years when the herbaceous vegetation responds to increased rainfall. However, there would be a negligible effect in normal and below normal rainfall years when

structure is low and shrubs are maintained regardless of ungulate use. BLM would not authorize grazing during these years due to low vegetation production.

The biggest effect may be due to changes in vegetation composition in the pronghorn use pastures. Recent pasture monitoring in the Monument indicate that there is higher relative cover of native species and higher native species richness in ungrazed versus grazed pastures (Christian et al., in prep.). Elimination of livestock grazing would likely continue to improve native species composition. However, plant community responses to protection from grazing in several long-term studies reviewed by D'Antonio et al. (undated) showed that plant composition was relatively stable over time, indicating that native species as a group failed to return to dominance after livestock exclusion. In a study looking at vegetation after 13 years of livestock removal, Harrison (1999, as cited in D'Antonio et al., undated) found that native species did not dominate sites protected from grazing. The elimination of domestic livestock grazing in areas of pronghorn use would likely improve cover and composition of forage and pronghorn forage quality could improve marginally. However, the herd could still be limited by nutritional limitations associated with a grassland that does not provide succulent forage in the post-partum period and succeeding summer months. While an increase in shrub cover would be beneficial for fawn survivorship and improved spring forage would likely improve, it is not known whether the pronghorn population in the Monument would increase.

Impacts to Pronghorn under Alternative 3

Impacts to Pronghorn from Implementing the Wildlife Program

Managing the pronghorn habitats in the Carrizo Plain North and Caliente Foothills North subregions to meet the herd objective of 250 pronghorn would have major beneficial impacts to pronghorn in the long term. Implementing livestock grazing, prescribed fire, habitat restoration, supplemental water and feeding prescriptions, and habitat improvements would provide critical forage, cover, and water necessary to reach and maintain the herd objective. Considering the past herd population trends and recent habitat studies, implementing these actions may be necessary to provide suitable habitat, albeit with artificial forage and water habitat improvements.

The construction of new water sources in the Carrizo Plain North and Caliente Foothills North subregions within 2 miles from important forage and fawning habitats would have moderate beneficial impacts to pronghorn. Current water distributions are generally adequate at approximately one source every 2 to 3 miles on the valley floor, but additional waters would improve reliability of water to less than one source every 2 miles. Water availability is a critical habitat feature for pronghorn populations in the dry summer and fall months when forage is dry and temperatures are high (O'Gara and Yoakum 2004) and increased water would likely improve animal health, vigor, and fawn survivorship and help determine if population objectives can be achieved.

The practice of supplying supplemental feed to pronghorn during periods of critically low natural forage availability could have a major benefit and may determine if population objectives can be met. Although the Carrizo North and Caliente Foothill regions receive consistently higher amounts of annual rainfall than the other portions of the Carrizo Plain proper, the 8.5 inches of rainfall appears to be marginal in most years to provide adequate succulent forage for pronghorn in the late spring and summer seasons when females are lactating and producing milk for fawns and when fawns are weaned onto forage plants. A general lack of native succulent forbs in the diet of pronghorn females and fawns is likely inhibiting fawn survivorship. Supplying the critical resource may be needed on a regular basis, in below-average rainfall years, to meet herd population objectives.

The modification of all fences to pronghorn passage standards or the realignment or removal of unnecessary fences in the Monument would provide moderate to major benefits to the pronghorn herd by eliminating a risk of fence entanglements, being hindered in escape from coyotes or other predators, or trapped within roadways and being killed by vehicle collisions. With the low numbers of pronghorn currently in the herd, these measures may be important in meeting and sustaining herd management objectives.

Augmentation of pronghorn from other herds to achieve herd objectives over the next 10 years would provide major beneficial impacts to the herd. The currently low population levels may be at a point where natural mortality does not produce enough fawn production to increase the population. Augmentation of additional females would improve the likelihood of increasing the herd population. This action, along with habitat improvements and altered grazing management prescriptions may help reach and maintain the 250 member herd objective within the next 10 to 15 years. However, the availability of surplus pronghorn from other regions of California or adjacent states would determine if augmentations are possible.

Impacts to Pronghorn from Implementing Other Programs

Vegetation. Restoration of native plant communities to restore shrubs, tall grasses and forbs, and perennial grasses; managing for a mosaic of forage resources; and maintaining adequate habitat structure and adequate fawning cover would provide major beneficial impacts to pronghorn in the long term. Promoting forb and perennial grass production by vegetation treatments would have positive impacts described for vegetation objectives under the current management alternative.

Fire and Fuels Management. The use of prescribed fire would have major beneficial impacts described in the Fire and Fuels Management section of the No Action Alternative.

Livestock Grazing. The maintenance and improvement of foraging and fawning habitat by prescribed grazing identified in the conservation target table (Appendix C), would have moderate beneficial impacts.

Impacts to Pronghorn under the No Action Alternative

Impacts to Pronghorn from Implementing the Wildlife Program

The current Monument goals and objectives to increase the importance of native species, achieve and maintain sustainable populations of extant non-listed native species, and reintroduce native plants and animals when appropriate would have major beneficial impacts to pronghorn over the long term. The current management objective to maintain a population of 250 pronghorn on the Monument would provide management direction to implement habitat management and population management actions to sustain a viable population.

Under current management, pronghorn inhabiting the Monument would be expected to be sustained over the long term. BLM and the CDFG would evaluate pronghorn use and habitat requirements on an annual basis to determine if livestock grazing, prescribed fire, or other vegetation management prescriptions would be needed to improve pronghorn habitat. In pronghorn use areas in the Carrizo Plain North and Caliente Foothills North subregions, a decline in pronghorn numbers from 2000 to 2005 prompted removal of livestock grazing in several key pronghorn fawning pastures to determine if this would improve habitat quality and maintain population numbers. In other fawning areas, the season of livestock use was shortened to remove livestock before fawning occurs, and the level of residual dry matter has been raised to increase fawning cover and overall vegetation height between 15 to 25 inches tall.

Prescribed fire, with or without a grazing treatment, would continue to be applied to manipulate vegetation to increase pronghorn forage habitat quality.

The maintenance of existing water sources and the construction of new sources would have major beneficial impacts to the pronghorn population on the Monument. Pronghorn generally require water sources every 1 to 5 miles (Yoakum 1978). Current water sources are within this range in the Carrizo Plain North and Caliente Foothills subregions inhabited by pronghorn.

Impacts to Pronghorn from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have major beneficial impacts to pronghorn across the Monument in the short and long term. Pronghorn prefer habitats with a mix of grasses, forbs, and shrubs. Yoakum (1980) reports that in sagebrush-grassland steppe, pronghorn require 50 percent vegetative ground cover, a composition of 30 to 40 percent grasses, 10 to 30 percent forbs, and 5 to 30 percent shrubs, and a wide variety of preferred forage species (5 to 10 grass species, 10 to 50 forb species, and 5 to 10 shrub species). It is generally assumed that the improvement and maintenance of plant communities with a high proportion of native plant species would provide high quality habitat for pronghorn. However, recent studies of pronghorn on the Monument (Longshore and Lowrey 2007) indicate that the existing native annual plant communities provide only marginal quality habitat due to the annual plant communities that do not contain high nutrient forbs for lactation and fawn forage in the late spring and summer months.

The most important element of the current management objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for pronghorn. Under this mosaic, pronghorn would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain pronghorn populations across the Monument landscape and have major benefits to the pronghorn population.

Restoration activities to reintroduce native plants into previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species would have moderate to major beneficial impacts on pronghorn. Restoration could improve both available forage species and vegetation structure of taller grasses, forbs, and shrubs. Most of the restoration activities would occur in the previously cultivated farm fields in the Carrizo Plain North and Caliente Foothills North subregions where pronghorn are given high management priority.

Fire and Fuels Management. Fire suppression activities that protect the loss of shrub communities would have moderate to major beneficial impacts to pronghorn. The construction of fire control lines, conducting mobile attack, and retardant drops would generally not affect pronghorn habitat use except during actual suppression activities. The animals would be expected to easily escape to areas away from suppression activities. Early season wildfires are extremely rare during the fawning season and disturbance to fawning habitat would be minimized if possible.

Prescribed fire would provide moderate to major beneficial impacts to pronghorn by improving forage species composition during the following winter and spring growing seasons for 1 to several years, depending on rainfall. Management practices that favor native forbs (and nonnative succulent forbs) may be helpful in providing for pronghorn habitat needs. Forbs are considered to be preferred forage and important in meeting nutritional needs. Management practices that favor succulent forbs could improve female body condition during gestation and lactation, and thus improve fawn survivorship. Fire could be

an important tool to increase succulent forage. Several studies have shown a positive, but short-term, effect of fire on the composition of native annual forbs (D'Antonio et al., undated). Pronghorn make disproportionate use of recently burned rangelands for foraging, especially in the first growing season after fire (Kindschy et al. 1982).

Livestock Grazing. Occasional to routine livestock grazing within the pronghorn use area(s) would be applied to manipulate vegetation structure and plant species composition. Pronghorn prefer habitats with a mix of grasses, forbs, and shrubs. Yoakum (1980) reports that in sagebrush-grassland steppe, pronghorn require 50 percent vegetative ground cover, a composition of 30 to 40 percent grasses, 10 to 30 percent forbs, 5 to 30 percent shrubs, and a wide variety of preferred forage species (5 to 10 grasses, 10 to 50 forbs, and 5 to 10 shrubs). A vegetation height between 15 and 25 inches is preferred. Livestock may be prescribed when vegetation exceeds 25 inches over 80 percent of the key area. Livestock would be removed or excluded when vegetation height is between 15 to 25 inches. Grazing would be removed during fawning season. Summer livestock grazing may be used to decrease residual dry matter to favor forb production in the following growing season.

The succulence of forage appears to be an important factor in habitat selection and animal health. Jones (1991) studied pronghorn several miles north of the Monument and speculated that plant cover, diversity, biomass, and cover of forb species are primary factors that influence forage site selection in the Cholame area, especially in the summer. Jones found that nonnative black mustard was highly used since it, saltgrass, and alkali mallow were the only green vegetation in the area. Other researchers have observed that succulence of vegetation is important in pronghorn food selection, and forbs are highly preferred in grassland habitats (O'Gara and Yoakum 2004). In addition, some researchers have noted a greater importance of forbs and the diminished importance of shrubs in the diet of pronghorn in southern and grassland ranges (O'Gara 1978; O'Gara and Yoakum 2004). A study of pronghorn in the Painted Rock area of the Monument (Godoy and Oberhoff 1998) noted that the core use area was heavily populated by actively growing succulent forbs/herbs, mainly prickly lettuce, and the pronghorn selected areas of this succulent vegetation. While this study found higher forb/herb cover and lower bare ground cover within the core use area and higher grass cover outside the core use area, the sample sizes were too low to be conclusive.

Recent studies on pronghorn diets in the Monument (Longshore and Lowry 2007) estimated that pronghorn annual diets were composed of 66.2% forbs, 13.5% grass, 9.5% shrubs, 8% seeds, and 1% insects. In a nearby study, Jones (1991) stated that pronghorn use of grasses was not well understood in the Cholame study, but it appeared that grass use was somewhat important in the spring. O'Gara (1978) noted that grasses are used in the spring and fall as they become green. While grasses are not a large percentage of pronghorn diets in the northern sagebrush ranges (Yoakum 1980), grasses have been from 15 to 52 percent of the diet in the southern ranges (O'Gara 1978).

This information suggests that management practices that favor the native forbs (and nonnative succulent forbs) may be helpful in providing for pronghorn habitat needs. Forbs are considered to be preferred forage and important in meeting nutritional needs. Management practices that favor succulent forbs could improve female body condition during gestation and lactation, and thus improve fawn survivorship. In a synopsis of livestock grazing and fire in the restoration of California grasslands, D'Antonio et al. (undated) identified several studies that showed a range of positive, negative, and neutral effects to native bunchgrasses and native annual forbs from different grazing treatments. Several studies observed an increase in native plants with a decrease in exotic plants in controlled studies. However, while livestock grazing has been shown to benefit some native plant populations, the positive response to grazing is not universal among native species or across locales for any one species. Initial analysis of grazed and ungrazed pastures in areas of the Monument indicated that there was a higher percentage of native species

cover and higher native species richness in ungrazed pastures than grazed pastures (Christian et al., in prep.).

Diets of pronghorn and cattle suggest that there is little dietary overlap between these species, with cattle preferring grasses and pronghorn preferring forbs and browse (Yoakum 1980). Competition for forage on grasslands is usually minor (O’Gara and Yoakum 2004), but dietary overlap studies between cattle and pronghorn have not been conducted on the Monument. Yoakum (1980) notes that significant competition between pronghorn and livestock would not be anticipated as long as all classes of forage are in adequate supply. Livestock grazing management guidelines that maintain adequate residual dry matter and avoid shrub utilization above 20 percent are currently designed to apply light to moderate levels of livestock use in the pronghorn use areas. However, recent monitoring studies in the Monument indicate that current grazing practices and prescription resulted in lower relative cover of native species and native species richness in grazed pastures relative to ungrazed pastures. Thus, the current winter season grazing prescriptions may have moderate negative effects on native forage for pronghorn. Based on this information and application of the Conservation Target Table, livestock use has been curtailed in some pastures used by pronghorn for foraging.

Another issue of concern regarding livestock grazing in pronghorn fawning pastures is the height of vegetation. Pronghorn fawn mortality is often the result of coyote predation (Byers 2003). There is concern that in grazed pastures there is too low of structure to conceal fawns for the first 3 to 4 weeks following birth. Studies in Texas (Canon and Bryant 1997) and Wyoming (Alldredge et al. 1991) concluded that environmental factors that provided adequate concealment (vegetation height and shrub canopy cover) and long-range visibility of the area appeared to be favored for birthing and bedding. In response to this need, pronghorn management guidelines recommend an average height of 15 inches of vegetation (Yoakum 1980). While shrub stands measured in the Monument range in height from 1 to 5 feet, their distributions do not always coincide with pronghorn fawning areas. Based on comparisons of aerial photography taken between 1984 and 2003, the distribution of shrubs and their vigor has greatly increased in the Monument since managing partner acquisitions began in 1987. The height of herbaceous vegetation is often adequate in the Carrizo Plain and Caliente Foothills North subregions, but only rarely adequate in the remaining subregions of the Carrizo and Elkhorn plains. However, as noted above, livestock grazing levels have been decreased in fawning pastures to minimize this impact. Fawn survival in 2003 did improve over the previous years coincident with the absence of grazing in the Monument. Pronghorn numbers in the Monument have declined since their reintroduction. The reasons they have failed to thrive in the Monument have not been adequately determined. However, due to the large size of the Monument and the habitat mosaic present, current management appears to provide ample opportunity for this species to find suitable areas.

Pronghorn are disturbed by fences and do not cross any kind readily. Fences disrupt daily and seasonal movement patterns, and may separate mothers and fawns during the period when fawns are most vulnerable to coyotes (Byers 2003). Several fence-related mortalities have been reported in the Monument over the past 15 years (Koch and Yoakum 2004). Some deaths have occurred as a result of entanglements, and others have been related to being trapped and hit by vehicles along Soda Lake Road, or by being trapped by coyotes when pursued. Over the past eight years, the CDFG and BLM have modified or removed over 150 miles of fence to meet recommended configurations to benefit pronghorn. While not all fences have been modified to the BLM standard, the bottom wires are being raised to the minimum in all pronghorn use areas within the Monument. Fence modification would have moderate to major benefits to maintaining the population.

4.2.6.2 Tule Elk

Impacts to Elk Common to All Action Alternatives

Impacts to Elk from Implementing the Wildlife Program

The collective wildlife management objectives to maintain viable populations, provide habitat for mountain plover and California condor, protect roosting habitat, maintain habitat structural diversity, protect riparian habitat and vernal pools, and conduct research and inventory would have negligible to minor beneficial impacts to elk within the Monument over the long term.

Impacts to Elk from Implementing Other Programs

Livestock Grazing. The impacts would be the same as described in the General Wildlife section.

Minerals. Tule elk are likely to avoid the immediate area adjacent to oil and gas exploration, development, and geophysical survey projects while there are vehicles, equipment, and people actively working at the sites. Once the geophysical surveys are completed, construction is finished, and ongoing operations commence, the adjacent habitat areas be used by tule elk as is the surrounding area. Periodic visits by operations personnel would likely flush animals from the sites while there are human activities. The well pads themselves may not be used to any extent. However, the 30 acres of developed habitat on the valley floor and the 6.5 acres of development in the Russell Ranch oil field represent a very minor amount of available elk habitat in the Monument. These activities are not expected to affect reaching or maintaining population objectives.

Impacts to Tule Elk under the Proposed Plan (Alternative 2)

Impacts to Tule Elk from Implementing the Wildlife Program

Managing the tule elk habitats in the Carrizo Plain North and Caliente Foothills North subregions to meet the herd objective of 500 tule elk would have moderate beneficial impacts to elk in the long term. Implementing management objectives and vegetation management guidelines included in the Conservation Target Table, habitat restoration, and supplemental water would contribute critical forage, cover, and water requirements necessary to reach and maintain the herd objective. Considering the past herd population trends, the number of elk using the Monument would likely increase under the proposed plan (Alternative 2).

Augmentation of tule elk from other herds to achieve herd objectives would provide minor beneficial impacts to the herd.

Impacts to Tule Elk from Implementing Other Programs

Vegetation. Restoration of native plant communities to restore shrubs, tall forbs, and grasses; managing for a mosaic of forage resources; maintaining adequate habitat structure and adequate calving cover would provide moderate beneficial impacts to tule elk in the long term. Promoting native grass and forb production by vegetation treatments would have positive impacts described for vegetation objectives under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have moderate beneficial impacts to tule elk in the short and long term. While grasses comprise about 50

percent of tule elk diets throughout the year, succulent forbs are important for lactating cows and for general nutrition in the summer and fall months, with shrubs being important food items in the winter (Thomas and Toweill 1982). These objectives would provide a variety of forage species to meet elk habitat requirements.

The most important element of the current management objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for tule elk. Under this mosaic, elk would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain tule elk populations in the Carrizo Plain North, Caliente Foothills North, Caliente Mountain North, and Caliente Mountain South subregions. The population of Tule elk inhabiting the Monument would be expected to remain healthy and contribute to meeting the CDFG herd management goals. BLM's vegetation management activities would have little effect on this herd, and livestock grazing would be managed in a manner compatible with those objectives.

Restoration activities to reintroduce native plants into previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species, would have moderate beneficial impacts on tule elk. Restoration could improve both available forage species and vegetation structure of taller grasses, forbs, and shrubs. Most of the restoration activities would occur in the previously cultivated farm fields in the Carrizo Plain North and Caliente Foothills North subregions, where tule elk are becoming more common and are given high management priority.

Fire and Fuels Management. The use of prescribed fire would have moderate beneficial impacts described in the Fire and Fuels Management section of the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Fire suppression activities that include the construction of fire control lines, conducting mobile attack, and retardant drops would have negligible effects on tule elk habitat use except during actual suppression activities. The animals would be expected to easily escape to areas away from suppression activities. Early season wildfires are extremely rare during the calving season and disturbance to calving habitat would be minimized if possible.

Prescribed fire would provide moderate beneficial impacts to tule elk by improving forage species composition during the following winter and spring growing seasons for one to several years, depending on rainfall. Management practices that favor native grasses and forbs (and nonnative succulent forbs) may be helpful in providing for elk habitat needs. Grasses and forbs are preferred forage and important in meeting nutritional needs. Management practices that favor native grasses and succulent forbs could improve female body condition during gestation and lactation, and thus improve calf survivorship. Fire could be an important tool to increase preferred forage. Several studies have shown that elk exploit burned areas to feed on improved forage (Thomas and Toweill 1982).

Livestock Grazing. Implementing livestock grazing prescriptions within the Conservation Target Table would have moderate benefits to tule elk. The grazing prescriptions would maintain adequate cover for calving and would remove cattle from calving areas during the calving season. Cattle would not be allowed in high elk use areas and in elk foraging areas during some spring seasons when forb production is high.

Impacts to Tule Elk under Alternative 1

Impacts to Tule Elk from Implementing the Wildlife Program

Alternative 1 would allow tule elk populations to naturally fluctuate and possibly disappear if dictated by natural conditions. The LaPanza tule elk herd has been steadily increasing and that trend would likely continue with the elimination of livestock grazing. Foregoing habitat management actions such as providing artificial waters, prescribed fire, restoring previously cultivated fields, or interseeding with native forage species would result in moderate detrimental impacts to the CPNM segment of the LaPanza herd. Without these management actions, it is likely that the elk would not use the lower foothills and flats of the northern Carrizo Plain.

The removal of fences would provide minor to moderate benefits to the tule elk herd by eliminating a risk of fence entanglements, or being trapped within roadways and being killed by vehicle collisions.

Impacts to Tule Elk from Implementing Other Programs

Vegetation. Under Alternative 1, the quality of tule elk habitat on the Monument would be determined by natural conditions. Neither prescribed fire, prescribed livestock grazing, mechanical treatments, nor restoration of native plant communities would be conducted to improve or maintain elk habitat. Foregoing restoration activities would have minor detrimental impacts on the herd.

Fire and Fuels Management. The elimination of prescribed fire in the Monument would remove an important tool to improve forage quality and would have moderate detrimental impacts to tule elk in the Monument. Management practices that favor the native grasses and forbs (and nonnative succulent forbs) may be helpful in providing for elk habitat needs. Grasses and forbs are considered to be preferred forage and important in meeting nutritional needs. Management practices that favor succulent forbs could improve cow body condition during gestation and lactation, and thus improve calf survivorship. Fire could be an important tool to increase succulent forage. Several studies have shown a positive, but short-term, effect of fire on the composition of native annual forbs (D'Antonio et al., undated). Elk often exploit burned areas to feed on improved forage quality.

Livestock Grazing. The elimination of grazing would have moderate beneficial impacts to tule elk. Competition for succulent green forage would probably be eliminated when these resources are limited by rainfall or production and if there is a limitation of preferred forage. However, it is not known whether or not forage competition with livestock is a factor in limiting this herd. More importantly, elk apparently avoid cattle use areas and may avoid water sources when cattle are present. Cattle would not be present on the Monument during the spring calving season and in the summer and fall seasons when water is most limiting. The distributions of elk would likely expand onto more of the Carrizo Plain North and Caliente Foothill subregions of the Monument.

Impacts to Tule Elk under Alternative 3

Impacts to Tule Elk from Implementing the Wildlife Program

Managing the elk habitats in the Carrizo Plain North and Caliente Foothills North subregions to meet the herd objective of 500 tule elk would have moderate beneficial impacts in the long term. Implementing habitat management actions would be the same as described in the proposed plan (Alternative 2).

The construction of new water sources in the Carrizo Plain North and Caliente Foothills North subregions would have moderate beneficial impacts to tule elk. Current water distributions are generally adequate at approximately one source every 1 to 2 miles in the foothills and 2-3 miles on the valley floor, but

additional waters would improve distributions to the desired one source every mile. Water availability is a critical habitat feature for tule elk populations and increased water would likely improve animal health and vigor and support population objectives.

Augmentation of tule from other herds to improve genetic diversity and to achieve herd objectives over the next 10 years would provide moderate beneficial impacts to the herd.

Impacts to Tule Elk from Implementing Other Programs

Vegetation. Restoration of native plant communities to restore shrubs, tall forbs, and grasses; managing for a mosaic of forage resources; maintaining adequate habitat structure and adequate fawning cover would provide moderate beneficial impacts to tule elk in the long term. Promoting forb production by vegetation treatments would have positive impacts described for vegetation objectives under the current management alternative.

Fire and Fuels Management. The use of prescribed fire would have moderate beneficial impacts described in the Fire and Fuels Management section of the No Action Alternative.

Livestock Grazing. The maintenance and improvement of calving habitat by prescribed grazing identified in the Conservation Target Table (Appendix C) would have moderate beneficial impacts described in the Livestock Grazing section of the No Action Alternative.

Impacts to Tule Elk under the No Action Alternative

Impacts to Tule Elk from Implementing the Wildlife Program

The current Monument goals and objectives to increase the importance of native species, achieve and maintain sustainable populations of extant non-listed native species, and reintroduce native plants and animals when appropriate would have moderate beneficial impacts to tule elk over the long term. The current management objective to maintain a population of 500 tule elk on the Monument would provide management direction to implement habitat management and population management actions to sustain a viable population.

Under current management, tule elk inhabiting the Monument would be expected to be sustained over the long term. BLM and the CDFG would evaluate tule elk use and habitat requirements on an annual basis to determine if livestock grazing, prescribed fire, or other vegetation management prescriptions would be needed to improve elk habitat. In elk use areas in the Carrizo Plain North and Caliente Foothills North subregions, water developments, native plant restoration, and prescribed fire, with or without a grazing treatment, would continue to be applied to manipulate vegetation to increase tule elk forage habitat quality.

The maintenance of existing water sources and the construction of new sources would have moderate beneficial impacts to the tule elk population on the Monument. Elk generally inhabit habitats within 0.25 to 0.5 miles from water sources (Thomas and Toweill 1982), but longer distances usually occur in the LaPanza herd. Current water sources are spaced about every 1 to 2 miles in the Carrizo Plain North and Caliente Foothill subregions inhabited by tule elk.

Impacts to Tule Elk from Implementing Other Programs

Vegetation. The current Monument objectives to increase the importance of native species in Monument communities, provide for all transitional states of native communities through the natural range of

disturbances (for example, fire, grazing, climatic events), and maintain shrub-scrub communities, would have moderate beneficial impacts to tule elk in the short and long term. While grasses comprise about 50 percent of tule elk diets throughout the year, succulent forbs are important for lactating cows and for general nutrition in the summer and fall months, with shrubs being important food items in the winter (Thomas and Toweill 1982). These objectives would provide a variety of forage species to meet elk habitat requirements.

The most important element of the current management objectives may be providing all transitional states and disturbances across the Monument to create a mosaic of grassland, shrub-scrub lands, grazed and ungrazed areas, burned and unburned areas, and a wide range of habitat opportunities for tule elk. Under this mosaic, elk would occupy plant communities within the range of their habitat needs. This strategy of varied plant communities is expected to maintain tule elk populations in the Carrizo Plain North, Caliente Foothills North, Caliente Mountain North, and Caliente Mountain South subregions. The population of Tule elk inhabiting the Monument would be expected to remain healthy and contribute to meeting the CDFG herd management goals. BLM's vegetation management activities would have little effect on this herd, and livestock grazing would be managed in a manner compatible with those objectives.

Restoration activities to reintroduce native plants into previously cultivated farm fields, abandoned roads, or in habitats with a low proportion of native plant species, would have moderate beneficial impacts on tule elk. Restoration could improve both available forage species and vegetation structure of taller grasses, forbs, and shrubs. Most of the restoration activities would occur in the previously cultivated farm fields in the Carrizo Plain North and Caliente Foothills North subregions, where tule elk are becoming more common and are given high management priority.

Fire and Fuels Management. Fire suppression activities that include the construction of fire control lines, conducting mobile attack, and retardant drops would have negligible effects on tule elk habitat use except during actual suppression activities. The animals would be expected to easily escape to areas away from suppression activities. Early season wildfires are extremely rare during the calving season and disturbance to calving habitat would be minimized if possible.

Prescribed fire would provide moderate beneficial impacts to tule elk by improving forage species composition during the following winter and spring growing seasons for one to several years, depending on rainfall. Management practices that favor native grasses and forbs (and nonnative succulent forbs) may be helpful in providing for elk habitat needs. Grasses and forbs are preferred forage and important in meeting nutritional needs. Management practices that favor native grasses and succulent forbs could improve female body condition during gestation and lactation, and thus improve calf survivorship. Fire could be an important tool to increase preferred forage. Several studies have shown that elk exploit burned areas to feed on improved forage (Thomas and Toweill 1982).

Livestock Grazing. Elk generally occur in the Brumley, Elk Canyon, South Goodwin, Ranch, Hill, Sheep Camp, Powerline, and Dillard pastures. Of these BLM pastures, 6,120 acres are available for livestock grazing and 1,200 acres are in the ungrazed Elk Canyon pasture. These pastures are also bisected by 5,440 acres of CDFG lands that are not grazed by livestock. More importantly, the herd usually resides on the CDFG pastures in the American and Chimineas Units. However, the elk are becoming more common in the Selby and Washburn areas to the south. Current elk distributions probably reflect higher grass and forb production in the foothills and alluvial fans and a lack of cattle use since 2003. The herd has been increasing under the existing management practices, and would likely continue this trend into the foreseeable future. Current management would have moderate benefit to the herd population.

There is a high degree of dietary overlap between elk and cattle. The high amounts of grass and forb production and generally light amount of cattle use would not cause competition since forage is not limiting. Current management prescriptions have reduced cattle use in the Carrizo Plain North and Caliente Foothills North subregions. It appears that the elk have responded to lower livestock presence by spending more time in the Ranch, Painted Rock, Sheep Camp, Brumley, Selby, and Tripod pastures.

4.2.6.3 Long-Billed Curlew

Impacts to the Long-Billed Curlew Common to All Action Alternatives

Impacts to the Long-Billed Curlew from Implementing the Wildlife Program

Actions proposed common to All Action Alternatives to maintain roosting and foraging habitat within the Monument for long-billed curlews include identifying roost areas and protecting them from human disturbances such as illegal dumping, sheep grazing, or nighttime activities; working with the outside community to prevent illegal activities; conducting annual surveys; supporting research to learn habitat needs; and taking actions to make improvements if habitat deteriorates. These actions would have a moderate to major positive impact on long-billed curlews.

Impacts to the Long-Billed Curlews from Implementing Other Programs

Vegetation. Actions under the vegetation program common to all alternatives include increasing and maintaining native plant species and communities including grasslands and shrubs at different seral stages, the use of a variety of restoration methods to increase diversity and species richness, working towards eliminating noxious weeds in foraging and roosting areas. These actions are expected to have moderate to major, positive, and indirect impact on migrant and wintering, long-billed curlews on the Monument.

Livestock Grazing. Impacts from implementing actions common to all alternatives under the Livestock Grazing program are expected to be negligible for long-billed curlews.

Impacts to the Long-Billed Curlew under the Proposed Plan (Alternative 2)

Impacts to the Long-Billed Curlew from Implementing the Wildlife Program

Actions to implement objectives from the Wildlife Program for long-billed curlews under the proposed plan (Alternative 2) (and Alternative 3) to maintain viable populations of long-billed curlews focus on inland, non-breeding populations and on foraging and roosting habitat. Annual long-billed curlew surveys will be conducted and numbers documented during annual raptor surveys. Roosting sites will be protected from human disturbance (primarily in and around Soda Lake) and foraging areas documented. There will be support for research including long-term studies of species as well as roosting and foraging habitat features. Management actions will be designed to result in minimal impacts to curlews especially at roosting sites. Release of nonnative animals will be prohibited as well as native animals previously held in captivity to prevent the spread of disease or to cause other impacts. These actions will have a moderate to major positive impact on wintering long-billed curlews.

Impacts to Long-Billed Curlews from Implementing Other Programs

Vegetation. See Impacts Common to All Action Alternatives.

Fire and Fuels Management. Long-billed curlews are carnivores eating primarily invertebrates. Prescribed burning often results in an immediate availability of invertebrate prey as insects return above ground after retreating to cracks in the soil or half charred insects lay on the bare ground providing

curlews with bounty of prey. Actions for prescribed fire are expected to have a localized, short-term beneficial impact to curlews.

Livestock Grazing. The importance of grazing in maintaining foraging habitat for long-billed curlews within the Monument is not known. Curlews on breeding grounds have been shown to prefer “short” grasses but observations of wintering curlews on the plains of the Carrizo and Elkhorn valleys show that they use a variety of habitats. The impacts would be the same as the no action alternative. Livestock use under the proposed plan (Alternative 2) is expected to have negligible impacts to long-billed curlews.

Impacts under the No Action Alternative (for reference):

Curlews usually forage in small to large flocks in the grasslands of both the Carrizo and Elkhorn Plains. Long-billed curlews eat primarily invertebrates. Studies on curlews and their use patterns of nonbreeding habitat have generally looked at wetlands, playas with shallow water, rice fields, and other agricultural fields (Shuford et al. 1998; Dugger and Dugger. 2002) but curlews on the CPNM are rarely associated with water except when roosting at night where they occupy protected wetlands associated with Soda Lake. Counts taken as curlews approached their roost site suggest that many more birds may roost on the CPNM than forage there during the winter (S. Fitton, personal communication, 2008). Little is known of their forage use outside of wetlands or flooded agricultural fields; their preferred foraging habitat on the CPNM is also unknown. Observations of breeding birds suggests that short grass (~ 3 inches is preferred) and that tall grass (taller than the curlew), was avoided, but the reason was unknown (Dugger and Dugger 2002). Observations of foraging birds on the CPNM have found them in tall grasses (same height or slightly taller than bird), short grasses of varying lengths (up to the height of bird), and shorter grass and bare ground (BLM staff, personal observations, 1995-2008; S. Fitton, personal communication, 2008). Fitton has also observed long-billed curlews foraging on prescribed burn areas both on the CPNM and the Salton Sea; one observation saw birds taking advantage of invertebrate prey on a prescribed burn that was still in progress (S. Fitton, personal communication, 2008). This behavior suggests that curlews are very opportunistic and will forage in a number of habitats.

Recreation and Administrative Facilities. Impacts would be the same as Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

Soda Lake and its system of satellite ponds are used as roosting sites for hundreds and sometimes thousands of long-billed curlews (BLM 2008d). This important roosting area lies within the proposed Frontcountry zone, which contains the highest concentration of visitor facilities, kiosks, and interpretation. Actions must be compatible with all Monument Proclamation and biological resource objectives including protecting long-billed curlew roosting sites from human disturbance and minimizing any detrimental impacts from interactions with humans and pets. Also, long-billed curlews spend daylight hours away from Soda Lake and their roosting spots. As a result, actions in the Frontcountry zone are expected to have negligible impacts to long-billed curlews.

Impacts to the Long-Billed Curlew under Alternative 1

Impacts to the Long-Billed Curlew from Implementing the Wildlife Program

Actions to implement objectives from the Wildlife program for long-billed curlews under Alternative 1 to maintain viable populations of long-billed curlews focusing on inland, non-breeding populations and on foraging and roosting habitat. Annual long-billed curlew surveys will be conducted and numbers documented during annual raptor surveys. Roosting sites will be protected from human disturbance (primarily in and around Soda Lake) and foraging areas documented. No actions will be taken to modify or manage vegetation. There will be support for research including long-term studies of species as well as

roosting and foraging habitat features. Management actions will be designed to result in minimal impacts to curlews especially at roosting sites. These actions will have a moderate to major positive impact on wintering long-billed curlews.

Impacts to the Long-Billed Curlew from Implementing Other Programs

Vegetation. See Impacts Common to All Action Alternatives.

Fire and Fuels Management. Actions under Alternative 1 emphasize a hands-off approach prohibiting prescribed fire as a management tool. Habitat preferences of long-billed curlews, which winter on the CPNM, are little understood. Observations of foraging curlews on the Monument have found them to use burned areas, however, they also use a variety of other habitats. Actions proposed under Alternative 1 are expected to have negligible impacts to long-billed curlews.

Livestock Grazing. Actions under Alternative 1 emphasize a hands-off approach prohibiting livestock grazing as a management tool. Habitat preferences of long-billed curlews, which winter on the CPNM, are little understood. Observations of foraging curlews on the Monument have found them to use grazed areas; however, they also use a variety of other habitats. Actions proposed under Alternative 1 are expected to have negligible impacts to long-billed curlews.

Recreation and Administrative Facilities. Soda Lake and its system of satellite ponds are used as roosting sites for hundreds and sometimes thousands of long-billed curlews (BLM 2008d). This important roosting area lies within the proposed Frontcountry zone, which contains the highest concentration of visitor facilities, kiosks, and interpretation. Actions must be compatible with all Monument Proclamation and biological resource objectives including protecting long-billed curlew roosting sites from human disturbance and minimizing any detrimental impacts from interactions with humans and pets. Also, long-billed curlews spend daylight hours away from Soda Lake and their roosting spots. As a result, actions in the Frontcountry zone are expected to have negligible impacts to long-billed curlews.

Impacts to the Long-Billed Curlew under Alternative 3

Impacts to the Long-Billed Curlew from Implementing the Wildlife Program

Impacts would be the same as the proposed plan (Alternative 2).

Impacts to Long-Billed Curlew from Implementing Other Programs

Vegetation. See Impacts Common to All Action Alternatives.

Fire and Fuels Management. Impacts would be the same as the proposed plan (Alternative 2).

Livestock Grazing. Impacts would be the same as the proposed plan (Alternative 2).

Recreation and Administrative Facilities. Impacts would be the same as Alternative 1.

Impacts to the Long-Billed Curlew under the No Action Alternative

With the exception of those impacts discussed under the General Wildlife Impacts or avoided through implementation of SOPs, the following programs will have a negligible on long-billed curlews: Air Quality, Soils, Water, Geology and Paleontology, Cultural Resources, Visual, WSA/Lands with Wilderness Characteristics, Travel Management, Minerals, and Lands and Realty.

Impacts to the Long-Billed Curlew from Implementing the Wildlife Program

Under the No Action Alternative, actions will be taken to maintain viable populations of long-billed curlews with a focus on inland, non-breeding populations and on foraging and roosting habitat. Annual long-billed curlew surveys will be conducted and numbers documented during annual raptor/sensitive species surveys. Roosting sites will be protected from human disturbance (primarily in and around Soda Lake) and foraging areas will be documented. There will be support for research including long-term studies of species as well as roosting and foraging habitat features. Management actions will be designed to result in minimal impacts to curlews especially at roosting sites. Private lands will be acquired as they become available. These actions will have a moderate to major positive impact on wintering long-billed curlews.

Impacts to the Long-Billed Curlew from Implementing Other Programs

Vegetation. Actions to increase and maintain native plant species and communities including grasslands and shrubs at different seral stages, maintaining a mosaic of structure and habitat types, and using a variety of restoration methods to increase diversity and species richness are expected to have a moderate to major positive impact on long-billed curlews by providing quality foraging and wintering habitat.

Fire and Fuels Management. Long-billed curlews are strictly carnivores whose diet consists primarily of invertebrates that may also include bird eggs and chicks (Dugger and Dugger, 2002). Prescribed burning often results in an immediate availability of invertebrate prey as insects return above ground after retreating to cracks in the soil or half-charred insects lay on the bare ground. Fitton (S. Fitton, personal communication, 2008) has observed long-billed curlews on recently burned areas both on the CPNM and at the Salton Sea and one instance where curlews were landing while the fire was still burning in the distance. Actions for prescribed fire are expected to have a localized, short-term beneficial impact to curlews.

Livestock Grazing. Long-billed curlews winter on the CPNM. They generally arrive in late fall or early winter and the majority of birds leave by the end of March. Curlews have been sighted in April or even later into the summer months though it is unclear whether these birds are migrants or holdovers from winter flocks (BLM staff, personal observations, 1995-2007). Curlews usually forage in small to large flocks in the grasslands of both the Carrizo and Elkhorn Plains. Long-billed curlews eat primarily invertebrates. Studies on curlews and their use patterns of nonbreeding habitat have generally looked at wetlands, playas with shallow water, rice fields, and other agricultural fields (Shuford et al. 1998; Dugger and Dugger, 2002) but curlews on the CPNM are rarely associated with water except when roosting at night where they occupy protected wetlands associated with Soda Lake. Counts taken as curlews approached their roost site suggest that many more birds may roost on the CPNM than forage there during the winter (S. Fitton, personal communication, 2008). Little is known of their forage use outside of wetlands or flooded agricultural fields; their preferred foraging habitat on the CPNM is also unknown. Observations of breeding birds suggests that short grass (~ 3 inches is preferred) and that tall grass (taller than the curlew), was avoided, but the reason was unknown (Dugger and Dugger 2002). Observations of foraging birds on the CPNM have found them in tall grasses (same height or slightly taller than bird), short grasses of varying lengths (up to the height of bird), and shorter grass and bare ground (BLM staff, personal observations, 1995-2008; S. Fitton, personal communication, 2008). Fitton has also observed long-billed curlews foraging on prescribed burn areas both on the CPNM and the Salton Sea; one observation saw birds taking advantage of invertebrate prey on a prescribed burn that was still in progress (S. Fitton, personal communication, 2008). This behavior suggests that curlews are very opportunistic and will forage in a number of habitats.

On the plains of the Carrizo and Elkhorn valleys current livestock grazing management under the No Action Alternative allows 110,000 acres to be grazed (under existing guidelines which vary by resource value in each pasture, including the amount of dried mulch per acre, height of vegetation, or species composition), and keeps 49,136 acres out of grazing. These acres include both vegetation management areas and Section 15 allotments. The result is a landscape made up of differing plant species, and vegetation that varies both in height and amount. Observations of foraging long-billed curlews suggests that actions resulting from the No Action Alternative for livestock grazing are expected to have negligible impacts to long-billed curlews.

4.2.6.4 Raptors

Impacts to Raptors Common to All Action Alternatives

Impacts to Raptors from Implementing the Wildlife Program

Actions common to All Action Alternatives will be taken to maintain viable populations of raptors with efforts focused on breeding, wintering, and/or year round species. Surveys and monitoring will take place including winter raptor surveys, the Breeding Bird Survey, and other efforts in coordination with other agencies, ornithologists, and volunteers. Raptor nest sites will be inventoried and recorded. There will be support for research including long-term studies of species and habitat features. Management actions will be designed to result in minimal impacts to raptors' nesting and roosting sites. Actions focused on the recovery of giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin kit fox, and blunt-nosed leopard lizard will benefit raptors by ensuring a prey base. These actions will have a moderate to major positive impact on raptor species on the Monument and elsewhere.

Impacts to Raptors from Implementing Other Programs

See impacts specific to alternatives below.

Impacts to Raptors under the Proposed Plan (Alternative 2)

Impacts to Raptors from Implementing the Wildlife Program

Actions include annual surveys of wintering raptors, inventories of raptor nesting sites in the CPNM, protection of nesting sites from human disturbance as much as possible, identifying problems with power poles causing electrocution (and taking actions to modify poles within the CPNM), and prohibiting the release of nonnative animals and native animals previously held in captivity to prevent disease. These actions are expected to have minor to major positive impacts to raptors.

Impacts to Raptors from Implementing Other Programs

Vegetation. Actions to increase and maintain native plant species and communities including grasslands and shrubs; maintaining a mosaic of structure and habitat types; and using a variety of restoration methods to increase diversity and species richness are expected to benefit native animal species including those considered prey items by raptors. Actions that include fencing plants or plant communities are expected to have a minor, localized positive impact on raptors by providing artificial perches (posts) from which to watch and go after prey. These actions are expected to have a moderate to major, positive and indirect impact on raptor species on the Monument.

Fire and Fuels Management. Most raptors that nest on the Monument nest in trees, structures, or rock outcroppings. A few, such as northern harriers and short-eared owls, are ground nesting birds. Actions to implement Fire and Fuels Management common to all action alternatives would emphasize the use of roads or other barriers to burn to or backburn from as a fire suppression tactic during a wildfire to

minimize soil disturbance. This action may result in nests or chicks being burned over, however, the extent to which both of these species nest on the Monument is unknown. Nesting by short-eared owls were reported in 1992 (Roberson 2008), and northern harriers in 1999 (BLM staff, personal observation). The timing of any wildfires, the location, and extent are all factors that would result in mortality to birds. The potential for this impact to occur would be negligible to minor and localized.

Prescribed fires would be designed to minimize impacts to ground nesting birds by monitoring sites and avoiding those areas that are revealed to be nesting sites for either of these species or timing burning activities to occur post fledging.

Cultural Resources. Visitation to Painted Rock would be reduced from the current numbers. Numbers of group tours would be similar and visitation to the El Saucito Ranch would be the same as the No Action Alternative. Cultural Resources actions are expected to have negligible impacts to raptors.

Impacts under No Action Alternative (for reference):

Actions under the current Cultural Resources program are expected to have negligible to minor effects on some raptor species in localized settings including tours to Painted Rock and El Saucito Ranch during the raptor nesting season. Currently, Painted Rock is closed to visitors except by guided tour only, to limit disturbance during times when nesting birds are present. Numbers of tours are limited per week as well as the number of participants. An estimated 18 guided tours take place each year (18 tours x 25 people per tour on average) during the closed period, totaling 450 visitors. Closure begins March 1 to allow birds to choose Painted Rock as a nest site and does not open again to free visitation until July 15 so that incubation, hatching, and fledging can occur with minimal intrusions. Other restrictions apply, including no visitation during cold and/or windy weather when exposing eggs or young would prove harmful. If no birds are nesting, restrictions may not be implemented regarding the number of tours and number of participants per tour. Seasonal closures to Painted Rock were put in place in response to a pair of nesting prairie falcons.

Continuing tours using the same method and employing the same guidelines is expected to result in negligible to minor impacts to nesting raptors.

Similar restrictions are planned for tours to Saucito Ranch. Birds nest in large trees at the Ranch, as opposed to a rock outcropping, but similar effects are expected. Trees will be monitored each spring to determine whether raptors are nesting or roosting along with their locations. Guidelines will be put in place regarding timing of tours and training of guides to avoid or minimize disturbance to nesting raptors. Since many of the trees are located away from the trail, and birds and nests are often hidden from view, tours along the Saucito Ranch trail are expected have negligible impacts to nesting and roosting raptors.

Livestock Grazing. Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Most raptor use on the Monument can be categorized by two distinct uses: breeding and wintering. These uses have somewhat different habitat requirements, but all raptors rely on sufficient numbers of high quality prey, both for nurturing young and for building high energy stores needed for migration and reproduction at breeding grounds elsewhere.

Livestock grazing on the Monument under the current No Action Alternative is used as vegetation management for the benefit of species on much of the Carrizo and Elkhorn Plains most notably, the suite of San Joaquin Valley listed species including giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, and San Joaquin kit fox, by removing excessive amounts of nonnative grasses. Section

15 allotments (in place to provide forage for livestock) occur primarily in the mountain and foothill regions of both mountain ranges. Nesting raptors often use rock outcroppings in the Caliente and Tumbler Ranges but most likely forage in the open areas of the Carrizo and Elkhorn Plains. Animal populations that occur within these areas are what make up many of the food items that are important sources for raptors that use the CPNM to winter and breed. Some of these include lagomorphs (desert cottontail and black-tailed jackrabbit), rodents such as kangaroo rats and squirrels, reptiles, amphibians, other bird species, and insects. Larger raptors, such as golden eagles and red-tailed hawks, also feed on carcasses of ungulates such as pronghorn antelope, tule elk, and domestic livestock. Different plant communities including shrubs, perennial grasses, annual grasses, and forbs make up the habitat for prey species. Vegetation height and density can change from year to year for many plant species in a system that is often driven by the annual rainfall and winter temperatures.

The most current data guiding the use of grazing as a management tool come from a seven-year monitoring study on the Monument. Data were analyzed six years out of the seven (grazing did not occur in one year), with results on both relative cover of exotic annual grasses and the density of giant kangaroo rat precincts. In soil types 3 and 7, which most directly relate to raptor prey species, relative cover of exotic annual grasses increased in soil type 7 in areas grazed by livestock, while in soil type 3 there was no effect. These soil types reflect much of the valley floors of both the Carrizo and Elkhorn Plains. Four out of six years of the data analyzed showed a higher density of giant kangaroo rat precincts in ungrazed pastures and the remaining two showed grazing had no effect on the density of precincts (Christian et al., in prep.). These monitoring results have implications for management and its possible effects on prey availability of a number of species for raptors. As a result, many of the pastures on the Carrizo and Elkhorn Plains may not be grazed except in core areas for the San Joaquin Valley species and other areas where low vegetation is preferred by species such as the mountain plover. It is estimated that exceptionally high herbaceous vegetation production may occur on an average of two out of ten years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire or livestock grazing to improve habitat conditions that may threaten giant kangaroo rat populations. It is unknown if low populations of giant kangaroo rat always coincide with periods of high grass production, but based on the last such period when populations were monitored and found to be mostly absent in the CPNM, it is prudent to target the nonnative grasses under these conditions. A more focused scientific experiment is currently underway to define the relationship between livestock grazing and giant kangaroo rats. Results of this study will be incorporated into our adaptive management model.

Overall, actions to implement livestock grazing under No Action are expected to have negligible to minor impacts for raptors since many actions taken to positively affect prey species may not have immediate results for predators in the system.

Impacts to Raptors under Alternative 1

Impacts to Raptors from Implementing the Wildlife Program

Wildlife actions under Alternative 1 affecting raptors include allowing natural conditions to dictate nesting and roosting habitat for raptors. Nesting sites at rock outcroppings will be protected. Nonnative animals would be prohibited from being released on the Monument along with native species previously held in captivity to protect from disease transmission. Actions that protect nesting sites and are proactive in preventing disease introduction from animals outside the Monument are expected to have minor to moderate positive impacts for raptors.

Impacts to Raptors from Implementing Other Programs

Fire and Fuels Management. Prescribed fire would not be authorized under Alternative 1. The role of fire as an effective tool to improve habitat for raptor prey species is not well understood within the Monument. The effects of its unavailability as a tool are unknown. Two prescribed burns were conducted on the Monument in 1993 and 1994 to create more suitable habitat for mountain plover that resulted in successfully attracting birds in the winter (Knopf and Rupert 1995). Mountain plover are a prey species for some raptors. Pre- and post-burn observations following another prescribed burn in 2006 showed an apparent increased use in burned areas by burrowing owls (BLM staff, personal observations, 2007).

Wildland fire suppression would have negligible impacts to raptors if retardant drops avoid rock outcroppings.

Impacts from fuel reduction at facilities would be the same as those common to all alternatives.

Cultural Resources. Painted Rock would be closed to public access greatly minimizing any effects on nesting raptors. Impacts from visitation to the El Saucito Ranch would be the same as the No Action Alternative. Cultural Resources actions are expected to have negligible or no impacts to raptors. Alternative 1 would have the least impacts to raptors.

Livestock Grazing. Livestock grazing would not be authorized under Alternative 1. In the 2 out of 10 years where some vegetation management may be needed to prevent listed San Joaquin Valley species from disappearing, actions will be taken in core areas for the species. Treating core areas, however, will most likely mean that many of these species are not occurring in great numbers elsewhere. If treating core areas results in positive impacts to raptor prey species, most likely there will be positive impacts to raptors. It is likely, though, that reduced numbers of prey will be available to many raptors before reaching that point. Overall, actions to implement livestock grazing will have negligible to minor impacts to raptors.

Impacts to Raptors under Alternative 3

Impacts to Raptors from Implementing the Wildlife Program

Actions include annual surveys of wintering raptors, inventories of raptor nesting sites in the CPNM, protection of nesting sites from human disturbance as much as possible, identifying problems with power poles causing electrocution (and taking actions to modify poles within the CPNM), and prohibiting the release of nonnative animals and native animals previously held in captivity to prevent disease. These actions are expected to have minor to major positive impacts to raptors.

Impacts to Raptors from Implementing Other Programs

Vegetation. Impacts would be the same as the proposed plan (Alternative 2).

Fire and Fuels Management. Impacts would be the same as the proposed plan (Alternative 2).

Cultural Resources. Visitation to Painted Rock would be even more reduced from the numbers in the proposed plan (Alternative 2). Numbers of group tours would be similar and visitation to the El Saucito Ranch would be the same as the No Action Alternative. Cultural Resources program actions are expected to have negligible impacts to raptors.

Livestock Grazing. Impacts would be the same as the No Action Alternative.

Impacts to Raptors under the No Action Alternative

With the exception of those impacts discussed under the General Wildlife Impacts or avoided through implementation of SOPs, the following programs will have a negligible effect on raptors: Air Quality, Soils, Water, Geology and Paleontology, Visual Resources, WSA/Lands with Wilderness Characteristics, Recreation, Administrative Facilities, Travel Management, and Minerals.

Impacts to Raptors from Implementing the Wildlife Program

Under the No Action Alternative, actions will be taken to maintain viable populations of raptors with efforts focused on breeding, wintering, and/or year-round species. Surveys and monitoring will take place, including winter raptor surveys, the Breeding Bird Survey, and other efforts in coordination with other agencies, ornithologists, and volunteers. Raptor nest sites will be inventoried and recorded. There will be support for research including long-term studies of species and habitat features. Management actions will be designed to result in minimal impacts to raptors, nesting, and roosting sites. Actions focused on the recovery of giant kangaroo rats and San Joaquin antelope squirrels will benefit raptors by ensuring a prey base. These actions will have a moderate to major positive impact on raptor species on the Monument and elsewhere.

Impacts to Raptors from Implementing Other Programs

Vegetation. Actions that include increasing and maintaining native plant species and communities including grasslands and shrubs; maintaining a mosaic of structure and habitat types; and using a variety of restoration methods to increase diversity and species richness are expected to benefit native animal species including those considered prey items by raptors. These actions are expected to have a moderate to major positive impact on raptor species on the Monument.

Fire and Fuels Management. Raptors are often found using tall trees, structures, rock outcroppings, or other natural and manmade features to roost or nest. This preference for height often draws raptors to facilities such as campgrounds and historic ranch sites within the Monument. Fuel reduction practices such as mowing and weed-eating are a necessary part of fire protection for these important sites that can sometimes conflict with nesting and day roosting. Factors that may affect birds include temperature, time of day the disturbance occurs, duration of disturbance, growth stage of chicks, and the presence of predators. By monitoring and adjusting the disturbance to minimize impacts to the birds, implementing fuel reduction practices is expected to have negligible effects to raptors. Actions to protect facilities from fire and rock outcroppings from retardant drops will benefit raptors. Efforts to use prescribed fire for the benefit of plant and animal species may provide indirect benefits to raptors.

Cultural Resources. Actions under the current Cultural Resources program are expected to have negligible to minor effects on some raptor species in localized settings including tours to Painted Rock and El Saucito Ranch during the raptor nesting season. Currently, Painted Rock is closed to visitors except by guided tour only, to limit disturbance during times when nesting birds are present. Numbers of tours are limited per week as well as the number of participants. An estimated 18 guided tours take place each year (18 tours x 25 people per tour on average) during the closed period, totaling 450 visitors. Closure begins March 1 to allow birds to choose Painted Rock as a nest site and does not open again to free visitation until July 15 so that incubation, hatching, and fledging can occur with minimal intrusions. Other restrictions apply, including no visitation during cold and/or windy weather when exposing eggs or young would prove harmful. If no birds are nesting, restrictions may not be implemented regarding the number of tours and number of participants per tour. Seasonal closures to Painted Rock were put in place in response to a pair of nesting prairie falcons. Different species have different levels of tolerance for human disturbance during nesting (Rosenfield et al. 2007). Using strict guidelines when nesting birds are

present, prairie falcons nested four times inside the alcove, successfully fledging young. The following year a nest failed for unknown reasons and prairie falcons have no longer nested at Painted Rock. In 1999 and 2000, golden eagles nested outside of the alcove near the top of the rock and chicks successfully fledged both times. Great horned owls occasionally nest inside the alcove. Barn owls are the most common raptor at Painted Rock, nesting or roosting both inside and outside the alcove nearly every year.

Native American use of the Rock during Solstice Ceremony often occurs shortly after chicks have fledged. To date, there have been no conflicts between the two events.

Continuing tours using the same method and employing the same guidelines is expected to result in negligible to minor impacts to nesting raptors.

Similar restrictions are planned for tours to Saucito Ranch. Birds nest in large trees at the Ranch, as opposed to a rock outcropping, but similar effects are expected. Trees will be monitored each spring to determine whether raptors are nesting or roosting along with their locations. Guidelines will be put in place regarding timing of tours and training of guides to avoid or minimize disturbance to nesting raptors. Since many of the trees are located away from the trail, and birds and nests are often hidden from view, tours along the Saucito Ranch trail are expected have negligible impacts to nesting and roosting raptors.

Livestock Grazing. Most raptor use on the Monument can be categorized by two distinct uses: breeding and wintering. These uses have somewhat different habitat requirements, but all raptors rely on sufficient numbers of high quality prey, both for nurturing young and for building high energy stores needed for migration and reproduction at breeding grounds elsewhere.

Livestock grazing on the Monument under the current No Action Alternative is used as vegetation management for the benefit of species on much of the Carrizo and Elkhorn Plains most notably, the suite of San Joaquin Valley listed species including giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, and San Joaquin kit fox, by removing excessive amounts of nonnative grasses. Section 15 allotments (in place to provide forage for livestock) occur primarily in the mountain and foothill regions of both mountain ranges. Nesting raptors often use rock outcroppings in the Caliente and Temblor Ranges but most likely forage in the open areas of the Carrizo and Elkhorn Plains. Animal populations that occur within these areas are what make up many of the food items that are important sources for raptors that use the CPNM to winter and breed. Some of these include lagomorphs (desert cottontail and black-tailed jackrabbit), rodents such as kangaroo rats and squirrels, reptiles, amphibians, other bird species, and insects. Larger raptors, such as golden eagles and red-tailed hawks, also feed on carcasses of ungulates such as pronghorn antelope, tule elk, and domestic livestock. Different plant communities including shrubs, perennial grasses, annual grasses, and forbs make up the habitat for prey species. Vegetation height and density can change from year to year for many plant species in a system that is often driven by the annual rainfall and winter temperatures.

The most current data guiding the use of grazing as a management tool come from a seven-year monitoring study on the Monument. Data were analyzed six years out of the seven (grazing did not occur in one year), with results on both relative cover of exotic annual grasses and the density of giant kangaroo rat precincts. In soil types 3 and 7, which most directly relate to raptor prey species, relative cover of exotic annual grasses increased in soil type 7 in areas grazed by livestock, while in soil type 3 there was no effect. These soil types reflect much of the valley floors of both the Carrizo and Elkhorn Plains. Four out of six years of the data analyzed showed a higher density of giant kangaroo rat precincts in ungrazed pastures and the remaining two showed grazing had no effect on the density of precincts (Christian et al., in prep.). These monitoring results have implications for management and its possible effects on prey availability of a number of species for raptors. As a result, many of the pastures on the Carrizo and Elkhorn Plains may not be grazed except in core areas for the San Joaquin Valley species and other areas

where low vegetation is preferred by species such as the mountain plover. It is estimated that exceptionally high herbaceous vegetation production may occur on an average of two out of ten years. It is during these periods of persistent nonnative grass cover when vegetation management could be applied through prescribed fire or livestock grazing to improve habitat conditions that may threaten giant kangaroo rat populations. It is unknown if low populations of giant kangaroo rat always coincide with periods of high grass production, but based on the last such period when populations were monitored and found to be mostly absent in the CPNM, it is prudent to target the nonnative grasses under these conditions. A more focused scientific experiment is currently underway to define the relationship between livestock grazing and giant kangaroo rats. Results of this study will be incorporated into our adaptive management model.

Overall, actions to implement livestock grazing under No Action are expected to have negligible to minor impacts for raptors since many actions taken to positively affect prey species may not have immediate results for predators in the system.

4.2.7 Cumulative Impacts

4.2.7.1 Assessment Area

The assessment area varies based on species and includes the following: Southern San Joaquin Valley; the CPNM; Cuyama Valley (general wildlife including San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, mountain plover, Kern primrose sphinx moth, vernal pool fairy shrimp, long-horned fairy shrimp, spadefoot toad, sandhill cranes, long-billed curlew, raptors, bats, and burrowing owl); southern California (California condor); range of the Carrizo Plain pronghorn herd unit; and La Panza tule elk herd unit.

4.2.7.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area

Development in the San Joaquin Valley and adjacent Coast Range foothills and valleys continues to threaten the survival of species in the region. Habitat loss and fragmentation, vehicle strikes, oilfield hazards, mining, urban and rural housing, and impacts from pets, off-highway vehicle use, proliferation of roads, pesticide exposure, microtrash exposure, predation from native and nonnative carnivores, population isolation, and a general lack of large-scale habitat conservation continue to be the primary impacts. Over 11,000 acres of solar energy development are being proposed on rangelands and agricultural lands within 10 miles of the northern boundary of the Monument. More intensive land use of rural ranchette homes, housing developments, vineyards, irrigated agriculture in the Cuyama Valley, and upgraded state highways and county roads are other impacts in the areas immediately surrounding the Monument.

4.2.7.3 Cumulative Impacts

The CPNM is one of several core recovery areas for the San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, short-nosed kangaroo rat, and Le Conte's thrasher. BLM and CDFG ownership have conserved 83 percent and 4 percent on the CPNM, respectively. The San Joaquin Valley upland species recovery plan set an objective of 100 percent conservation acquisition of the Monument (Natural Area). Only the CPNM has made substantial progress in meeting land conservation goals for the three core areas and 12 satellite areas in the Recovery Plan. The long-term management of the CPNM for the conservation and recovery of the San Joaquin Valley upland species will help offset continued habitat loss and environmental threats to these species. The management plan proposes to manage the core and non-core areas to maintain viable populations of these species. However, appropriate habitat management is needed to maintain suitable habitat conditions for the suite of species.

San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin antelope squirrel population monitoring, habitat monitoring, application and appropriate habitat management prescriptions for these species, maintaining movement linkages to western Kern County, and application of AM principles would help meet recovery plan goals to maintain a viable population on the Monument. The small amount of habitat disturbance for ongoing BLM management activities, oil and gas authorizations, rights-of-way, and other third-party authorizations would be negligible in the amount of habitat in the National Monument. Land uses outside the Monument would continue to threaten the conservation and recovery of these species. However, implementation of the CPNM plan would help offset these negative land uses and environmental threats.

The management of the CPNM to achieve population herd objectives for pronghorn antelope and Tule elk will contribute to maintaining viability of the herds. Habitat management and improvement projects would offset reduced habitat capability and carrying capacity losses on adjacent private lands and other areas within the herd units. Additional habitat conservation actions taking place on the adjacent CDFG lands (American and Chimineas Ranch Units) will complement CPNM management.

The management of the CPNM to maintain suitable wintering habitat for mountain plovers would provide a large landscape without the use of pesticides as an alternative to agricultural fields within the San Joaquin Valley proper. Appropriate habitat management prescriptions would be applied to maintain suitable habitat to offset environmental threats within other portions of the mountain plover winter range.

If trespass of sheep and cattle occurs into sensitive habitats within the Monument, there would be additional habitat degradation for species such as fairy shrimp, spadefoot toad, and Kern primrose sphinx moth. Positive conservation activities to meet plan objectives would offset negative impacts to fairy shrimp and spadefoot toad in inholdings and adjacent private lands. Until land acquisition of sphinx moth habitat occurs, ongoing impacts on private lands may inhibit conservation and recovery of this species. Lead exposure, microtrash ingestion, limited natural foraging potential, and other hazards in southern California would continue to threaten conservation and recovery of the southern California condor population.

4.2.7.4 Impacts on Wildlife from Climate Change

The anticipated influence of climate change on the resource values of the planning area was included in this chapter in the Draft RMP/EIS. However, this information has been moved to Chapter 3 (Affected Environment) in this PRMP/FEIS to better reflect current guidance for NEPA analysis of climate change, that is, that climate change be considered as a dynamic component of the affected environment discussion.

4.3 Impacts to Biological Resources—Vegetation

4.3.1 Assumptions Used for the Analysis

Generally, most activities that disturb habitat and impact vegetation will be detrimental to most plants. However, some plants are adapted to certain types of disturbance or are less likely to be impacted by the disturbance, due to some physical, chemical, or behavioral/phenological trait. For example, ground-hugging plants tend to do better in grazed areas than their taller counterparts; non-palatable plants like *Isocoma*, *Ericameria*, and *Gutierrizia* are known as increasers because livestock preferentially avoid them while foraging; and bulb species are generally not affected by dry season fires, other than possible loss of seeds from the seed bank.

Disturbance associated with site development would eliminate habitat (usually in a small and well-defined area, and which usually includes mitigation measures to avoid or minimize negative effects to important resources).

Activities that disturb soils are generally not beneficial to plants, although there are a number of native species that are adapted to disturbed habitats. Soil disturbance creates dust, increases the chance of erosion and soil degradation, and often promotes the establishment and persistence of nonnative weedy species. Soil disturbance can also degrade or eliminate biological crust communities, resulting in a loss of soil fertility (Barger et al. 2006; Belnap and Eldridge 2001; Belnap et al. 2001; Housman et al. 2006). Soil disturbance may also destroy nesting sites for pollinators such as ground-nesting solitary bees and bee flies. On the other hand, soil disturbance may bring buried seeds up to the surface where they can germinate and may increase localized soil water infiltration. Conversely, soil disturbance can bury seed so deep that they fail to germinate.

Although nonnative grasses currently dominate the vegetation in the valley floor and the shrub/woodland understory, Monument vegetation prior to European contact was probably more open and had a higher percentage of forbs. However, in wet years, the native annual flora responded vigorously and created stands, dominated by forbs but including native grasses such as few-flowered fescue (*Vulpia microstachys* var. *pauciflora*), one-sided bluegrass (*Poa secunda* ssp. *secunda*), nodding needlegrass (*Nasella cernua*), and saltgrass (*Distichlis spicata*).

Dust negatively impacts plants (Auerbach et al. 1997; Eveling 1986; Forman and Alexander 1998; Sharifi et al. 1997; Trombulak and Frissell 2000). Plant growth decreases as dust increases on leaf surfaces. Photosynthesis is reduced because dust particles clog stomata, thereby inhibiting gas exchange, and because the particles shade the chloroplasts, which need light for the conversion of water and carbon dioxide into sugars. Dust also harms plant reproduction by clogging stigmatic surfaces, hampering pollen germination, and by making flowers less visible and attractive to pollinators.

Under the adaptive management approach, if new inventory or monitoring information shows that an action conflicts with an objective, then that action would be modified or discontinued. In other words, the objectives “trump” the actions. This approach is especially important in protecting vegetation, since there are limited inventory data and the potential for impacts is high, as described below. The analysis below assumes that plan prescriptions, including those in the Conservation Target Table, will be modified as necessary to ensure that they meet objectives for the protection of rare plants and other vegetation.

Management actions would be designed to avoid or minimize negative impacts to vegetation.

4.3.2 Incomplete Information

The exact species composition of the Monument’s vegetation is unknown prior to the introduction of the weedy Mediterranean grasses and forbs and prior to the livestock grazing and farming period. A reasonable assumption is that the valley floor vegetation consisted of a mosaic of drought-tolerant shrubs, ephemeral annual herbs, and a few native grasses (Hamilton 1997; Jepson 1925; Schiffman 1994; Twisselmann 1967). Most likely, there are fewer trees on the Monument now, since they would have been used for fence posts, as construction materials, and for firewood. Some shrublands may have been lost or the composition altered by grazing, especially since, in time of drought, livestock forage heavily on the more palatable native shrubs. For example, the high percentage of the unpalatable interior goldenbush (*Ericameria linearifolia*) around Selby cow camp may be an artifact of livestock preferentially grazing on other shrubs. Dryland farming was also responsible for the loss of some shrublands.

The effects of livestock grazing on the individual components of the native vegetation and pollinators are not well understood. Overall, native annual species do better in ungrazed sites, but individual species response is not clear. Data on bunchgrass indicate that green season grazing is of limited use as a management tool and that, generally, the effect is negative (Christian et al., in preparation).

There is no indication of the extent or importance of crust habitat in the valley floor and foothills prior to the farming and grazing period. Whether conditions still exist to restore stable crust habitat remains to be tested, although early successional crust species (colonizing cyanobacteria and mosses) are common. It may have been that mature stable biological crusts were not common on the valley floor, judging from the current dominance of the giant kangaroo rat; however, these excavating rodents may be in greater densities today due to the abundance of introduced bromes and filarees that serve as food resources.

It is assumed that native vegetation, before the invasion of the Mediterranean species, responded to varying levels of precipitation in a manner similar to what occurs today. A dry year would result in annual plants (mostly herbs) that were short, with limited reproduction, and in general the annual vegetation would be open and sparse. In years of higher precipitation, the season would be extended, with lots of reproduction, and the annual vegetation would be dense and tall and would generate a lot of biomass. Most of the native annual species appear to be not as persistent as today's introduced annual grasses; however, even without the exotic grasses, dense vegetation would be expected during the spring to early summer in years with high precipitation.

4.3.3 Programs with No or Negligible Impacts to Vegetation

Visual resource management will have no or negligible impacts on vegetation under any of the alternatives

4.3.4 Impacts to Vegetation under the Proposed Plan (Alternative 2)

This section discusses impacts from the proposed plan to CPNM vegetation generally in Sections 4.3.4.1 and 4.3.4.2, followed by a discussion of impacts to rare plants specifically in Section 4.3.4.3.

4.3.4.1 Impacts to Vegetation from Implementing the Vegetation Program

Implementation of the vegetation program would have moderate to major positive impacts to vegetation. It is anticipated that 200 to 500 acres of native habitat would be restored per year. This would increase the amount of native plants. Some individual plants may be killed by restoration pre-treatment actions (burning, flaming, herbicides), but overall there would be a major increase in native plant populations. Although the number of acres targeted for restoration under the action alternatives is less than that proposed under the No Action Alternative, it is a more realistic assessment of the amount of acres that BLM could reasonably be expected to restore during the specified time period. The new estimate is based on BLM staff's recent experience with restoration since completion of the last management plan (BLM 1996). As such, the amount of habitat actually restored would be expected to be similar for all of the alternatives. Prescribed fires to promote native vegetation should result in an average of 200 to 1,000 acres per year of improved habitat, similar to the amount of acres reported under the No Action Alternative (5,000 to 10,000 over the life of the plan). The alteration of 1 to 100 acres of roadside terrain to restore natural landscape water flow patterns would cause temporary disturbance and loss of plants, but ultimately result in improved and expanded saltbush populations. The installation of one to five miles of fencing will help protect vulnerable oak trees and allow for the restoration of understory leaf litter, mulch, and associated biota. Additional efforts to improve oak understory habitat by adding oak mulch, inoculum, jute matting, and other soil restoration components would increase the restoration rate. Restoration of 10 to 100 acres of crust habitat would involve some initial negative effects to native

species in target sites but, overall, native plant species should benefit. Crust zones should also benefit solitary bees and other ground-nesting pollinators by providing good quality nesting sites. Protection of rare plant habitat should benefit other native vegetation by protecting habitat. The treatment of 10 to 100 acres of weeds (average per year) should benefit native plants by removing nonnative competitors and invasive weedy exotics. Some native plants growing within and adjacent to target weed populations may be damaged or killed by weed control methods such as burning or the application of herbicides. Biological control organisms released to target a specific weed may have a minor effect on related native plant species; however, pre-release screening of potential control organisms minimizes the chance of host transfer. Overall, native plants should benefit by the removal of nonnative competitors and invasive weedy exotics.

4.3.4.2 Impacts to Vegetation from Implementing Other Programs

Wildlife

Implementation of the restoration component of the wildlife program would have minor negative to moderate positive impacts to vegetation. Over the life of the plan, the restoration of approximately 1,000 acres of saltbush and 5 acres of riparian areas as wildlife habitat would benefit saltbush, riparian plants, and associated native vegetation. Although the number of acres targeted for restoration under all action alternative is less than that proposed under the No Action Alternative, it is a more realistic assessment of the amount of acres that BLM could reasonably restore during the specified time period and is based on experience with restoration since completion of the last management plan (BLM 1996).

The continuation of current grazing regimes in vernal pool areas would have negative impacts to vernal pool vegetation and would be expected to have negative impacts to the native annual flora in the surrounding pasture (Christian et al., in preparation). However, the biological SOPs (Appendix O) require that actions, and specifically livestock authorizations, be designed to protect vernal pool habitat to ensure that impacts are minimized. Livestock grazing as a tool to modify vegetation for the benefit of animal species is expected to have negative impacts to vegetation. The grazing model currently proposed to manage vegetation for animal habitat follows the traditional practice of grazing during the green season, when most plants are growing and producing seed. However, the frequency of grazing would be less than historic use in the area and what would occur under the No Action Alternative. See discussion in the Grazing section below for a more complete description of the impacts to vegetation from grazing under the proposed plan. Actions taken to control exotic animal species would help protect vulnerable riparian areas, populations of native bulbs, and other vegetation resources from soil damage from wild pigs.

Fire and Fuels Management

Implementation of the fire and fuels management program would have minor to major temporary localized effects, but fire management, overall, would have positive impacts to vegetation. Over a 10-year period, it is anticipated that approximately 5,000 acres of native vegetation would be consumed by a series of small wildland fires. There is also the possibility of a large wildfire burning as much as 5,000 acres. Under the proposed plan (Alternative 2), approximately four acres of habitat disturbance per year would be associated with wildland fire suppression. The impacts to vegetation would depend on the fire location, periodicity, and intensity. Grassland communities would benefit from occasional burning, but shrub and woodland communities could be converted into nonnative-dominated grassland if fires burn hot or if the fire return interval is short. Saltbush stands growing within or adjacent to grasslands could be particularly vulnerable to damage by fire. The biological SOPs require that fire and fuels management activities include measures to protect shrub communities and oaks from devastating fire. Actions implemented under these SOPs would reduce impacts to shrub and oak communities. Since most wildland

fires occur during the dry season, the potential impacts to the Monument's rare plants would be to seeds on or close to the soil surface.

Three hundred and fifty acres per year would be mowed to clear areas along roads and around Monument structures and facilities. Over the life of the plan, up to 10 acres of roadside Russian thistle, trees, and shrubs would be trimmed. Prescribed fires targeting biological resource objectives (for example, restoration of native vegetation) would treat an average of 500 acres per year. Although firebreaks would disturb an average of 2.5 miles per year, much of this would utilize existing roads, so the actual impact to native habitat would be minimized. In addition, many of the areas targeted for prescribed burns were previously disturbed by farming. Overall, the prescribed burns would be of benefit to native plant species.

Air Quality

Lowering dust production by closing roads during dry periods would have major localized positive impacts to vegetation by removing the negative impacts associated with dust. Also, use of gravel, paving, and chemical binders to reduce dust would benefit vegetation.

Soils

Implementation of the soils program would have minor to moderate positive impacts to vegetation. Conserving areas of sensitive soils will help protect vegetation, rare plants, biological crusts, and other vegetation resources. By taking actions to limit erosion, plant habitat would be preserved and there would be less negative impacts on plants and biological soil crusts from dust.

Water

Implementation of the water program would have minor to major positive impacts to vegetation. Protecting watersheds and surface and subsurface water sources will have a generalized benefit to native and other vegetation, and would be critical in maintaining the integrity of Soda Lake and the Monument's vernal pools. Fencing vulnerable springs and removing nonnative species will increase the native component of spring vegetation.

Geology and Paleontology

Implementation of the geology and paleontology program would have some temporary minor to moderate localized negative impacts, but overall would have positive impacts to vegetation. Protection of the Monument's geological formations and landforms would help protect vegetation, especially habitat in the vicinity of Soda Lake. Research activities associated with the Monument's paleontological and geological resources would temporarily disturb a small amount of habitat. Research in the Soda Lake area would have mitigation measures to minimize impacts to rare plants such as *Delphinium recurvatum* and *Lepidium jaredii* ssp. *jaredii*. Other proposed paleontological/geological resource actions are expected to have negligible or no impacts to vegetation. Nonnative plants may be introduced and spread by research equipment, vehicles, and personnel. However, under the Biological SOPs (Appendix O), BLM would work with research permittees to employ management practices to reduce this potential.

Cultural Resources

Implementation of the cultural resources program would have minor to major localized negative effects, but overall, would have positive impacts to vegetation. The one-half to one mile of proposed road re-alignments needed to protect cultural resources would result in a small loss of habitat (less than 2 acres),

offset by the restoration of similar habitat in the closed and restored sections. Restricting roads near sensitive cultural sites to administrative use would help protect vegetation from dust and human impacts.

Closing or restricting public access in areas of sensitive cultural resources would help to protect vegetation by limiting human impacts. A small amount of vegetation would be impacted during fence construction. Tours and regulated self-guided visits are expected to result in a slight amount of vegetation disturbance via foot travel in the vicinity of Painted Rock and the KCL basalt cone. Education activities would be expected to disturb vegetation at eight sites for a total of ½ acre. The installation of signs would result in a negligible amount of disturbance to vegetation. Temporary disturbance associated with the restoration and relocation of historical farming equipment and structures would impact a minor amount of vegetation, but would not result in a loss of habitat. The razing and removal of one to three unwanted structures would cause temporary disturbance, but would ultimately result in a slight increase in natural habitat. Other cultural resource actions proposed under the proposed plan (Alternative 2) are expected to have negligible or no impacts to vegetation.

WSA/Lands with Wilderness Characteristics

The wilderness resource actions in the proposed plan (Alternative 2) are expected to be beneficial to vegetation by protecting 44,369 acres of habitat as lands with wilderness characteristics. Due to minimum requirements guidelines and objectives associated with wilderness characteristic management, some vegetation management actions may require use of non-mechanized means, or not be completed because they are not appropriate in areas managed for wilderness characteristics.

Livestock Grazing

Introduction

The effects of livestock grazing in CPNM ecosystems have been a topic of considerable public concern and controversy throughout the RMP process. To meet the intent of NEPA to provide a scientific and analytical basis for decision-making (40 CFR 1502.14-16), the impact discussion below incorporates (1) background information regarding the general effects of livestock grazing on vegetation in ecosystems within or similar to those in the CPNM, and (2) reasonably foreseeable impacts that would occur under implementation of the proposed plan. The general effects discussion under (1) also serves as a description of the impacts that could occur and for which the monitoring and mitigating measures in the proposed plan alternative were designed. The discussion of reasonably foreseeable impacts under the proposed plan is further broken down to describe the impacts under the two types of grazing authorizations: (1) use of grazing as a tool to manage animal habitat, and (2) Section 15 allotments. Each of these authorizations affects different parts of the planning area. Also, although described in this section, use of grazing to manage animal habitat is actually an impact of wildlife habitat management.

General Impacts of Livestock Grazing on Native Vegetation

Grazing affects botanical resources via the consumption of forage, the impacts of hooves, the deposition of urine and manure, and the dispersal of seeds by fur and manure. The effects on botanical resources tend to be related to the intensity and timing of grazing: higher levels and green season grazing tend to have greater impacts since, for most plants, the major growing and reproductive season coincides with the winter-spring “green season.” Because biological processes, such as soil development, are much slower in arid environments, impacts from livestock grazing are more pronounced and long-lasting than in areas with more precipitation. Additional impacts to botanical resources are related to infrastructure associated with grazing operations, such as water systems, roads, and salt licks.

Livestock foraging patterns affect botanical resources in a number of ways. Because animals tend to be selective in what they eat, grazing can influence the composition and diversity of plants within a pasture (Christian et al., in preparation; DiTomaso 2000; Kinucan and Smeins 1992; Rook and Tallowin 2003; Sternberg et al. 2003; Stromberg and Griffin 1996). As with all environmental influences, some plants benefit, while others are negatively impacted. Livestock show a preference for palatable species (Vesk and Westoby 2001; USDA 1937). Unpalatable plants with chemical or mechanical defenses are grazed less or avoided completely and therefore tend to increase under a grazing regime (DiTomaso 2000; Kingsbury 1964; Khumalo et al. 2007; McIntyre et al. 2003; Provenza 2003; Twisselmann 1967). Native species with chemical defenses include snakeweed (*Gutierrezia californica*), interior goldenbush (*Ericameria linearifolia*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), locoweeds (*Astragalus* spp.), and larkspur (*Delphinium* spp.), although the latter are readily eaten by sheep (Allison 1990; Fusco et al. 1995; Kingsbury 1964; Twisselmann 1956; USDA 1937). The summer annual doveweed (*Eremocarpus setigerus*) has stiff hairs that deter grazing. All of these unpalatable species do well in grazed areas. Shorter species also tend to be favored over taller because they seem to withstand herbivory better (Branson 1953; Díaz et al. 2001; Noy-Meir et al. 1989), as long as grazing is not too heavy. Favored also are species with an indeterminate and branching growth pattern that tolerates a fair amount of herbivory (Kimball and Schiffman 2003; Mack and Thompson 1982). This growth pattern may be one reason why the introduced filaree (*Erodium cicutarium*) does so well in grazed pastures, despite it being one of the earliest available forages after the onset of fall rains. In many grasses, the growth meristem is at the base of the plant, where it is relatively protected from grazing. The reason why many of our introduced Mediterranean weeds do so well in grazing systems may be due to these growth patterns and the species' long association with cattle and sheep (Noy-Meir et al. 1989).

An additional concern is the potential effect of forage removal on the native seed bank. Grazing, by removing biomass, lowers seed production, either by direct removal of reproductive structures (flowers and fruits) or by depressing photosynthetic output (Anderson and Frank 2003; Kinucan and Smeins 1992; Sternberg et al. 2003; Wright 1967). For some native annual plants, recharge of the seed bank may only happen occasionally, in those years in which conditions are optimum for that particular species (Wilson 2007). Grazing during this type of year may have a greater impact on the seed bank than at other times. Also, what is really important is not what species are present in a given year, as much as how much recharge to the seed bank occurs. What appears in any given year is a representation of past seed bank recharge interacting with climate patterns. An abundant wildflower display is more an indication of past events than representative of current management. It may take many, many years for the disturbance from the cultivation and grazing history on the Carrizo to completely work itself out of the system. The loss of an annual plant from a site may be masked by "spending" the seed bank when there is not sufficient recharge. In addition, some of these declines may be happening so slowly that the loss is not readily apparent, especially when obscured by the natural yearly variation in annual plant populations. To determine an annual plant's population trend requires many years of data, unavailable for most species; the only documentation for a loss may be an observation that the wildflower displays don't seem like they did in the "old days." Any action that impacts seed production has consequences for survival of local plant populations. Unfortunately, because seed banks are so difficult to monitor, population changes as a result of lowered seed production (due to grazing or other habitat-disturbing activities) may not be apparent until significant loss has occurred. The loss in some species may be further obscured by an abundant presence of other native species that are adapted to, or tolerant of, regular disturbance (for example, *Amsinckia* spp.).

Grazing may limit the spread or lower the intensity of wildland fire by reducing fine fuels, especially nonnative grasses. This would be of benefit to the Monument's shrub and woodland plant communities, which have little in the way of fire-adapted species. However, because grazing results in the loss of crust communities (Belnap et al. 2007; Memmott et al. 1998) and favors nonnative grasses over native annual

herbs (Christian et al., in preparation), grazing also serves to perpetuate the fire-prone nonnative grassland instead of the ostensibly less-burnable native vegetation.

The BLM-directed grazing study on the Monument (Christian et al., in preparation) indicated that grazing favored nonnative annual grasses and depressed native annual herbs. In terms of relative cover and diversity, native annual plants did better in ungrazed pastures than in pastures grazed by cattle during the green season (November–April). This was the same conclusion reached from a previous study involving the response of vegetation to clipping (Kimball and Schiffman 2003). In the BLM study, grazing had the greatest negative effect on the native annual flora in the upper Sonoran subshrub scrub vegetation. The study results for two native bunchgrass species, one-sided bluegrass (*Poa secunda* ssp. *secunda*) and nodding needlegrass (*Nasella cernua*), was variable. Overall, the effect of grazing on *Poa* was negative; however, in some soils, the species did better. Also, grazing appeared to favor *Poa* in upper Sonoran subshrub scrub vegetation, possibly as a result of the effects on the native annual flora. For *Nasella*, there was no overall effect but the species did better in one soil and worse in two others under the grazing regime. Grazing often results in a shift in vegetation towards those species which are less-palatable, adapted to disturbed soils, and/or with weedy tendencies. The amount of shift depends on the intensity, frequency, and timing of the livestock use.

Livestock movement across a landscape affects soil characteristics, damages plants and habitat, and can affect water flow patterns. Hoof action disturbs soils, which creates dust, produces habitat for weedy species, and can result in the loss of mycorrhizae and crust communities (Belnap et al. 2007; Memmott et al. 1998). Soils disturbed by livestock can be further degraded by wind erosion, the effects of which can be long-lasting (Neff et al. 2005). Livestock also compact soils, which decreases water infiltration. Grazing, by reducing plant cover, increases soil surface temperatures (Bainbridge 2007), further decreasing the amount of moisture in the soil. Livestock trails can act as conduits for water, which changes the local hydrology and may result in erosion and gulying. Movement of livestock across steep slopes results in a generalized net movement of soil down slope, one hoof print at a time. The terracing of slopes creates a lot of microtopography and, initially, may act to slow the movement of water down slope, allowing more time for infiltration and less opportunity for erosion, assuming that trails are perpendicular to the slope. Repeated travel by livestock across these slopes, however, results in net soil loss downward. The loss of soils from these slopes leads to a loss of important habitat since thinner soils will not support the tree and shrub communities previously found in these areas. This effect is long-lasting, since soil development in arid environments can take thousands of years.

Hooves also disrupt biological crusts and create habitat for introduced weedy grasses. Depending on the amount of trampling, native plants can be damaged or eliminated altogether, especially in areas where livestock congregate or create trails (Brooks 2000, 2003, 2006; Fusco et al. 1995; Mack and Thompson 1982). Areas near troughs and corrals are often devoid of native species and can act as source points for weedy species to invade surrounding natural habitat. Compacted soil means that water will not infiltrate easily and roots may have difficulty penetrating (McIlvanie 1942).

The deposition of urine and manure increases soil nitrogen and moisture levels, generally favoring nonnative weedy species (Brooks 2003; Parker and Muller 1982). Impacts to vegetation tend to be most pronounced near troughs and other locations where livestock congregate. These same sites tend to have high levels of soil compaction and disturbance. Vegetation around trough areas on the Monument are often composed of Mediterranean species such as cheeseweed (*Malva parviflora*), foxtail (*Hordeum murinum* ssp. *leporinum*), bromes (*Bromus* spp.), horehound (*Marrubium vulgare*), and mustards (various Brassicaceae) and may serve as points of spread into surrounding vegetation. Away from these congregation areas, the deposition of urine and manure has highly localized effects, but little overall effect on native vegetation.

Grazing has been found to be a factor in the proliferation of nonnative plants. Grazing, by disturbing soils, creates habitat for weedy species. Livestock impact native vegetation by dispersing seeds via fur and manure (Janzen 1984; Lacey 1987; Schiffman 1997; Belsky and Gelbard 2000; Jones 2001). Nonnative weedy species may be introduced when animals are first brought onto a pasture and existing weed populations may be spread by animal movement across the landscape. Native species may be spread in a similar manner.

Additional impacts to botanical resources stem from infrastructure associated with grazing operations. Livestock watering systems that rely on springs divert water from native vegetation. Roads eliminate potential habitat for native vegetation, disrupt overland water flow, and serve as a source of dust (Forman and Alexander 1998). Salt licks create small, localized zones too salty to support plants.

Livestock foraging behavior affects native shrubs in two ways: (1) leaves and reproductive tissues may be consumed, and (2) shrub architecture may be modified due to mechanical damage incurred as livestock forage on the annual vegetation growing underneath the shrub canopy. Cattle mostly forage on grasses and annual forbs; however, during the dry season, they will often switch to, or at least consume some, shrub species. Saltbush (*Atriplex* spp.) can be a good forage species during the summer months (Twisselmann 1956, 1967; USDA 1937) when grasses are dry; however, livestock will graze the shrub during the spring, as well (D. Kearns, personal observation, May 2006). Scrub oak (*Quercus john-tuckeri*) can also be good forage during those periods before the onset of winter rains (USDA 1937). The effect on these species is entirely dependent on the intensity of grazing. Hedging of shrubs, either by consumption or mechanical damage, can occur during drought conditions or in areas where livestock tend to congregate. Annual vegetation is more lush underneath shrubs than between them and, as such, can be attractive forage for livestock. Overall, shrub populations tend to show more damage closer to water troughs (Brooks 2006). Trampling by livestock can damage or kill shrub seedlings. The soil disturbance created by livestock may provide germination sites for some species; however, these tend to be either weedy nonnative annuals, weedy native annuals such as *Amsinckia* spp., or native disturbance-adapted shrubs such as rabbitbrush and snakeweed.

Some of the Monument's oak trees have been impacted as a result of past and present cattle foraging behavior. Grazing on the oaks produces the typical pasture tree architecture, where all branches have been trimmed up as high cattle can reach. Cattle foraging and loafing beneath trees can result in the removal of the herbaceous understory, the elimination of leaf litter and mulch, erosion of the soil, and, as a consequence, a loss of understory habitat and its associated biota (including herbaceous plants, microfauna, fungi, and others) (Borchert et al. 1989; Dahlgren et al. 1997; Parker and Muller 1982). This can also hasten the death of individual trees and eliminates habitat for oak seedlings (Adams et al. 1992; Momen et al. 1994). Livestock also consume oak seedlings and acorns, further impacting oak reproduction and recruitment (Borchert et al. 1989). Spring and summer grazing results in the lowest survival rates for blue oak seedlings (Hall et al. 1992). The emergence of blue oak seedlings was highest during a season of above average precipitation (Adams et al. 1992) when livestock are most likely to be present and for the longest period of time, thus increasing the likelihood that seedlings will be impacted. Grazing, by reducing fine fuels in adjacent grasslands and by trimming the lower branches, can help protect oaks against wildland fires.

Riparian areas, such as springs and seeps, are vulnerable to damage by livestock. Because these sites support lush vegetation and tend to be surrounded by much drier habitat, they are attractive to foraging livestock. If not fenced, soils can become hoof-pocked, the riparian vegetation trampled, and the palatable species eaten. Unpalatable species such as bull thistle (*Cirsium vulgare*) and salt cedar (*Tamarix* spp.) may become established and/or spread.

Some vernal pool vegetation may be damaged via trampling or grazing by livestock; however, grazing has been shown to be of overall benefit to native plants in some Central Valley vernal pools by lessening the competitive impact of introduced weedy grasses along the pool margins (Marty 2005). Whether this would be true for the depauperate flora associated with the Monument's vernal pools is uncertain. The few obligate pool species tend to be of short stature and are unlikely to be consumed as forage; however, trampling may be a problem.

Crust communities, including those associated with some of the vernal pools, would be vulnerable to damage by trampling. Nesting areas for native solitary bees (important pollinators) within these crust areas may also be degraded by soil disturbance associated with grazing. Manure deposited on crust surfaces shades and kills the photosynthetic component of crust biota (cyanobacteria, mosses, and lichens). Hoof prints disrupt the crust surface and provide microhabitat for introduced annual grasses (D. Kearns, BLM, personal observation, 5 March 2004). Where they are present, giant kangaroo rats create so much disturbance on their precincts that soil crusts are unlikely to develop, regardless of whether an area is grazed or not; however, inter-precinct areas may be potential habitat for crust species.

Impacts from Management of Section 15 Allotments

Under the proposed plan (Alternative 2), about 55,000 acres would be available for grazing within Section 15 allotments. Implementation of the Section 15 grazing program could have minor to moderate negative impacts to vegetation, depending on the location and intensity of grazing. Negative effects would be minimized by implementation of plan objectives such as “protect vulnerable habitat by changing management prescriptions,” “protect [plants] from negative impacts from livestock grazing,” and “restrict livestock grazing in saltbush and other shrub communities.” Also, application of the grazing guidelines to meet the vegetation objectives in the Conservation Target Table would serve to mitigate negative impacts. Inventory and monitoring, as part of adaptive management, would help identify locations of important botanical resources, quantify the impacts from livestock, and facilitate management, including adjustments of livestock authorizations as necessary, to minimize negative impacts. In addition, BLM grazing regulations state that “Livestock grazing may be temporarily delayed, discontinued or modified to allow for the reproduction, establishment, or restoration of vigor of plants, provide for the improvement of riparian areas to proper functioning condition, or for the protection of other rangeland resources and their values consistent with objectives of applicable land use plans” (43 CFR 4130.3-2 (f)).

Generally, the Section 15 pastures are in the Caliente and Tumbler Ranges and the vegetation management pastures are on the valley floor. It is anticipated that forage conditions would allow grazing on all Section 15 allotments on an average of 5 years out of 10, a decrease from the no action alternative where sites may have been grazed 8 out of 10 years. As a result, impacts to vegetation resources are expected to be reduced when compared to past and present levels. In addition, native vegetation in these pastures is expected to benefit, as compared to the no action alternative. Grazing impacts associated with soil disturbance are expected to continue at a reduced scale than under the No Action Alternative. In accordance with this plan, monitoring would help determine the impacts to soils under the proposed plan alternative and, if necessary, management adapted to minimize impacts to soil resources. For other botanical resources, monitoring of grazing impacts would help identify where management might need adjustment. Because of the uncertainty of the impacts to botanical resources under the proposed Section 15 grazing prescriptions, monitoring would help provide the information needed to make informed decisions regarding adjustments to grazing management to minimize impacts to the Monument's flora.

Grazing prescriptions would still allow utilization of shrub species, but less frequently than compared to current management. This would depress seed production but should still allow for shrub regeneration and expansion into appropriate habitat. Shrub seedlings should have a higher chance of survival under the proposed plan because grazing would be allowed in fewer years and not at all in drier years. Pastures with

target shrubs such as saltbrush and ephedra have summer restrictions to help minimize any potential impacts. Impacts to *Ephedra* stands are of particular concern. Although there is a fair amount of *Ephedra* scrubland, there seems to be little, if any recruitment. A number of the *Ephedra* shrubs show damage from past use by livestock. Some specimens have an unnatural tree form. With less grazing than previously, the *Ephedra* populations within Section 15 allotments should improve; however, whether the fewer years of grazing would result in new shrubs is unknown. Five out of ten years grazing use may still be too high for successful recruitment, or possibly, the recruitment of new individuals may be tied to climatic conditions or some habitat variable that cannot be affected by management. *Ephedra* populations are targeted for monitoring in this plan. In addition, recruitment studies of the species have been initiated (P. Schiffman, personal communication, May 2009). The plan requires BLM to monitor target plants and communities to determine status and trends, identify potential and current threats, and initiate management actions to abate threats, as well as to protect these communities from negative impacts from livestock. Therefore, if management actions or grazing authorizations are determined to be the cause of continuing impacts to ephedra, they would be adjusted to minimize impacts.

Where livestock congregate—troughs, corrals, trails, natural water sources, and shade trees—native vegetation tends to be eliminated and often replaced by weedy nonnatives; these impacts, while intense, are localized. Soil loss from steep hillsides would continue. Again, these impacts would be reduced from current levels. Also, the proposed plan soil objectives and the biology SOPs, as well as the grazing objectives, require BLM to take corrective action including relocating livestock management facilities and fencing sensitive locations where impacts are identified. Under the proposed plan, grazing would never occur on about 85,000 acres.

Impacts from Grazing to Manage Vegetation for Animal Habitat

Implementation of the use of grazing to manage vegetation for animal habitat could have minor to moderate, possibly major, negative impacts to native vegetation, depending on the location and intensity of grazing. However, the identification of core areas for threatened and endangered species management, along with provisions for temporary fencing and other actions, would help focus impacts on those areas where threatened and endangered animal species management is most important. In other words, this “trade-off” of allowing impacts to vegetation while managing habitat structure for wildlife would be targeted in the core areas. As discussed in the introduction above, and in other sections of the plan, livestock grazing is one of the main management tools used by BLM to modify vegetation for animal habitat; however, within CPNM ecosystems, it is shown to have detrimental impacts to botanical resources (Christian et al., in preparation; Prugh and Brashares 2008). Both of these studies used a grazing level that is higher than the two in ten year frequency anticipated for wildlife habitat management, so future impacts to native vegetation would be expected to be lower, but to what degree is currently unknown. Following BLM’s adaptive management goals, vegetation will be monitored in areas where grazing is used as a tool for animal habitat. In this way, any negative impacts to vegetation can be identified and grazing parameters modified to minimize impacts. The vegetation management section of the proposed plan alternative includes actions to mitigate potential impacts including the following:

1. Monitor target plants and communities to determine status and trends,
2. Identify potential and current threats,
3. Initiate management actions to abate threats,
4. Support research related to the management of CPNM plant communities and individual plant species, and
5. Initiate studies to define important community parameters and design threshold values for management actions.

Under the proposed plan, about 117,500 acres would be available for grazing to meet specific biological objectives (modifying habitat for animals) within the vegetation management areas. Grazing to manage vegetation for animal habitat would result in some impacts to native vegetation and other botanical resources, but they would be less than under the No Action Alternative, since less acreage overall would be grazed. Although there is more acreage available for the use of grazing as a vegetation management tool under the proposed plan, the use of livestock as a grazing tool would be used only occasionally in the core areas, and rarely outside the core areas (only if target animal populations are in danger of disappearing from the Monument and it has been shown that grazing has been of benefit to target animal populations).

Following BLM's adaptive management goals, botanical resources will be monitored in areas where grazing is used to manage vegetation for animal habitat. In this way, any negative impacts to vegetation can be identified and grazing parameters modified to minimize impacts. If necessary to balance wildlife and vegetation management goals (to optimize animal benefits while minimizing botanical impacts), mitigating measures would be implemented such as exclusionary fencing to protect rare plant populations, riparian areas, shrub communities, oak trees, and other vulnerable resources. It may be that using grazing to achieve desired goals for listed animals cannot be accomplished without impacts to botanical resources, but the goal is to develop vegetation management that benefits target species that are objects of the Proclamation without damage to other Monument resources. The effects on vegetation would depend on the parameters of how grazing would be applied as a tool. Trials and evaluations of other types of grazing than that employed in the recent past to manage vegetation are expected to have a net benefit to vegetation because it would help design vegetation treatments that would minimize the negative effects of grazing to the native vegetation, while still achieving the goal of maintaining healthy populations of listed animals. Continued development and refinement of the Conservation Target Table, information from monitoring studies, and the use of other adaptive management tools are expected to result in better and more precise application of vegetation management tools and, thus, minimize negative impacts to native vegetation.

Under the proposed plan, approximately 58,000 acres would be available for grazing for the purposes of managing core habitat for San Joaquin Valley listed species (core areas). Core area pastures are currently much larger than the core area boundaries because they are based on historic fence locations, therefore extraneous acreage would be grazed. Under the proposed plan, pasture fences would be moved, so the acreage grazed for animal habitat could be reduced to more closely approximate core-areas over the long term. Because livestock do not graze evenly, some vegetation would be expected to be more heavily grazed, while vegetation in less- or non-visited areas would be less impacted. Seed bank recharge would be decreased as livestock remove plants and impact reproduction, but would be expected to be less than in the no action alternative. Because annual plants are highly variable in their response to climate and precipitation, each year is different in terms of seed bank recharge and in terms of its importance to the viability of the population in that locale. Because of this variability, it is difficult to determine the impacts of a single year's grazing on an annual species' seed bank resources. Grazing to manage core species outside the core areas could also occur if needed to prevent target animal populations from disappearing from the Monument, but would be used only if grazing has been shown to be an effective management tool (see decision tree in Figure 2.4-1).

Several small tracts of land (less than one percent of public land acreage within the planning area) have localized grazing impacts that would differ from those of the remainder of the CPNM. These management differences are based on administrative needs, ownership patterns, and adjoining private land uses.

There are 606 acres that could be grazed by horses associated with managing vegetation for animal habitat. Impacts to vegetation in these pastures would be expected to be similar to impacts in other areas grazed to modify habitat for target animals.

There are also 1,073 acres within the Gun Club pasture where the grazing prescription is to allow grazing in conjunction with private lands (that is, grazed the same as the adjacent private lands). There are an additional 160 acres in the Bernard pasture that are administered under an exchange of use agreement. The current grazing prescriptions are for cattle to graze from May to September and be removed when the residual dry matter is a minimum of 1,000 pounds per acre. Impacts to botanical resources on these two pastures would be similar to those discussed under grazing for vegetation management. The 160 acres of private land that would be administered with the BLM acreage in the exchange of use fall within the Holding pasture. The Holding pasture is included in the core area, so grazing impacts here would be expected to be similar to those discussed under grazing for vegetation management.

For giant kangaroo rats, the core pastures might be grazed only when two conditions are met: (1) when nonnative grasses reach undesirable levels (on an average, about 2 years out of 10); and (2) when kangaroo rat populations are below target levels (20 per hectare). It is expected that, for kangaroo rat habitat, grazing would generally not be employed to reduce vegetative structure, because as long as kangaroo rat populations are of sufficient size, it appears that these mammals can successfully modify the vegetation for their needs. Because of this, it is expected that grazing to manage kangaroo rat habitat will be a rare event, and as such, overall impacts to native vegetation are expected to be minimal.

The proposal to manage large tracts of the core areas for blunt-nosed leopard lizard habitat (43,520 acres) has the potential to result in major impacts to the native vegetation in those areas. Because it is thought that blunt-nosed leopard lizards need to have lower vegetation structure and that the kangaroo rats cannot maintain that desired level of nonnative grasses in wet years, the proposed plan includes prescriptions to manage core areas for blunt-nosed leopard lizard habitat by grazing vegetation to a level of 500 pounds of residual dry matter per acre when herbaceous biomass is greater than 1,000 pounds per acre. Based on past precipitation patterns, it is anticipated that grazing for blunt-nosed leopard lizard habitat might occur on an average of 2 out of 10 years. Because these wet years are also years of high vegetative reproduction, grazing to the 500-pound per acre level is expected to lower plant reproductive output, impacting pollinators and diminishing the recharge of the native annual seed bank. Although this is a lower frequency of grazing than in the no action alternative, there would still be impacts to the native annual flora, with potentially long-term consequences to the native seed bank. This impact would be considered a tradeoff to manage blunt-nose leopard lizards. This species is an object of the Proclamation and is federally listed under the *Endangered Species Act*. Mitigation for these impacts could include a shift to dry-season grazing to allow the native annuals to produce seed. Additional mitigation would be to employ methods to manage habitat for lizards such as prescribed burning, the creation of low-structure zones by mowing, and the restoration of biological crust communities. The continued soil disturbance from livestock used to treat core areas may also inhibit the natural restoration of the biological crust community and help perpetuate the dominance of weedy introduced annual grasses.

Under the proposed plan (Alternative 2), the existing grazing regime would be applied for known locations of the Monument's listed vernal pool species. Vernal pool monitoring would be designed for the early detection of negative changes, and action would be taken to remedy negative changes. If monitoring or new information indicates a change is appropriate, the grazing treatment would be modified or discontinued. To mitigate impacts to the surrounding native vegetation, fencing may be employed to limit the grazing treatment to the targeted vernal pool zones. Crust communities and native pollinator habitat would be impacted by trampling and manure deposition from livestock. Some vernal pools would continue to not be grazed and, therefore, vegetation in these areas would not be affected.

The area around Soda Lake is unavailable for grazing, so there would be no impacts to the surrounding vegetation, nor to the area's rare plants; however, since existing pasture fences do not follow habitat boundaries, some sensitive areas on the margins of the Soda Lake ecosystem may be grazed due to being

within current pasture boundaries. Proposed changes in fencing to more closely approximate core area boundaries may help alleviate this problem.

Recreation and Administrative Facilities

Implementation of the recreation program would have overall minor to moderate positive impacts to vegetation, but some areas may experience minor to major localized negative impacts from recreational activities. Education directed at the appreciation and conservation of natural resources would benefit vegetation, as would education to combat negative/impacting uses. The focus on providing visitors a natural landscape experience should also help benefit vegetation. Education targeting motorized recreational visitors would help instill appropriate behavior. Providing potable water sources would increase local impacts to vegetation, since these areas would experience an increase in visitor use. Activities that would increase public visitation would be expected to increase impacts to vegetation. Impacts would be greatest if increased visitation is not coupled with an increase in management presence. The development of driving tours would be expected to increase dust impacts to adjacent vegetation, although by building an appreciation of the natural landscape, it could have indirect beneficial impacts. The publication and dissemination of wildflower viewing information would have some localized impacts due to trampling and picking of plants, but would be expected to have an overall benefit to vegetation by supporting the public's appreciation for natural beauty and would help the public to incorporate a feeling of ownership for the Monument.

Under the proposed plan (Alternative 2), the Primitive zone would encompass 62,455 acres, which is less than under Alternative 1, but more than Alternative 3. Dispersed camping would be allowed in the Backcountry zone, which would be expected to impact vegetation, depending on the location of campsites and intensity of use (sites with resource damage would be modified or closed, reducing long-term impacts). Establishing trails should help protect vegetation by directing visitor impacts away from sensitive resources.

Travel Management

Under the proposed plan, 184 miles of roads would be open to public motorized travel and 42 miles would be closed. The 42 miles of closed roads would revegetate and benefit vegetation if active weed management actions are employed until native vegetation is reestablished. Impacts to vegetation from roads would be higher than under Alternative 1, but lower than present conditions. The designation that only street-legal vehicles will be allowed in the Monument would help protect vegetation by lessening the chance of off-road vehicle damage. This action should also help in lessening dust from recreational riders.

Minerals

Impacts from the minerals program would range from minor to major localized negative effects. Disturbance associated with oil and gas exploration and extraction would adversely affect native vegetation; however, mitigation measures would help protect sensitive and listed species and other important vegetation. It is anticipated that approximately 23 acres of vegetation would be lost due to conversion to well pad or access road, with the affected vegetation community depending on the location of the oil and gas activities. By encouraging operators to reclaim unneeded disturbed areas, additional native habitat would be restored. Dust generated by road and pad construction, maintenance, and use would negatively affect nearby vegetation by interfering with photosynthesis and reproduction; the degree of impairment would depend on the timing and amount of dust generated. Oil and gas activities would also create approximately 13 acres of temporary disturbance (including dust), afterward to be restored with native species. About 140 acres would have a minor amount of transient disturbance due to the boring of shot holes and associated cross-country travel during seismic exploration. Routes would be

designed to minimize negative and overall effects on vegetation. Because of standard mitigation measures, oil and gas activities are expected to have negligible or no impacts to rare plants. Additional weeds may be introduced and spread via oilfield equipment, vehicles, and personnel. Disturbed soils created during pad and road construction would provide habitat for weedy species and access for additional human impacts. Pads and roads, especially if they do not have a lot of use, would also provide bare substrate, possibly suitable as nesting habitat for ground-nesting solitary bees (pollinators of native plants).

Lands and Realty

Impacts from the lands and realty program would depend on the type of action. Land acquisition actions would result in major beneficial positive effects. Development-oriented actions would be expected to result in minor to major negative impacts on a localized scale. Proposed acquisitions would result in additional acres of habitat preserved under public ownership. The benefit to specific vegetation resources would depend on what property is acquired. Rights-of-way and other realty actions would eliminate a small amount of vegetation in the project footprint and would damage adjacent vegetation due to dust generated by the development and use of the project. Little-used roads may provide nesting habitat for ground-nesting solitary bees (pollinators of native plants). Vegetation could also be affected by the alteration of water flow patterns due to road construction and orientation. Impacts to rare plants would be avoided by mitigation measures. Filming permits may result in temporary disturbance and have the potential to introduce weed seeds to the Monument. Right-of-way actions would result in a loss or degradation of 5 to 30 acres of habitat via disturbance; however, SOPs and mitigation measures would be expected to result in a net benefit to vegetation.

Proposed acquisitions would result in up to 30,000 additional acres of habitat preserved under public ownership. Because land acquisitions would be targeting specific biological targets, some rare plant populations (especially *Caulanthus californicus*) and other vegetation resources would benefit by gaining public protection. The benefit to specific vegetation resources would depend on what property is acquired. Modification of two communications sites would not be expected to change impacts to vegetation. Other realty actions proposed under the proposed plan (Alternative 2) are expected to have negligible or no impacts to vegetation.

Climate Change Impacts

Note that the anticipated influence of climate change on the resource values of the planning area was included in this chapter in the Draft RMP/EIS. However, this information has been moved to Chapter 3 (Affected Environment) in this PRMP/FEIS to better reflect current guidance for NEPA analysis of climate change; that is, that climate change be considered as a dynamic component of the affected environment discussion.

4.3.4.3 Impacts to Rare Plants under the Proposed Plan

Assumptions Used for the Analysis

Rare plants are rare for a variety of reasons. Some have always been rare because they are restricted to specialized habitats of limited extent, like vernal pools or serpentine soils. Some are rare because they are new evolutionary lineages, as appears to be the case with many rare *Astragalus* species. Some are rare because much of their habitat has been converted to agriculture or lost to development associated with the expansion of humanity across the landscape. Some plants are rare because of competition from nonnative weedy species and some are rare because they are at the losing end of the evolutionary race and cannot

adapt to changing environmental conditions. All of these situations are, in one way or another, part of the reasons why the Carrizo has so many rare plants.

Information on rare plant populations within the Monument is incomplete. It is also generally unknown where rare plant populations were on the Monument prior to the habitat alteration due to farming, grazing, and other human activities. Site-specific documentation about how current and past management actions impact our rare plants is also limited.

For many of the impacts, rare plants are affected in a similar manner to other vegetation. Because their populations tend to be small and/or geographically or edaphically restricted, however, the consequences of impacts tend to be more severe. Loss of a single population can have a significant impact to the genetic integrity, and even to the continued existence of a species. For a number of rare plants, the Carrizo represents a major portion of the known populations or is the only habitat in public ownership. As more and more of California is impacted by the actions of an expanding human population, areas like the Carrizo will become more important in preserving California's rare plants.

This analysis assumes that adequate funding would be available to expand inventories of rare plants to minimize impacts of implementation of other plan actions.

Incomplete Information

For most of the rare plants on the Monument, there is limited information available. Good population data and distribution maps are available for only a few species and there have been few recent surveys. For nearly all of the Monument's rare plants, little is known about habitat preferences and about seasonal cues for germination, growth and flowering; and virtually nothing is known about pollinators. There is enough information available to allow for analysis of potential impacts and to clearly delineate among the plan alternatives.

Programs with No or Negligible Impacts to Rare Plants

Visual resource management will have no or negligible impacts on rare plants under the proposed plan (Alternative 2).

Impacts to Rare Plants from Implementing the Vegetation Program

Implementation of the vegetation program would have minor to major positive impacts to rare plants. Up to 500 acres of vulnerable rare plant populations should benefit from protective fencing that will protect vegetation from livestock, lessen foot travel and equestrian use, and minimize OHV trespass. Restricting or eliminating grazing in specific pastures (for example, those with California jewelflower) will benefit rare plant species. The restoration and augmentation of 10 to 100 acres of rare plant habitat should help ensure the survival and health of targeted listed, BLM sensitive, and other rare plants. The multiplication of rare plant seed by growing off site will facilitate restoration of rare plant populations. The mapping and monitoring of rare plant populations will allow better management of rare plants and should help to protect populations from detrimental impacts. Protective measures for the general benefit of vegetation should also benefit rare plants. Protection of the shrub communities should help protect the rare plants found within. Restoration of native vegetation should benefit rare plants and will provide suitable habitat in which to restore extirpated rare plant populations or as locations were new rare plant populations can be established. Rare plants will benefit by the removal of nonnative competitors and invasive weedy exotics.

Impacts to Rare Plants from Implementing Other Programs

Wildlife

See impacts from livestock grazing section below for details concerning the general impacts to rare plants from grazing use as a vegetation management tool to manage wildlife habitat structure.

Occasional prescribed fires on 1,000 acres in pronghorn habitat are expected to be neutral or have an overall benefit to rare plants, unless fires are so hot that seed banks are compromised. Increasing native ungulate populations may place pressure on some rare plants, depending on where animals forage and congregate. The impacts of elk and pronghorn on rare plants are unknown, but impacts of individual animals are probably similar to cattle. If Monument herds reach target goals, some rare plant populations may be impacted and would need fencing or other herd management to minimize impacts.

Livestock Grazing

Detailed information on the 23 known rare plants will be incorporated into the Conservation Target Table to provide for specific implementation direction for their management and protection to meet RMP objectives. There are an additional 13 rare plants that have the potential of occurring on the Monument (Table 4.3-1). For most of these 36 plants, grazing has been identified as a threat (CNPS 2009). Further management actions/recommendations would be based on additional ecological information, as it becomes available for each species.

Impacts from Management of Section 15 Allotments

Grazing populations of rare plants would be expected to be detrimental. Fourteen rare plants have the potential to be found within Section 15 grazing allotments (Table 4.3-1). Five of these 14 species are currently known to exist in the CPNM. Existing rare plant surveys are not adequate to determine the presence or absence of these rare species; however, the Section 15 allotments include appropriate habitat. These plants are found in adjacent areas with similar habitat and would be expected to be present on the Monument as well. Impacts from grazing have been noted on the two species monitored (BLM 1991) and similar impacts are to be expected for the other rare species, many of which have been identified as threatened by grazing (CNPS 2009). Impacts are expected to be less than under the no action alternative, where grazing may occur on an average of 8 out of 10 years.

It is anticipated that forage conditions and proposed grazing management guidelines would allow grazing on Section 15 allotments on an average of 5 years out of 10. As a result, rare plant populations in these areas could be impacted during many of the good years for seed recharge. If grazed, populations could slowly decline as seed recharge falls below seed germination; the net result being depletion of the seed bank. Because this would happen slowly and be masked by the high annual variability of annual species appearance, it would not be apparent until a population is gone or severely diminished. As proposed in the plan, inventory and monitoring of rare plant locations, status, and trends, and the associated restriction of grazing in rare plant habitat, would be implemented to conserve rare plant seed banks.

Impacts from Grazing to Manage Vegetation for Animal Habitat

Implementation of the use of grazing as a tool under the wildlife program would have minor positive to major negative impacts to rare plants, depending on the location, frequency, and type of management action. In general, the proposed plan includes actions to mitigate impacts to plants. However, some major localized impacts would continue to occur as a tradeoff in balancing management of the conflicting habitat requirements of the rare plant objects of the Proclamation and the wildlife objects of the Proclamation. Impacts are expected to be less than in the no action alternative since less acreage is expected to be grazed in support of habitat management. The restoration of saltbush and riparian areas for

wildlife habitat would benefit rare plants associated with these habitats. The continuation of current grazing regimes in vernal pool areas (some grazed, some not) may have negative impacts to some rare plants, depending on the amount of trampling, the season of use and whether livestock (primarily cattle) find these rare species palatable. Livestock consumption of nonnative competing vegetation may help rare native species in the vernal pools; however, destruction of the crust communities associated with some vernal pool systems, such as the Hanline pools, would be expected to increase the amount and extent of weedy, nonnative grasses. Rare plants not associated with the vernal pools, but within the same pasture, would be expected to be negatively impacted if grazed or trampled by livestock. As more information is obtained on the positive and negative impacts of grazing on vernal pools, appropriate measures would be taken to ensure that they are grazed (or not grazed) in a manner that produces a net benefit to this sensitive habitat type. Actions taken to control exotic animal species would help protect populations of rare native bulbs (*Calochortus* and *Fritillaria* species) from wild pigs.

Using grazing as a tool to manage vegetation to benefit animals could have minor to major localized negative impacts to rare plants, depending on the location, frequency, and intensity of grazing. Ideally, the use of grazing as a vegetation management tool would be designed in a manner that minimizes negative impacts to rare plants; however, a number of rare plants are found within the core area pastures where grazing is proposed as a management tool. Any unfenced rare plant populations within treated pastures are vulnerable to grazing impacts, especially given the 500 pounds per acre residual dry material prescription for blunt-nosed leopard lizard habitat (75 percent of the core area). Grazing impacts to rare plants would be similar to generalized impacts to vegetation, as covered under grazing in the vegetation section. Thirteen of the Monument's rare plants are known to or potentially have populations within core area pastures; see Table 4.3-1. For most of these species, grazing is identified as a threat (CNPS 2009) and there are not adequate monitoring data to fully assess the impacts of continued grazing.

Table 4.3-1. Rare Plants Known to be or Potentially within Core Areas¹ or Section 15 Grazing Allotments

Species	CPNM ²	Grazing Impacts ³	CNPS ⁴	Section 15	Core
<i>Acanthomintha obovata</i> ssp. <i>cordata</i>	k	neg	4.2	x	
<i>Amsinckia vericosa</i> var. <i>furcata</i>	k	neg	4.2		x
<i>Antirrhinum ovatum</i>	k	neg	4.2	x	
<i>Aristocapsa insignis</i>	p	unk	1B.2	x	
<i>Astragalus hornii</i> var. <i>hornii</i>	p	unk	1B.1		x
<i>Atriplex vallicola</i>	k	neg	1B.2		x
<i>California (Erodium) macrocarpus</i>	k	neg	1B.1	x	
<i>Calochortus palmeri</i> var. <i>palmeri</i>	p	neg	1B.2	x	
<i>Calochortus simulans</i>	p	neg	1B.3	x	
<i>Caulanthus californicus</i>	k	neg	1B.1		x
<i>Caulanthus coulteri</i> var. <i>lemmonii</i>	p	neg	1B.2	x	
<i>Calycadenia villosa</i>	p	neg	1B.1	x	
<i>Chorizanthe blakleyi</i>	p	neg	1B.3	x	
<i>Chorizanthe rectispina</i>	p	unk	1B.3	x	
<i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>	k	neg	4.2		x
<i>Delphinium recurvatum</i>	k	neg	1B.2		x
<i>Delphinium umbracolorum</i>	p	neg	1B.3	x	
<i>Eriastrum hooveri</i>	k	-	4.2		
<i>Eremalche kernensis</i>	k*	neg	1B.1		?
<i>Eriogonum gossypinum</i>	k	unk	4.2		x
<i>Eriogonum temblorense</i>	k	unk	1B.2		
<i>Eryngium aristulatum</i> var. <i>hooveri</i>	k	neg	1B.1		
<i>Eryngium spinosepalum</i>	k	neg	1B.2		
<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	p	neg	1B.1	x	
<i>Eschscholzia rhombipetala</i>	p	neg	1B.1		x
<i>Fritillaria agrestis</i>	k	neg	4.2	x	
<i>Gilia latiflora</i> ssp. <i>cuyamensis</i>	k	unk	4.3		
<i>Gilia tenuiflora</i> ssp. <i>amplifaucalis</i>	k	unk	4.3	x	
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	k	unk	1B.1		x
<i>Layia heterotricha</i>	k	neg	1B.1		x
<i>Layia munzii</i>	k	unk	1B.2		x
<i>Lepidium jaredii</i> ssp. <i>jaredii</i>	k	neg	1B.2		x
<i>Madia radiata</i>	p	neg	1B.1	x	
<i>Monolopia congdonii</i>	k	pos/neg	1B.2		x
<i>Stylocline citroleum</i>	p	unk	1B.1		
<i>Trichostema ovatum</i>	k	unk	4.2		

¹ Grazing may be used as a vegetation management tool in core areas.

² k = known to be on the Monument, p = potential to be on the Monument.

³ neg = Grazing identified as a threat (CNPS 2009), pos/neg = grazing positive in some situations, negative in others (Cypher 1994), unk = grazing impacts unknown but assumed to be similar to other native annuals on the Carrizo (that is, negative).

⁴ California Native Plant Society rarity listing (see Table 3.2-4 for details).

Grazing under the proposed plan would be less than under the no action alternative, so impacts are expected to be less, but the level of reduction and residual impacts are not known and will require monitoring data. The plan includes actions to protect populations of threatened and endangered and other rare plants on the Monument as well as potential rare plant habitat. Impacts to vulnerable habitat would be minimized by changing management prescriptions or management actions where possible, and designing other management actions (such as actions needed to protect wildlife objects of the Proclamation) to

avoid direct impacts. If a threat is observed, if necessary, known sites and adjacent suitable habitat would be fenced to preclude damage.

Other than the two species of *Delphinium*, the rare plants are annuals and would be expected to be negatively impacted by green season grazing, as was shown for other native annual flora in the BLM Carrizo grazing study (Christian et al., in preparation). For annual species, reproduction and seed bank recharge is highly variable among years, and “good years” for the species may be critical in maintaining populations and local genetic resources. The grazing of annual populations during these good years would mean loss of that year’s reproduction, which can have serious consequences, especially for small populations. Continued loss or depression of seed production would lead to a loss of a rare species representation in the seed bank and subsequent loss of that population altogether. If adequate recharge to the seed bank does not occur, a species will disappear, making it critical that the monitoring and mitigation measures in the plan are employed to protect rare plants.

Delphinium are known to be highly toxic to cattle; however, they may be trampled or be consumed with surrounding vegetation when young. *Delphinium* plants are readily eaten by sheep. Because cattle are known to spend more time grazing on giant kangaroo rat precincts, species such as *Caulanthus californicus* would be particularly impacted, since they tend to be found more often on precincts and since cattle are known to prefer the plant. A rare mustard, *Lepidium jaresii*, is only known from one other area outside the Monument; impacts to this rare plant population from grazing the core areas could have serious consequences for the seed bank and hamper conservation efforts. Even if rare plants are not consumed, they may be trampled by livestock or their habitat impacted by soil degradation associated with animal movements. In addition, loss and degradation of mycorrhizae, soils, and soil crusts by livestock can impact rare plants, especially those with limited populations or that occur in specialized habitats. The documented and potential impacts to rare plants will require careful implementation of the RMP objectives for managing animal habitat to balance the tradeoffs associated with protecting the rare plant and wildlife objects of the Proclamation. Fencing populations would help protect plants from livestock, as long as protected sites are large enough and encompass entire populations and appropriate habitat. This is especially important for annual plant species that may move around the landscape and for which a single year’s population boundary would not be an accurate assessment of the actual occupied habitat.

Known populations of the endangered California jewelflower (*Caulanthus californicus*) are already protected from grazing. It is reasonable to assume that the species was more widespread in the Carrizo prior to the introduction of livestock and dryland farming. There appears to be much suitable, but unoccupied, habitat on the valley floor. Populations of San Joaquin woolly-threads (*Monolopia congdonii*) appear to be sustained under the current grazing management. During a demographic study (Cypher 1994), green season grazing was shown to be beneficial in some situations and neutral or detrimental in others. At one of the sites on the Monument, trampling was a problem. Woolly-threads stems grow either upright or prostrate. Since prostrate forms are less likely to be grazed, grazing may act as a selection factor favoring the prostrate form. Hoover’s woolly-star (*Eriastrum hooveri*) does not appear to be impacted by grazing (USFWS 2003c). The species that grow in the vicinity of Soda Lake are not affected because the area is closed to grazing. Cattle do not appear to forage in the habitat favored by forked fiddleneck (*Amsinckia vernicosa* var. *furcata*), but surveys and monitoring are required to confirm this observation. Little is known about the location of populations of other rare plants in the Monument, and the effects of grazing prescriptions for animal habitat management on these species. The proposed plan includes actions to reduce possible impacts, including a decrease in grazing from current and historic levels, along with the following actions: map potential rare plant habitat, monitor to confirm continued presence of rare plant populations and their status, and protect rare plants and associated pollinator habitat.

Impacts from other Programs

Impacts to rare plants from other programs would be basically the same as for general vegetation.

4.3.5 Impacts to Vegetation Common to Alternatives 1 and 3

4.3.5.1 Impacts to Vegetation from Implementing the Vegetation Program

Implementation of the vegetation program would have minor to moderate positive impacts to vegetation. Up to 500 acres of vulnerable rare plant populations should benefit from protective fencing that will protect vegetation from livestock, lessen foot travel and equestrian use, and minimize OHV trespass. Restricting grazing within specific pastures (for example, those with California jewelflower [*Caulanthus californicus*]) will benefit vegetation. The restoration and augmentation of 10 to 100 acres of rare plant habitat should help ensure the survival and health of targeted listed, BLM sensitive, and other rare plants. The multiplication of rare plant seed by growing off site will facilitate restoration of rare plant populations.

4.3.5.2 Impacts to Vegetation from Implementing Other Programs

Wildlife

Implementation of the wildlife program would have minor negative to moderate positive impacts to vegetation. Over the life of the plan, the restoration of approximately 1,000 acres of saltbush and 5 acres of riparian areas as wildlife habitat would benefit saltbush, riparian plants, and associated native vegetation. Although the number of acres targeted for restoration under all action alternative is less than that proposed under the No Action Alternative, it is a more realistic assessment of the amount of acres that BLM could reasonably restore during the specified time period and is based on experience with restoration since completion of the last management plan (BLM 1996). The continuation of current grazing regimes in vernal pool areas (some grazed, some not), may have negative impacts to vegetation. See under grazing alternatives below for additional details. Actions taken to control exotic animal species would help protect vulnerable riparian areas, populations of native bulbs, and other vegetation resources from soil damage from wild pigs.

Fire and Fuels Management

Implementation of the fire and fuels management program would have minor to major temporary localized effects, but fire management, overall, would have positive impacts to vegetation. Over a 10-year period, approximately 5,000 acres of native vegetation would be consumed by a series of small wildland fires. There is also the possibility of a large wildfire burning as much as 5,000 acres. The impacts to vegetation would depend on the fire location, periodicity, and intensity. Grassland communities would benefit from occasional burning, but shrub and woodland communities could be converted into nonnative-dominated grassland if fires burn hot or if the fire return interval is short. Saltbush stands growing within or adjacent to grasslands could be particularly vulnerable to damage by fire. Since most wildland fires occur during the dry season, the potential impacts to the Monument's rare plants would be to seeds on or close to the soil surface.

Air Quality

Actions and consequences are the same as those described under the No Action Alternative.

Soils

Implementation of the soils program would have minor to moderate positive impacts to vegetation. Conserving areas of sensitive soils will help protect vegetation, rare plants, biological crusts, and other vegetation resources. By taking actions to limit erosion, plant habitat will be preserved and there will be less negative impacts on plants from dust.

Water

Implementation of the water program would have minor to major positive impacts to vegetation. Protecting watersheds and surface and subsurface water sources will have a generalized benefit to native and other vegetation, and would be critical in maintaining the integrity of Soda Lake and the Monument's vernal pools. Fencing vulnerable springs and removing nonnative species will increase the native component of spring vegetation.

Geology and Paleontology

Implementation of the geology and paleontology program would have some temporary minor to moderate localized negative impacts, but overall would have positive impacts to vegetation. Protection of the Monument's geological formations and landforms would help protect vegetation, especially habitat in the vicinity of Soda Lake. Research activities associated with the Monument's paleontological and geological resources would temporarily disturb a small amount of habitat. Research in the Soda Lake area would have mitigation measures to minimize impacts to rare plants such as *Delphinium recurvatum* and *Lepidium jaredii* ssp. *jaredii*. Other proposed paleontological/geological resource actions are expected to have negligible or no impacts to vegetation. Nonnative plants may be introduced and spread by research equipment, vehicles, and personnel.

Cultural Resources

Implementation of the cultural resources program would have minor to major localized negative effects, but overall, would have positive impacts to vegetation. The one-half to one mile of proposed road re-alignments needed to protect cultural resources would result in a small loss of habitat, balanced by the restoration of the closed sections. Restricting roads near sensitive cultural sites to administrative use would help protect vegetation from dust and human impacts.

WSA/Lands with Wilderness Characteristics

The wilderness resource actions common to all action alternatives are expected to have major beneficial impacts to vegetation by protecting habitat in the Caliente Mountain WSA.

Livestock Grazing

Adjustments to grazing authorizations to meet specific target objectives are expected to benefit native vegetation by lessening the negative impacts of livestock on native plants. Use of the Conservation Target Table, monitoring studies, and other adaptive management tools are expected to result in better and more precise application of vegetation management tools and thus, minimize negative impacts to vegetation.

Recreation and Administrative Facilities

Implementation of the recreation program would have overall minor to moderate positive impacts to vegetation, but some areas may experience minor to major localized negative impacts from recreational activities. Education directed at the appreciation and conservation of natural resources would benefit

vegetation, as would education to combat negative/impacting uses. The focus on providing visitors a natural landscape experience should also help benefit vegetation. Education targeting motorized recreational visitors would help instill appropriate behavior (good for vegetation resources). Providing potable water sources would increase local impacts to vegetation, since these areas would experience an increase in visitor use. Activities that would increase public visitation would be expected to increase impacts to vegetation. Impacts would be greatest if increased visitation is not coupled with an increase in management presence. The development of driving tours would be expected to increase dust impacts to adjacent vegetation, although by building an appreciation of the natural landscape, it could have indirect beneficial impacts. The publication and dissemination of wildflower viewing information would have some localized impacts due to trampling and pick of plants, but would be expected to have an overall benefit to vegetation by supporting the public's appreciation for natural beauty and would help the public to incorporate a feeling of ownership for the Monument.

Travel Management

Impacts to vegetation common to all action alternatives would be similar to the No Action Alternative; however, mileage of roads would be different in the three alternatives.

Minerals

Actions and consequences are the same as those described under the No Action Alternative.

Lands and Realty

Actions and consequences are the same as those described under the No Action Alternative except that right-of-way actions would result in a loss or degradation of 5 to 30 acres of habitat via disturbance.

4.3.6 Impacts to Vegetation under Alternative 1

4.3.6.1 Impacts to Vegetation from Implementing the Vegetation Program

The hand and mechanical treatment of 10 to 100 acres of weeds over the life of the plan would have beneficial impacts to native plants by removing nonnative competitors and invasive weedy exotics.

4.3.6.2 Impacts to Vegetation from Implementing Other Programs

Wildlife

Implementation of the wildlife program would have minor to moderate positive or negative impacts to vegetation. The elimination of livestock grazing and controlled burns as management tools would have a variety of impacts to vegetation and make habitat management and restoration more difficult. See discussions under grazing and fire/fuels management below for additional details. Removing artificial water sources would focus native ungulate impacts on springs and seeps, which could have deleterious impacts on riparian vegetation, depending on animal use levels. Removing the diversion of water for artificial water sources would be of minor to major benefit to currently impacted springs.

Fire and Fuels Management

Implementation of the fire and fuels management program would have minor to major temporary localized effects, but fire management, overall, would have positive impacts to vegetation. Approximately 2 acres of disturbance associated with wildland fire suppression would temporarily damage vegetation and may create weedy areas, especially if weed seeds are accidentally introduced by equipment or

personnel. Some temporary damage may occur if fire vehicles travel off road. Resource planning during fire suppression activities should minimize the effect on rare plants and other sensitive vegetation resources. The application of foam and fire retardant will introduce a small amount of chemicals such as ammonia fertilizers, phosphates, potassium salts, shampoo-like surfactants, and mineral oil (USFS 2008). Many of these compounds include important plant nutrients and their application tends to favor the growth of grasses (Larson and Duncan 1982). Twenty-five acres would be mowed to clear areas around Monument structures and facilities. Many of these areas tend to have a higher concentration of weedy species than less disturbed sites and because mowing is usually done late in the season, there would be minimal impacts to native vegetation. Over the life of the plan, up to 5 acres of roadside Russian thistle, trees and shrubs will be trimmed. This would have negligible effect on the population of Russian thistle, but would benefit vegetation by eliminating a possible source of ignition along roads. Prescribed fires to achieve specific biological objectives would not be employed under Alternative 1. Restoration efforts would be hampered and it would be more difficult or take much longer to restore degraded plant habitat. Weed control would be more difficult without the use of fire as a tool and there would be no opportunity to occasionally burn off accumulated thatch as a means of promoting native forb establishment and growth.

Air Quality

Lowering dust production by closing roads during dry periods would have major localized positive impacts to vegetation by removing the negative impacts associated with dust. Also, use of gravel, paving, and chemical binders to reduce dust would benefit vegetation.

Soils

The soil resource actions proposed under Alternative 1 are expected to have negligible or no impacts to vegetation.

Water

Actions and consequences are those described under Impacts Common to All Action Alternatives.

Geology and Paleontology

Actions and consequences are basically those described under Impacts Common to All Action Alternatives.

Cultural Resources

Closing or restricting public access in areas of sensitive cultural resources would have major positive local benefit to vegetation by limiting human impacts in the vicinity of Painted Rock and the KCL basalt cone. A small amount of vegetation would be impacted during fence construction. Education activities would be expected to disturb vegetation at eight sites for a total of ½ acre. Temporary disturbance associated with the restoration and relocation of historical farming equipment and structures would impact a minor amount of vegetation, but would not result in a loss of habitat. The razing and removal of five unwanted structures would cause temporary disturbance, but would ultimately result in a slight increase in natural habitat. Other cultural resource actions proposed under Alternative 1 are expected to have negligible or no impacts to vegetation.

WSA/Lands with Wilderness Characteristics

The wilderness resource actions proposed under Alternative 1 are expected to have major beneficial impacts to vegetation by protecting 65,218 acres of habitat as lands with wilderness characteristics (in addition to the existing WSA). Due to restrictions associated with wilderness designation, some vegetation management actions may be more difficult to accomplish.

Livestock Grazing

Implementation of the limited Alternative 1 grazing program would have minor to major positive impacts to vegetation. Under some situations, the removal of grazing might have minor to moderate negative impacts to vegetation. Under Alternative 1, grazing would not be allowed on most of the Monument. The small portions of the pastures that are within the Temblor Range subregion, but primarily outside the Monument, would continue to be grazed under existing Section 15 leases. In all, only about 4,600 acres would be available for livestock grazing, assuming that precipitation is adequate, rangeland standards are met, and forage is available. Grazing would be by cattle or sheep and occur during the winter and spring seasons, when annual plants are green or, in some allotments, as forage is available. Because of the limited amount of acreage grazed under this alternative, livestock grazing is expected to have a limited impact to native vegetation and other vegetation resources. Areas impacted by previous livestock operations, such as corrals and around troughs, could be restored, resulting in a net increase in native vegetation and would remove potential sources of weedy nonnatives. A cessation of grazing would allow the natural restoration for those oaks whose understory is currently impacted by livestock. In some highly impacted sites (such as around troughs, corrals, and fencelines), there may be a temporary increase in nonnative weeds since livestock would no longer be present to graze them down. Some initial disturbance would occur during the removal of unneeded infrastructure, but overall, native plants would benefit. The loss of grazing as a management tool would eliminate one economical source of habitat modification and may make it more difficult to achieve specific vegetation goals. Some plant species that prosper under a grazing regime, such as snakeweed and interior goldenbush, may decline in abundance. Wildfires may be more intense and affect larger areas of vegetation, without ability to use grazing as a means of reducing fine fuels.

Recreation and Administrative Facilities

Implementation of the recreation program would have minor to major positive impacts to vegetation. Under Alternative 1, the Primitive zone would encompass 80,591 acres. Because public access is limited to non-motorized and non-mechanized activities, this would afford the greatest protection to vegetation; however, it would make certain vegetation management tools more difficult to use. Restricting camping to developed facilities within the Frontcountry zone would be expected to benefit vegetation by concentrating visitor impacts to specific, easily monitored locations and eliminate many of the problems associated with dispersed camping. Establishing trails should help protect vegetation by directing visitor impacts away from sensitive resources.

Travel Management

Under Alternative 1, 275 miles of roads would be open to the public and 80 miles closed. Impacts to vegetation from roads would be reduced in geographic scope under this alternative.

Minerals

Actions and consequences are the same as those described under the No Action Alternative.

Lands and Realty

Actions and consequences are the same as those described under the No Action Alternative except for the following positive impacts: Proposed acquisitions would result in an additional 16,000 to 30,000 acres of habitat preserved under public ownership. The impact on specific vegetation resources would depend on what property is acquired. Removal of two communications sites may allow vegetation to reclaim the small areas previously occupied by communications infrastructure. Other realty actions proposed under Alternative 1 are expected to have negligible or no impacts to vegetation.

4.3.7 Impacts to Vegetation under Alternative 3

4.3.7.1 Impacts to Vegetation from Implementing the Vegetation Program

Actions and consequences of the vegetation program under Alternative 3 are the same as under the proposed plan (Alternative 2).

4.3.7.2 Impacts to Vegetation from Implementing Other Programs

Wildlife

Impacts under Alternative 3 would be similar to the proposed plan (Alternative 2) except that much more acreage would be targeted for active vegetation management, primarily grazing, to create open habitat for the San Joaquin Valley listed species. This would increase the acreage of impacts to vegetation; the severity depending on the timing, intensity, and season of grazing. See discussion under grazing alternatives below for additional details as to the impacts of grazing on vegetation.

Fire and Fuels Management

Impacts to vegetation from wildland fire under Alternative 3 would be the same as under the proposed plan (Alternative 2), except slightly more acreage would be affected. Under Alternative 3, approximately 5.5 acres of habitat disturbance per year would be associated with wildland fire suppression. Prescribed fires targeting biological resource objectives (for example, restoration of native vegetation) would treat an average of 750 acres per year. Firebreaks would disturb an average of 3.5 miles per year, much along existing roads.

Air Quality

Lowering dust production by surfacing roads would benefit vegetation by removing the negative impacts associated with dust.

Soils

Conserving soils by closing sensitive areas and problematical roads would benefit the local vegetation. Other soil resource actions proposed under the proposed plan (Alternative 2) are expected to have negligible or no impacts to vegetation.

Water

Actions and consequences are those described under Common to All Action Alternatives.

Geology and Paleontology

Actions and consequences are basically those common to all action alternatives. Because mechanized equipment could be used for research activities, there is a possibility of more habitat disturbance to occur than in Alternative 1, however, it would still be only a minor amount.

Cultural Resources

Closing or restricting public access in areas of sensitive cultural resources would help to protect vegetation by limiting human impacts. A small amount of vegetation would be impacted during fence construction. Tours and/or regulated self-guided visits are expected to result in a slight amount of vegetation disturbance via foot travel in the vicinity of Painted Rock (tours only) and the KCL basalt cone. Education activities would be expected to disturb vegetation at two to four sites for a total of ½ acre. The installation of signs would result in a negligible amount of disturbance to vegetation. Temporary disturbance associated with the restoration and relocation of historical farming equipment and structures would impact a minor amount of vegetation, but would not result in a loss of habitat. The razing and removal of four to six unwanted structures would cause temporary disturbance, but would ultimately result in a slight increase in natural habitat. Other cultural resource actions proposed under Alternative 3 are expected to have negligible or no impacts to vegetation.

WSA/Lands with Wilderness Characteristics

The wilderness resource actions proposed under Alternative 3 would be the same as the No Action Alternative (the existing Caliente Mountain WSA, 17,984 acres, would continue to be protected at current levels).

Livestock Grazing

Under Alternative 3, grazing in the Section 15 allotments would occur an average of 8 years out of 10 (as in the No Action Alternative). In these areas, the grazing frequency would be higher than under the proposed plan (Alternative 2) and, thus, impacts to native vegetation and other vegetation resources are expected to be higher as well. Areas outside the core area would be vulnerable to grazing for SJV core species objectives, to the possible detriment of native vegetation.

Recreation and Administrative Facilities

Impacts to vegetation from Alternative 3 are similar to those from the proposed plan (Alternative 2) except that only 17,984 acres would be included in the Primitive zone.

Travel Management

Under Alternative 3, 349 miles of roads would be open to the public and 10 miles closed. Impacts to vegetation from roads would be similar to the No Action Alternative, although the 10 miles of closed roads would revegetated and benefit vegetation resources if active weed management actions are employed until native vegetation is reestablished. Paving Soda Lake Road would eliminate dust and thereby benefit adjacent vegetation.

Minerals

Actions and consequences are the same as those described under the No Action Alternative except for actions using vibroseis equipment associated with geophysical exploration. Off-road travel with this type

of equipment would crush vegetation, compress and disturb soils, and create trails that may encourage illegal OHV activity. Impacts would depend on the location and duration of the geophysical exploration.

Lands and Realty

Actions and consequences are the same as those described under the proposed plan (Alternative 2).

4.3.8 Impacts to Vegetation under the No Action Alternative

4.3.8.1 Impacts to Vegetation from Implementing the Vegetation Program

Implementation of the vegetation program would have moderate to major positive impacts to vegetation. Restoration of 600 to 1,200 acres of native vegetation would benefit vegetation. Burning to improve habitat (5,000 to 10,000 acres) and to pretreat restoration sites (500 to 2,000 acres) would initially damage plants, but result in an overall benefit to vegetation. Restoration (10 acres) and protection of riparian habitats would benefit spring, seep, and vernal pool vegetation. Construction and maintenance of plant propagation facilities would benefit vegetation by providing a source of restoration materials. Weed control of yellow star thistle, tamarisk, and nonnative trees has the possibility to temporarily damage adjacent vegetation, but overall would benefit vegetation.

4.3.8.2 Impacts to Vegetation from Implementing Other Programs

Wildlife

The management of habitats and vegetation to benefit native animals, both listed and not, would have varying impacts to vegetation, depending on the amount of acreage and the methods used to manage them. Under the No Action Alternative, habitat management is mostly by livestock grazing, with a smaller amount of acreage treated by burning. Grazing during the green season has been employed under the assumption that it was “an effective tool to remove standing biomass, reduce the importance of nonnative species, and enhance the reestablishment of native species” (BLM 1996). Recent analyses of BLM monitoring data from the Monument (Christian et al., in prep.) indicate that green season grazing would not be an effective tool for reducing the importance of nonnative species and would have minor to major negative impacts to native vegetation, especially native annual species in the upper Sonoran subshrub scrub community. Approximately 115,000 acres would be grazed by livestock for vegetation management purposes under the No Action Alternative. A more detailed accounting of impacts to vegetation from grazing can be found under the livestock grazing alternatives below. Actions taken to reduce human-caused hazards to core species would be of general benefit to vegetation since many of those hazards also impact plants and plant habitat. Prescribed fires initially damage some vegetation, but overall, would be beneficial to native grassland vegetation. For shrub and woodland communities, fire would have the potential to be much more damaging and could result in the replacement of these communities by nonnative grassland (Brooks 1999; D’Antonio and Vitousek 1992; Keeley 2001; Keeley et al. 2005).

Restoration actions involving the reintroduction of native plants to degraded sites would benefit vegetation by increasing the native component within grassland communities. Actions to maintain riparian habitat, vernal pools, and shrub-scrub and other natural communities would also benefit vegetation. Actions taken to increase the number and distribution of native ungulates should, in general, benefit vegetation; however, there may be negative effects to some localized resources. Plants may be trampled, riparian areas degraded, and populations of rare plants impacted by elk and pronghorn, depending on foraging behavior, numbers of animals, and area use patterns. Monitoring should help determine the effects of increasing native ungulate populations on vegetation.

Water diverted from natural springs and seeps to maintain livestock or wildlife surface water would be lost to riparian plants and would be expected to shrink the size of the natural riparian habitat. This action could lessen damage to riparian plants by relocating livestock and large native ungulate watering sites away from sensitive riparian habitat. Actions taken to control exotic animal species would help protect vulnerable riparian areas, populations of native bulbs, and other vegetation from soil damage from wild pigs.

Fire and Fuels Management

Implementation of the Fire and Fuels Management program would generally have minor to major positive impacts to vegetation; recurring wildfires could result in major negative impacts to shrub communities. Developing an understanding of the history and potential role of fire and the effects of fire and suppression on the Monument's vegetation would benefit vegetation. Over a 10-year period, approximately 50,000 acres of native vegetation are expected to be consumed by wildfires; suppression actions (primarily fire lines) would result in 25 acres of temporary disturbance. Impacts to native vegetation and other vegetation would depend on the location, intensity, and timing of the fire. Grassland vegetation would generally benefit from occasional fires, while shrub and woodland communities could be seriously impacted or even replaced by grassland.

In the course of fire suppression activities to protect people, facilities, and equipment from wildfires, some vegetation may be damaged. Actions taken to reduce the adverse impacts of fire management would benefit vegetation. Fire education that helps reduce wildfires would help protect sensitive vegetation. Measures taken to minimize the ignition and spread of wildfires, such as mowing, would have overall benefit to vegetation, although some vegetation in target areas may be affected.

Air Quality

Lowering dust production, either by mitigation measures during management activities or by specifically targeted management actions, would have moderate positive impacts to vegetation by minimizing the negative impacts associated with dust.

Soils

Conserving soils by minimizing erosion would provide moderate to major positive impacts to the local vegetation, including rare plants and nonnative species. Other soil resource actions proposed under the No Action Alternative are expected to have negligible or no impacts to vegetation.

Water

Implementation of the water program would generally have minor to major positive impacts to vegetation. Protecting watersheds and surface and subsurface water sources would have a generalized benefit to native and other vegetation, and would be critical in maintaining the integrity of Soda Lake and the Monument's vernal pools. Fencing vulnerable springs and removing nonnative species would increase the native component of spring vegetation.

Geology and Paleontology

Research activities associated with the Monument's paleontological and geological resources would temporarily disturb a small amount of habitat. Research in the Soda Lake area would have mitigation measures to avoid or minimize impacts to rare plants such as *Delphinium recurvatum* and *Lepidium jaredii* ssp. *jaredii*. Nonnative plants may be introduced and spread by research equipment, vehicles, and

personnel. Other paleontological/geological resource actions proposed under the No Action Alternative are expected to have negligible or no impacts to vegetation.

Cultural Resources

Implementation of the Cultural Resources program would generally have no to minor positive impacts to vegetation. With some actions, there could be minor temporary and localized negative impacts to vegetation. Closing or restricting public access in areas of sensitive cultural resources would help to protect vegetation by limiting human impacts. A small amount of vegetation would be impacted during fence construction. Tours and/or regulated self-guided visits are expected to result in a slight amount of vegetation disturbance via foot travel in the vicinity of Painted Rock and the KCL basalt cone. The installation of signs would result in a negligible amount of disturbance to vegetation. Temporary disturbance associated with the restoration and relocation of historical farming equipment and structures would impact a minor amount of vegetation, but would not result in a loss of habitat. The razing and removal of unwanted structures would cause temporary disturbance, but would ultimately result in a slight increase in natural habitat. Weeds may be introduced or spread by tour participants and by equipment and personnel associated with the relocation or demolishing of historical structures and equipment. Other cultural resource actions proposed under the No Action Alternative are expected to have negligible or no impacts to vegetation.

WSA/Lands with Wilderness Characteristics

The wilderness resource actions proposed under the No Action Alternative would continue management of the existing Caliente Mountain WSA (17,984 acres) to protect wilderness values. This would continue protection of vegetation at current levels.

Livestock Grazing

Implementation of the grazing program would generally have minor to moderate negative impacts to vegetation. In some areas, there would be localized major negative impacts. Under some situations, grazing would have minor to moderate beneficial impacts to vegetation. Under the No Action Alternative, about 58,000 acres would be available for grazing within Section 15 allotments and about 115,000 acres would be available for grazing to meet specific biological objectives within vegetation management areas. Generally, the Section 15 pastures are in the Caliente and Temblor Ranges and the vegetation management pastures are on the valley floor. It is anticipated that forage conditions would allow grazing on all Section 15 allotments on an average of 8 years out of 10. Based on past livestock grazing frequency for the purpose of vegetation management (5 out of 6 years during the grazing study), grazing would be applied on an average of 8 out of 10 years on about 115,000 acres of the vegetation management pastures. Grazing would be mostly by cattle and occur during the winter and spring seasons, when annual plants are green. Grazing would not occur on about 35,000 acres unavailable for any type of grazing.

Grazing affects vegetation via the consumption of forage, the impacts of hooves, the deposition of urine and manure, and the dispersal of seeds by fur and manure. The effects on vegetation tend to be related to the intensity and timing of grazing: higher levels and green season grazing tend to have greater impacts. Additional impacts to vegetation are related to infrastructure associated with grazing operations: water systems, roads, salt licks, and others.

Livestock foraging patterns affect vegetation in a number of ways. Because animals tend to be selective in what they eat, grazing can influence the composition and diversity of plants within a pasture (Christian et al., in prep.; DiTomaso 2000; Kinucan and Smeins 1992; Rook and Tallowin 2003; Sternberg et al. 2003; Stromberg and Griffin 1996). As with all environmental influences, some plants benefit, while others are

negatively impacted. Livestock show a preference for palatable species (Vesk and Westoby 2001; USDA 1937). Unpalatable plants with chemical or mechanical defenses are grazed less or avoided completely and therefore tend to increase under a grazing regime (DiTomaso 2000; Kingsbury 1964; Khumalo et al. 2007; McIntyre et al. 2003; Provenza 2003; Twisselmann 1967). Native species with chemical defenses include snakeweed (*Gutierrezia californica*), interior goldenbush (*Ericameria linearifolia*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), locoweeds (*Astragalus* spp.), and larkspur (*Delphinium* spp.), although the latter are readily eaten by sheep (Allison 1990; Fusco et al. 1995; Kingsbury 1964; Twisselmann 1956; USDA 1937). The summer annual doveweed (*Eremocarpus setigerus*), has stiff hairs that deter grazing. All of these unpalatable species do well in grazed areas. Shorter species also tend to be favored over taller because they seem to withstand herbivory better (Branson 1953; Díaz et al. 2001; Noy-Meir et al. 1989). Favored also are species with an indeterminate and branching growth pattern which tolerates a fair amount of herbivory (Kimball and Schiffman 2003; Mack and Thompson 1982). This growth pattern may be one reason why the introduced filaree (*Erodium cicutarium*) does so well in grazed pastures, despite it being one of the earliest available forages after the onset of fall rains. In many grasses, the growth meristem is at the base of the plant, where it is relatively protected from grazing. The reason why many of our introduced Mediterranean weeds do so well in grazing systems may be due to these growth patterns and the species' long association with cattle and sheep (Noy-Meir et al. 1989).

An additional concern is the potential effect of forage removal on the native seed bank. Grazing, by removing biomass, lowers seed production, either by direct removal of reproductive structures (flowers and fruits) or by depressing photosynthetic output (Anderson and Frank 2003; Kinucan and Smeins 1992; Sternberg et al. 2003; Wright 1967). For some native annual plants, recharge of the seed bank may only happen occasionally, in those years in which conditions are optimum for that particular species (Wilson 2007). Grazing during this type of year may have a greater impact on the seed bank than at other times. These "recharge years" are not the same for all species; each individual year may be critical in maintaining the seed bank for a particular species.

Grazing may limit the spread or lower the intensity of wildland fire by reducing fine fuels, especially nonnative grasses. This would be of benefit to the Monument's shrub and woodland plant communities, which have little in the way of fire-adapted species.

The BLM-directed grazing study on the Monument (Christian et al., in prep.) indicated that, in terms of relative cover and diversity, green season grazing is detrimental to native annual plants. This was the same conclusion reached from a previous study on the Carrizo (Kimball and Schiffman 2003). In the BLM study, grazing was particularly detrimental to the native annual flora in the upper Sonoran subshrub scrub vegetation. The study results for two native bunchgrass species, one-sided bluegrass (*Poa secunda* spp. *secunda*) and nodding needlegrass (*Nasella cernua*), was variable. Overall, the effect of grazing on *Poa* was negative and especially in areas with annual grassland. However, there was little difference in the frequency of *Poa* between grazed and ungrazed areas in the scrub communities. For *Nasella*, there was no overall effect, but the species did better in soil 3 (alluvial flats and fans) and worse in soils 7 and 8 (annual grassland and scrub communities in the foothills). The study also indicated that, overall, nonnative annual grasses did better in grazed pastures.

Livestock movement across a landscape affects soil characteristics, damages plants and habitat, and can affect water flow patterns. Hoof action disturbs soils, which creates dust, creates habitat for ruderal species, and can result in the loss of crust communities (Belnap et al. 2007; Memmott et al. 1998). Trails can act as conduits for water, which changes the local hydrology and may result in erosion and gullyng. Movement of livestock across steep slopes results in a generalized net movement of soil down slope, one hoof print at a time. This initial terracing of slopes creates a lot of microtopography and may act to slow the movement of water down slope, allowing more time for infiltration and less opportunity for erosion, assuming that trails are perpendicular to the slope. However, repeated travel by livestock across hill

slopes accelerates the movement of soils down slope, resulting in a general deterioration of plant habitat. Hooves can also disrupt biological crusts and create habitat for introduced weedy grasses. Depending on the amount of trampling, native plants can be damaged or eliminated altogether, especially in areas where livestock congregate or create trails (Brooks 2000, 2003, 2006; Fusco et al. 1995; Mack and Thompson 1982). Areas near troughs and corrals are often devoid of native species and can act as source points for weedy species to invade surrounding natural habitat. Compacted soil means that water will not infiltrate easily and roots may have difficulty penetrating (McIlvanie 1942). Studies of soil compaction by livestock (Liacos 1962, McIlvanie 1942) correlated grazing with less porous soils, depressed soil formation, lower water infiltration and holding capacity, and a shallower portion of the soil profile utilized by plants

The deposition of urine and manure increases soil nitrogen and moisture levels, generally favoring nonnative weedy species (Brooks 2003; Parker and Muller 1982). Impacts to vegetation tend to be most pronounced near troughs and other locations where livestock congregate. These same sites tend to have high levels of soil compaction and disturbance. Vegetation around trough areas on the Monument are often composed of Mediterranean species such as cheeseweed (*Malva parviflora*), foxtail (*Hordeum murinum* ssp. *leporinum*), bromes (*Bromus* spp.), horehound (*Marrubium vulgare*), and mustards (various Brassicaceae) and may serve as points of spread into surrounding vegetation. Away from these congregation areas, the deposition of urine and manure has highly localized effects, but little overall effect on native vegetation.

Livestock impact native vegetation by dispersing seeds via fur and manure (Janzen 1984). Nonnative weedy species may be introduced when animals are first brought onto a pasture and existing weed populations may be spread by animal movement across the landscape. Native species may be spread in a similar manner.

Additional impacts to vegetation stem from infrastructure associated with grazing operations. Livestock watering systems that rely on springs divert water from native vegetation. Roads eliminate potential habitat for native vegetation, disrupt overland water flow, and serve as a source of dust (Forman and Alexander 1998). Salt licks create small, localized zones too salty to support plants.

Foraging behavior affects native shrubs in two ways: a) leaves and reproductive tissues may be consumed, and b) shrub architecture may be modified due to mechanical damage incurred as livestock forage on the annual vegetation growing underneath the shrub canopy. Cattle mostly forage on grasses and annual forbs; however, during the dry season, they will often switch to, or at least consume some shrub species. Saltbush (*Atriplex* spp.) can be a good forage species during the summer months (Twisselmann 1956, 1967; USDA 1937). Scrub oak (*Quercus john-tuckeri*) can also be good forage during those periods before the onset of winter rains (USDA 1937). The effect on these species is entirely dependent on the intensity of grazing. Most of the allotments within the Monument have summer restrictions so as to minimize any potential impacts to saltbush. Hedging of shrubs, either by consumption or mechanical damage, can occur during drought conditions or in areas where livestock tend to congregate. Annual vegetation is more lush underneath shrubs than between them and, as such, can be attractive forage for livestock. Overall, shrub populations tend to show more damage closer to water troughs (Brooks 2006). Trampling by livestock can damage or kill shrub seedlings. The soil disturbance created by livestock may provide germination sites for some species.

Some of the Monument's oak trees have been impacted as a result of cattle foraging behavior. Grazing on the oaks produces the typical pasture tree architecture, where all branches have been trimmed up as high as a cow can reach. Cattle foraging and loafing beneath trees can result in the removal of the herbaceous understory, the elimination of leaf litter and mulch, erosion of the soil, and, as a consequence, a loss of understory habitat and its associated biota (such as herbaceous plants, microfauna, fungi) (Borchert et al.

1989; Dahlgren et al. 1997; Parker and Muller 1982) This can also hasten the death of individual trees and eliminates habitat for oak seedlings (Adams et al. 1992; Momen et al. 1994). Livestock also consume oak seedlings and acorns, further impacting oak reproduction and recruitment (Borchert et al. 1989). Spring and summer grazing would result in the lowest survival rates for blue oak seedlings (Hall et al. 1992). The emergence of blue oak seedlings was highest during a season of above average precipitation (Adams et al. 1992) when livestock are most likely to be present and for the longest period of time, thus increasing the likelihood that seedlings will be impacted. Grazing, by reducing fine fuels in adjacent grasslands and by trimming the lower branches, helps protect oaks against wildland fires.

The area around Soda Lake is not grazed, so there would be no impacts to the surrounding vegetation, nor to the area's rare plants.

Riparian areas on the Monument, primarily springs and seeps, are vulnerable to damage by livestock. Because these sites support lush vegetation and are surrounded by much drier habitat, they are attractive to foraging livestock. If not fenced, soils can become hoof-pocked, the riparian vegetation trampled, and the palatable species eaten. Unpalatable species such as bull thistle (*Cirsium vulgare*) and salt cedar (*Tamarix* spp.) may become established and/or spread.

Some vernal pool vegetation may be damaged via trampling or grazing by livestock; however, grazing has been shown to be of overall benefit to native plants in some Central Valley vernal pools by lessening the competitive impact of introduced weedy grasses (Marty 2005). Whether this would be true for the depauperate flora associated with the Monument's vernal pools is uncertain. The few obligate pool species tend to be of short stature and are unlikely to be consumed as forage.

Crust communities, including those associated with some of the vernal pools, would be vulnerable to damage by trampling. Nesting areas for native solitary bees (important pollinators) within these crust areas may also be degraded by soil disturbance associated with grazing. Manure deposited on crust surfaces shades and kills the photosynthetic component of crust biota (cyanobacteria, mosses, and lichens). Hoof prints disrupt the crust surface and provide microhabitat for introduced annual grasses (D. Kearns, BLM, personal observation, 5 March 2004). Where they are present, giant kangaroo rats create so much disturbance on their precincts that soil crusts are unlikely to develop, regardless of whether an area is grazed or not; however, interprecinct areas may support crust species.

Habitat for the endangered California jewelflower (*Caulanthus californicus*) is protected from grazing because the species appears to be highly palatable to cattle. Populations of San Joaquin woolly threads (*Monolopia congdonii*) appear to be doing fine under the current grazing management. During a demographic study (Cypher 1994), green season grazing was shown to be beneficial in some situations and neutral or detrimental in others. At one of the sites on the Monument, trampling was a problem. Woolly threads stems grow either upright or prostrate. Since prostrate forms are less likely to be grazed, grazing may act as a selection factor favoring the prostrate form. Hoover's woolly-star (*Eriastrum hooveri*) does not appear to be impacted by grazing (USFWS 2003c).

Rare plant response to grazing is variable in the Monument. Some rare plants are not affected by livestock because their populations are not subjected to grazing. Rare plant populations within grazed pastures have the potential for being damaged by livestock; however, the relationship between population health and livestock grazing is poorly understood. The species that grow in the vicinity of Soda Lake tend not to be affected since the area is closed to grazing; however, large populations of Jared's peppergrass (*Lepidium jaredii* ssp. *jaredii*) are found within the northernmost mountain plover core area. These peppergrass populations would be moderately to majorly negatively impacted by green season grazing. The grazing impact to forked fiddleneck (*Amsinckia vernicosa* var. *furcata*) is expected to be negligible since cattle do not appear to forage in plant's dry shale habitat. Similarly, San Joaquin bluecurls (*Trichostema ovatum*) is

not likely to be impacted since it is a summer annual and livestock are off the Caliente Range by June. For two rare buckwheats, Temblor buckwheat (*Eriogonum temblorense*) and cottony buckwheat (*Eriogonum gossypinum*), the impacts of livestock grazing on the Carrizo populations are uncertain.

Although gypsum-loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*) is poisonous to cattle, the plant is not distasteful to livestock (Kingsbury 1964; USFS 1937) and early season rosettes are easily consumed by cattle foraging in the plant's grassland habitat. Sheep will eat larkspur species with little effect (Kingsbury 1964). It is unknown how grazing affects larkspur populations on the Monument. Cattle "will graze oval-leaved snapdragon (*Antirrhinum ovatum*) down to practically ground level" and eat the plants "with gusto" (BLM 1991); however, it is uncertain how much, if any, grazing occurs in the vicinity of the plant populations. It is also unknown how livestock grazing impacts heart-leaved thornmint (*Acanthomintha obovata* ssp. *cordata*), which grows in the same clay soils as oval-leaved snapdragon. The effect of grazing on stinkbells (*Fritillaria agrestis*) is also unknown.

Recreation and Administrative Facilities

Impacts from the recreation program would range from moderate positive impacts to potential major localized negative impacts. Education directed at the appreciation and conservation of natural resources would benefit vegetation, as would education to combat destructive human behavior. Potential visitor impacts to vegetation generally include trampling, picking, or other destruction of vegetation. Access to areas sometimes invites illegal behavior such as off-road vehicular travel. Escaped fire would also be a possibility. Allowing uncontrolled dispersed camping has the potential to impact specific vegetation because the public generally has a poor understanding of sensitive vegetation and usually have other interests in deciding where to camp or recreate. Populations of rare plants could be inadvertently damaged by uninformed publics. Continued horse camping would have impacts to native vegetation from hoof action, grazing, and the potential to introduce and spread weeds via fur and feces. Recreation travel on dirt roads would create dust and be detrimental to nearby vegetation.

Travel Management

Impacts from the travel program would range from minor to major localized negative effects. Dust generated by road maintenance and use would negatively affect nearby vegetation by interfering with photosynthesis and reproduction; the degree of impairment would depend on the timing and amount of dust generated. Generally, when roads are used for the purposes of recreational riding there is more dust created, especially with all-terrain vehicle (ATV) travel or if riders are driving fast. ATV travel has a greater tendency to erode dirt roads and would consequently generate more dust.

Many of the roads on the Monument were user-designed and not necessarily located in the most appropriate sites for the protection of soils and vegetation. Roads change hydrological patterns, which changes vegetation patterns. Roads channel rainwater, disrupt cross-landscape water flow patterns, and, via runoff, cause an increase of soil moisture along their edges (Forman and Alexander 1998; Trombulak and Frissell 2000). The natural distribution of some saltbush populations on the Monument have been restricted by roads across slopes. In some areas, erosion of the adjacent landscape is a problem; the most notable example, once a section of Soda Lake Road, is now a large canyon with a concrete apron where it intersects the re-aligned Soda Lake Road. Wet roads may cause drivers to drive on adjacent vegetation to avoid mud and ruts, resulting in additional damage to vegetation.

Roads change hydrological patterns, which changes vegetation patterns. A common effect is that roadsides tend to receive more water than adjacent areas and vegetation tends to be taller. Because roadsides also tend to be disturbed sites, they generally support a higher percentage of nonnative weedy species. Road edges provide weed habitat and facilitate the spread of weeds into adjoining natural habitat.

Although some dirt roads, if little used, can provide nesting habitat for bees, vehicle travel on roads generally results in negative impacts to numerous insects, including pollinators.

Minerals

Impacts from the minerals program would range from minor to major localized negative effects. Disturbance associated with oil and gas exploration and extraction would adversely affect native vegetation; however, mitigation measures would help protect sensitive and listed species and other important vegetation. It is anticipated that approximately 23 acres of vegetation would be lost due to conversion to well pad or access road, with the affected vegetation community depending on the location of the oil and gas activities. By encouraging operators to reclaim unneeded disturbed areas, additional native habitat would be restored. Dust generated by road and pad construction, maintenance, and use would negatively affect nearby vegetation by interfering with photosynthesis and reproduction; the degree of impairment would depend on the timing and amount of dust generated. Oil and gas activities would also create approximately 13 acres of temporary disturbance (including dust), afterward to be restored with native species. About 140 acres would have a minor amount of transient disturbance due to the boring of shot holes and associated cross-country travel during seismic exploration. Routes would be designed to minimize negative and overall effects on vegetation. Because of standard mitigation measures, oil and gas activities are expected to have negligible or no impacts to rare plants. Additional weeds may be introduced and spread via oilfield equipment, vehicles, and personnel. Disturbed soils created during pad and road construction would provide habitat for weedy species and access for additional human impacts. Pads and roads, especially if they do not have a lot of use, would also provide bare substrate, possibly suitable as nesting habitat for ground-nesting solitary bees (pollinators of native plants).

Lands and Realty

Impacts from the lands and realty program would depend on the type of action. Land acquisition actions would result in major beneficial positive effects. Development-oriented actions would be expected to result in minor to major negative impacts on a localized scale. Proposed acquisitions would result in additional acres of habitat preserved under public ownership. The benefit to specific vegetation resources would depend on what property is acquired. Rights-of-way and other realty actions would eliminate a small amount of vegetation in the project footprint and would damage adjacent vegetation due to dust generated by the development and use of the project. Little-used roads may provide nesting habitat for ground-nesting solitary bees (pollinators of native plants). Vegetation could also be affected by the alteration of water flow patterns due to road construction and orientation. Impacts to rare plants would be avoided by mitigation measures. Filming permits may result in temporary disturbance and have the potential to introduce weed seeds to the Monument. Other realty actions proposed under the No Action Alternative are expected to have negligible or no impacts to vegetation.

Climate Change Impacts

(Note: These impacts are common to all alternatives.) Impacts to vegetation from climate change are uncertain and depend, to a large extent, on the amount and rapidity of change. For drought-adapted species, there would be minor to major beneficial impacts; for more mesic species, the impacts would be expected to be negative and range from minor to major. The Intergovernmental Panel on Climate Change reports that the southwestern United States is likely to become hotter and drier (Christensen et al. 2007). Drier conditions for the CPNM mean that, overall, there would be less vegetative growth. A change in vegetation zones is also expected. Oak and juniper woodlands would tend to shift to scrublands, scrublands to grasslands, and grasslands to desert-like habitat with significant portions of bare soils or, possibly, biological crusts. Woodlands may be lost altogether from the Monument (Kueppers et al. 2005).

With a slight drying, the wild oat grasslands in the northern part of the Monument would be expected to shift to brome-dominated grasslands. The conversion of grasslands to desert may be accelerated if winds erode unprotected soils exposed during droughts. As the general area becomes drier, plant communities are expected to migrate northward or upward in elevation, at least those species that can. Depending on the strength and rapidity of the change, some elements of the flora may disappear. As precipitation levels and recharge decline, some springs would dry up, while others would diminish in flow, reducing riparian vegetation.

The amount and persistence of vegetation is expected to change. There would be less thatch generated, but, because winter moisture levels would be lower, less thatch would decompose. How this would affect the total amount of persistent biomass is unclear and would depend on the amount and pattern of precipitation as well as on the activities of kangaroo rats and other herbivores.

With a drier climate, there should be more drought years, more years where the introduced annual grasses do poorly, and more years where the grassland vegetation is dominated by native drought-adapted species with long-lived seeds. However, there may be an invasion of weedy exotic species now prevalent in southern California deserts such as *Brassica tournefortii* (Saharan mustard) and *Schismus* spp. (Mediterranean grass).

4.3.9 Cumulative Impacts

4.3.8.1 Assessment Area

The assessment area varies depending on the vegetation resource, but, in general, includes the southern San Joaquin Valley and adjacent Coast Ranges, the Carrizo Plain, and the Cuyama Valley.

4.3.8.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area

Development in the assessment area continues to degrade and eliminate natural vegetation; the trend is expected to accelerate as California's population expands, especially when coupled with the growth of energy-related development (oil, solar, wind, others). Natural vegetation will continue to be lost to irrigated agriculture, ranching, energy development, housing, and general impacts by human activities. As a result, the fragmentation and isolation of the remaining tracts of natural vegetation is expected to continue. However, lands within the Monument, along with adjacent CDFG, TNC, USFWS, and non-Monument BLM lands, will continue to be conserved and vegetation resources protected, offsetting some of these negative impacts.

The Monument is one of several recovery areas for federally protected species including California jewelflower, San Joaquin woolly-threads, and Hoover's woolly-star (recently delisted) and has important habitat for other rare plants (see Table 3.2-3, Additional Rare Plants in or near the Monument). Sensitive plant communities (valley sink scrub, vernal pools, and saltbush scrub) as present as well as other plant communities (see Table 3.2-2, Relationship between Vegetation Mapping Designations) currently more widespread, but diminishing in unprotected lands outside the Monument.

The recovery of listed plants and the conservation of other rare plant habitat would be enhanced by actions proposed in the RMP for the CPNM. Large, landscape-sized areas of native vegetation would be preserved during a time when similar habitat is being lost elsewhere. In addition, lands protected by the Monument and adjacent public lands would continue to provide important habitat for pollinators.

Unauthorized uses, including the trespass of sheep and cattle into sensitive habitats within the Monument would add to habitat degradation for native vegetation and rare plants, however, this possibility would be minimized by proposed boundary fencing and the acquisition of Monument inholdings.

Cumulative contribution to global climate change: Continued restoration of native plant communities would improve the carbon storage capability of Monument ecosystems in all alternatives.

4.4 Impact Analysis for Fire and Fuels Management

4.4.1 Assumptions Used for the Analysis

- Based on past years, it is estimated that on average about 500 acres of wildland fire burn in the CPNM each year. The pattern is often that one year there will be no fires, and the next there may be 1,000 to 2,000 acres burned.
- It is estimated that there is the potential for a large fire of up to 5,000 acres within the CPNM. Fires are limited by the road network and other natural barriers. On extreme weather days when many causal factors line up (such as wind, temperature, resource shortage), a larger fire could be possible, but it would be an extreme event.
- Dozer lines are on average 10 feet wide and scraped to mineral soil. For perspective, that means that approximately every 1 mile of dozer line equals 1 acre of disturbance.
- Hand lines are on average 2 to 3 feet wide and scraped to mineral soil. For perspective, that means that approximately every 1 mile of handline equals 0.3 acres of disturbance.

4.4.2 Incomplete Information

Predicting incidence and size of wildland fires is highly speculative and depends on many factors including weather conditions, fuel availability (which is tied to rainfall), the presence of ignition sources (both human and natural), as well as fire suppression resource availability based on other activity within the geographic area. For this reason, a wide range of acres burned per year is used in the analysis. The need for fuels treatment is also highly dependent on the amount of rainfall and the resulting effect on fuels build up.

4.4.3 Resources/Programs with No or Negligible Impacts on Fire and Fuels Management

The wildlife and vegetation programs will have no or negligible impacts on fire and fuels management. The main tool used to manage wildlife habitat, grazing, is covered under the grazing program impacts. Also, vegetation treatment for fuels reduction is covered under this section (fire and fuels). Any fencing alterations for meeting pronghorn objectives will have negligible effects on fire and fuels management. While removing fences increases the ease of conducting mobile attack, fences are easily cut during suppression activities, such that changes to fence location and miles will have little effect.

The soils, air quality, and water programs will have no or negligible impacts on fire and fuels management. While applying gravel or pavement to reduce fugitive dust would also make access easier for fire suppression resources, there would be negligible effects, since suppression vehicles are just as able to access areas on dirt roads during the fire season. Air quality impact management related to prescribed fire is managed by the state (see Chapter 3 Affected Environment).

The geology/paleontology and cultural resources programs would have no or negligible impacts on fire and fuels management. Cultural resource clearances are an SOP with all prescribed fire and fuels treatments. While each alternative proposes slight differences in the ease of access to various sites, the

overall effect of public visitation is not enough to result in appreciable differences to fire ignition risk in the CPNM. Overall effects of public use of the CPNM and its relation to the fire resource will be covered under the effects from recreation.

The visual resource program would have no or negligible impacts on fire and fuels management. Impacts of applying MIST in the Primitive area, which is also a Class I VRM, will be covered in the Wilderness Program section.

4.4.4 Impacts to Fire and Fuels Management Common to All Action Alternatives

Minerals

Implementation of the minerals program would be the same under All Action Alternatives. The main impacts from the minerals program are risks of human-caused ignitions from work conducted at oil and gas production facilities. Basic SOPs require oilfield workers to have fire extinguishers and to take standard fire prevention precautions. Welding, especially on cross-country pipelines, represents one of the riskier activities. Use of “two-track,” or basically unimproved roads, is also a concern during fire season due to the risk of dry vegetation being ignited through contact with hot vehicle undersides.

Considering all of these risks, there have not been any fires started from oilfield operations in the CPNM in recent history. Continued use of SOPs and fire prevention precautions should allow continued operation of mineral development without major effects and risks to the fire resource. Proposed cross-country seismic lines would represent little risk of fire ignition.

Oilfield developments do represent a hazard during fire suppression activities due to the presence of combustible gases and other potentially hazardous materials. Further expansion of oilfield operations would increase these hazards. Developed areas do represent areas of low fuels, due to the amount of activity, which would tend to provide potential fire control barriers (that is, ample roads to use as fire control lines).

4.4.5 Impacts to Fire and Fuels Management under the Proposed Plan (Alternative 2)

4.4.5.1 Impacts to Fire and Fuels Management from Implementing the Fire and Fuels Management Program

Under the proposed plan (Alternative 2), current objectives and guidelines in the Bakersfield Field Office Fire Management Plan would be employed throughout the CPNM. Active fire suppression tactics would be utilized to protect life, property, and sensitive cultural and natural resources, such as fire intolerant shrub species and the National Register District cultural properties. Active suppression could include the use of mobile attack, aerial attack, and dozers (outside of sensitive cultural site areas). Mobile attack would be favored over more soil disturbing methods, such as dozer lines, where possible. Fires on the valley floor burning in grassland areas away from sensitive cultural sites and fire intolerant shrub areas may be managed using a confine strategy, burning to the nearest roads. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres. Based on this strategy, it is estimated that in an average year the following impacts would occur from wildland fire suppression activities:

- Construct 2 miles of dozer line (approximately 1 acre of soil disturbance). Some dozer line construction may be dozing existing roads that are somewhat grown over.
- Construct 6 miles of handline (approximately 1 acre of disturbance).
- During mobile attack, spray approximately 2 miles of foam line (no surface clearance).

- Dump 2 loads of fire retardant (5,000 gallons total).
- Limited off-road travel by command vehicles (SUVs) and engines.

Based on the many uncontrollable factors that determine the number of acres burned each year (such as weather, ignition sources, suppression resource availability), it is difficult to estimate the number of acres burned each year. Using this strategy, it is estimated that approximately 500 acres per year would burn, on average. Fire size would tend to be smaller, as compared with the strategy proposed under Alternative 1, and slightly larger than proposed under Alternative 3. The proposed strategy under this alternative would reduce the risk of burning fire-sensitive resources, such as fire-intolerant saltbush. See other resource sections for more specifics on risks posed to cultural and natural resources under this alternative.

MIST would be utilized to the extent possible within the Caliente Mountain WSA and areas having wilderness character. Under the proposed plan, MIST would be considered for use on 62,455 acres, which is less than Alternative 1 and more than Alternative 3. Use of MIST may be limited in the Soda Lake area with wilderness characteristics due to the need to protect the large areas of fire intolerant saltbush scrub. Utilization of MIST could extend the time needed to reach containment in some cases, such as when handline is constructed in favor of a dozer line. MIST may require less actual work on the ground, such as cold-trailing, where the fire edge is not lined, but monitored to ensure the fire is out. While these tactics may not require as much physical labor, they can be much more time-consuming and require more patrol. They can also pose a larger risk of an escape by having no containment line, if a hot spot is missed and later rekindles.

Fire suppression costs are estimated to be less than Alternative 1, since more aggressive suppression would result in smaller fires on average with less area to contain and patrol. Fires would be contained more quickly in most cases, enabling BLM fire commanders to release cooperating agency resources within the mutual aid time frame of 6 hours into initial attack, which would result in reduced suppression reimbursement costs, as compared with Alternative 1. Costs are estimated to be approximately the same as Alternative 3, for the same reasons as above.

As compared with Alternative 1, more fuels treatment activities would be completed under this alternative. Up to 350 acres along major roadways, in recreation sites, and adjacent to buildings and other facilities would be mowed. This would reduce hazardous fuels in the areas of highest public use, which are also the areas with the highest ignition risk. Reduction of fuels would likely reduce the number of human-caused ignitions and/or reduce the size and intensity of ignitions in these areas. The mowed areas, especially along roadways, also provide increased defensible space that can be utilized during suppression activities to provide a more secure fire control break due to a larger area of decreased fuels. Burning up to 10 acres of piled material, such as tree trimmings and/or tumbleweeds along roadways, will also decrease fuel loadings and reduce ignition risk.

Prescribed burning would be used as a habitat management tool in this alternative, with on average, 1,000 acres burned every other year. The amount of burning would be based on vegetation conditions and the need to burn. See the Wildlife and Vegetation sections for specific effects of burning on these resources. Burned areas provide large areas of decreased fuels, which help break up the continuity of fuels in the landscape and could contribute to wildland fire suppression success. Each 1,000-acre prescribed burn would require the construction of approximately 5 miles of dozer line, which equals approximately 5 acres of surface disturbance. Less dozer line would be required if an existing road can be utilized as a control line.

4.4.5.2 Impacts to Fire and Fuels Management from Implementing Other Programs

WSA/Other Lands with Wilderness Characteristics

The proposed plan (Alternative 2) would manage an intermediate number of acres for wilderness characteristics, as compared with the other alternatives. Management direction does allow for the use of motorized vehicles and mechanical transport and the construction of temporary roads in the case of emergency, such as fighting fire. As described above in the fire impacts section, MIST would be used to the extent possible in these areas. Use of MIST may extend the time needed for containment of wildland fires.

Guidelines for areas having wilderness characteristics allow for prescribed burning, but implementation may be more difficult and costly if control lines cannot be constructed using mechanized equipment (dozers). This would likely only affect prescribed burning in the Temblor Range area of wilderness character, as this is also a wildlife core area that could require some habitat modification. Management of the WSA or areas of wilderness character should not affect the ability to implement fuels reduction activities along major travel corridors and around facilities and recreation sites.

Livestock Grazing

Effects to fire and fuels management from livestock grazing under the proposed plan (Alternative 2) would be very similar to the effects for the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):
 The main impact to fire and fuels management from livestock grazing is to decrease the amount of grass fuel available to burn. To better understand the effect on fire behavior from changes to the fuel loadings, the computer-based BEHAVE fire model was run for four different dry climate grass fuel models to display possible results on fire spread, flame length, and the ability of different fire suppression resources to fight the fire. Average summertime fuel and weather conditions were modeled for cured grass vegetation: 90 degrees, 3 percent fuel moisture of fine fuels, with three wind speeds (0, 5, and 10 miles per hour [mph]). The results are shown in Table 4.4-1 below:

Table 4.4-1. Fire Behavior Characteristics of Dry Climate Grass Fuel Models Burning in Hot/Dry Conditions

Fuel Model	GR1 Grass is short, patchy, and possibly grazed			GR2 Moderately coarse continuous grass, average depth about 1 ft			GR4 Moderately coarse continuous grass, average depth about 2 ft			GR7 Moderately coarse continuous grass, average depth about 3 ft		
	ROS, ch/h	FL, ft	SUP*	ROS, ch/h	FL, ft	SUP*	ROS, ch/h	FL, ft	SUP*	ROS, ch/h	FL, ft	SUP*
Wind Speed												
0 mph	1.2	0.6	Hand	2.6	1.4	Hand	5.3	2.7	Hand	9.8	6.4	Hand/Equip
5 mph	27.3	2.6	Hand	65.5	6.3	Equip	131.5	11.8	Indirect	191.7	25.0	Indirect
10 mph	27.3	2.6	Hand	175	9.9	Indirect	351.9	18.6	Indirect	510.6	39.2	Indirect

ROS – Rate of spread in chains/hour (1 chain equals 66 feet)
 FL – Flame length in feet
 SUP – Suppression resources able to attack the fire:
 Hand: head of fire can generally be attacked by persons using hand tools. Handline should hold the fire.
 Equip: fire is too intense to attack with hand tools. Dozers, engines, or aircraft can be effective. Handline will generally not hold the fire.
 Indirect: fire is too intense and control efforts at the head of the fire will generally be ineffective. Indirect attack (building line farther out in front of the fire) will be necessary.

Fuel model Grass 1 (GR1) would represent natural conditions in particularly dry years or conditions following grazing. The Grass 2 (GR2) model would represent conditions under an average precipitation regime, before grazing. A wet precipitation year would be represented by the Grass 4 (GR4) model, with the Grass 7 (GR7) model limited to unusually wet years.

As the table shows, conditions such as that found in dry years, or following grazing, would generally lend themselves to fighting wildland fires with hand tools under all modeled wind conditions, up to 10 mph. Hand tools would also be effective against fires burning in grass types up to 3 feet in depth, if there is no wind present. Higher levels of wind at grass depths of only 1 foot quickly increase the fire intensity and would require mechanized equipment or indirect fire line tactics.

Under the No Action Alternative, grazing could be used on up to 170,052 acres of the CPNM. Grazing would be used as a vegetation management tool to reduce the amount and height of vegetative cover, according to pasture-specific prescriptions in the pasture matrix (Appendix M). Generally, the adaptive management guidelines for when grazing would be applied are correlated to the times when grass fuel levels would be at their highest levels. Overall, application of grazing under these conditions acts as a fuels reduction treatment and will decrease the fire behavior potential of the area and contribute to wildland fire suppression success under average weather conditions. Grazed areas would exhibit the less intense fire behavior more representative of the GR1 model. Grazed areas would also be more conducive to application of a confine strategy, as a less intense fire would be easier to hold at existing fire control lines, such as roads. In times of high winds, weather conditions override fuel conditions and lead to control problems with any fuel depth.

Although this alternative proposes slightly more acres available for livestock grazing, it reduces the actual application of livestock, so benefits from fuel reduction may be slightly less under this alternative.

Recreation and Travel Management

Effects to fire and fuels management related to public use are mostly related to the risk of human-caused ignition based on expected numbers of visitors, the amount of area open to various activities, and the level of management presence provided under each alternative. Since recreation and travel are closely related, they will be discussed together.

Under the proposed plan (Alternative 2), the potential risk of human-caused ignitions would be increased over that predicted for Alternative 1 with the retention of dispersed vehicle camping. Dispersed vehicle camping in areas where there has not been fuel reduction and where managerial presence is less, represents some of the highest risk of human-caused ignitions.

The proposed plan represents an intermediate level of road closure between Alternatives 1 and 3, based on the number of acres in Primitive areas. Reduction of roads open to the public would reduce potential for roadside ignitions.

The proposed plan represents an intermediate level of development of additional interpretive facilities and trailhead/staging areas in all RMZs. Visitor use would likely increase as facilities are developed, which could result in increased fire ignitions.

Lands and Realty

Impacts from the proposed plan (Alternative 2) would be basically the same as Alternative 1, with slightly less impacts from acquisition of fewer acres.

Impacts under Alternative 1 (for reference):

There would be minimal impacts expected to fire ignition from the minor rights-of-way proposed.

Since BLM already provides the direct protection responsibilities for all land (public and private) within the CPNM area, acquisition of private land within the CPNM will have no effect on BLM's fire protection responsibilities. However, acquisition of private land may provide more flexibility during suppression, as private property values will not be a factor determining values at risk and suppression priorities. Fire ignition potential may decrease if overall human activity on the acquired land decreases after acquisition, or increase if more activity is realized from recreation use that did not exist prior to acquisition. Acquisition of private inholdings may facilitate prescribed burning by creating larger blocks of contiguous public land and eliminating the need to avoid private parcels or to get landowner approval to burn.

Targeting acquisition of lands that would help meet priority habitat protection needs could facilitate the use of prescribed fire for restoration purposes in these areas that may need the most treatment.

4.4.6 Impacts to Fire and Fuels Management under Alternative 1

4.4.6.1 Impacts to Fire and Fuels Management from Implementing the Fire and Fuels Management Program

Under Alternative 1, a more “hands-off” approach to management would be taken across the CPNM. For wildland fire suppression, this means that active suppression tactics, such as using dozers and mobile attack, would be limited to situations where life and property were threatened, or in situations where current conditions would make it a safety hazard to employ a confine-and-contain strategy (where fires are basically suppressed when they reach the nearest existing fire barrier, such as a road or natural barrier). Based on this strategy, it is estimated that in an average year the following impacts would occur from wildland fire suppression activities:

- Construct 1 mile of dozer line (approximately 1 acre of soil disturbance). Some dozer line construction may be dozing existing roads that are somewhat grown over.
- Construct 3 miles of handline (approximately 1 acre of disturbance).
- During mobile attack, spray approximately 4 miles of foam line (no surface clearance).
- Dump 2 loads of fire retardant (5,000 gallons total).
- Limited off-road travel by command vehicles (SUVs) and engines.

Based on the many uncontrollable factors that determine the number of acres burned each year (such as weather, ignition sources, suppression resource availability), it is difficult to estimate the number of acres burned each year. However, by utilizing a less aggressive suppression strategy such as confine and contain whenever possible, there would likely be more acres burned by wildfire under Alternative 1 as compared to the other alternatives. Based on a current average of 500 acres burned per year, it is likely that burned acres could double to 1,000 acres or more on average each year. The risk of burning fire-sensitive resources, such as fire-intolerant saltbush, is greatest under this alternative. See other resource sections for more specifics on risks posed to cultural and natural resources under Alternative 1.

MIST would be utilized to the extent possible within the Caliente Mountain WSA and areas having wilderness characteristics. Under Alternative 1, MIST would be considered for use on 83,202 acres, the most under any alternative. Utilization of MIST could extend the time needed to reach containment in some cases, such as when handline is constructed in favor of a dozer line. MIST may require less actual

work on the ground, such as cold-trailing, where the fire edge is not lined, but monitored to ensure the fire is out. While these tactics may not require as much physical labor, they can be much more time-consuming and require more patrol. They can also pose a larger risk of an escape by having no containment line, if a hot spot is missed and later rekindles.

Based on the estimate of more acres burned by wildfire under Alternative 1, time needed for suppression would likely increase, as would suppression costs. With bigger fires come larger fire perimeters to control and patrol, which requires more time. It is likely that more fires would require suppression beyond initial attack. Local firefighting cooperators in the area, such as the U.S. Forest Service, State of California (CalFire), Kern County, and Santa Barbara County, operate under a mutual aid agreement where initial attack resources are not charged to the agency with the direct protection responsibilities (BLM for the CPNM area) for the first 6 hours of work. If the fire extends beyond initial attack, all charges starting at initial attack are charged, meaning fires which enter extended attack that still require aid from cooperators cost BLM more in suppression cost reimbursement.

Alternative 1 is the only alternative that allows for the option of managing natural ignitions within the Caliente Mountain WSA for resource benefit, a management option known as wildland fire use (WFU). Based on the past history of few lightning starts in the Caliente Mountains, it is estimated that the opportunity to utilize WFU would only occur 1 to 2 times within a decade. Based on the lighter fuels in the area, it is estimated that most fires would burn for one burning period, with fire intensity greatly reduced the first nighttime burning period. WFU events would likely last 3 to 4 days with low intensity fire burning 500 to 2,000 acres per event. In actuality, use of WFU tactics would not differ greatly from light-on-the-land tactics that would automatically be used within a WSA, as required by the WSA management guidelines.

Minimal amounts of fuels treatment activities (approximately 25 acres per year) are proposed under Alternative 1, limited to fuel reduction in the immediate vicinity of recreation improvements, structures, and other facilities. Up to 5 acres of tree trimmings or roadside weeds would also be piled and burned each year. As compared with the other alternatives, which provide fuel reduction along major road corridors and more extensive reduction around recreation sites, this alternative would have the least amount of fuel reduction in the most ignition-prone areas of the CPNM. Having higher fuel loadings in areas where the public use is the greatest would likely lead to more human-caused ignitions. Ignitions starting in these heavier fuels would be more likely to escape and lead to larger wildfires.

No prescribed burning is proposed under Alternative 1. Resource specialists would have to rely on other wildlife habitat modification tools to contribute to native species restoration goals. No expenses would be made to implement prescribed burns.

4.4.6.2 Impacts to Fire and Fuels Management from Implementing Other Programs

WSA/Lands with Wilderness Characteristics

Alternative 1 would manage the largest number of acres for wilderness characteristics of all the alternatives. Management direction does allow for the use of motorized vehicles and mechanical transport and the construction of temporary roads in the case of emergency, such as fighting fire. As described above in the fire impacts section, MIST would be used to the extent possible in these areas. Use of MIST may extend the time needed for containment of wildland fires.

Guidelines for areas having wilderness characteristics will not affect prescribed burning under Alternative 1, as no burning is proposed.

Livestock Grazing

Under Alternative 1, livestock grazing within the CPNM would be limited to a 4,587-acre area along the northern boundary of the CPNM that logistically is managed with other areas outside of the Monument. Grazing would not be used as a vegetation management tool. Therefore, in years of high precipitation and above-average vegetation growth, grazing would not decrease fuel loadings, which could lead to larger, more intense, faster moving wildfires (see the discussion of fire behavior under various grazed and ungrazed fuel models under the No Action Alternative). Wildfires would be more difficult to control and acres burned would likely increase. In dry years, elimination of grazing throughout much of the Monument would have little effect on potential fire behavior, due to low natural fuel loadings and their associated lower levels of fire behavior.

Recreation and Travel Management

Effects on fire and fuels management related to public use are mostly related to the risk of human-caused ignition based on expected numbers of visitors, the amount of area open to various activities, and the level of management presence provided under each alternative. Since recreation and travel are closely related, they will be discussed together.

Under Alternative 1, the potential risk of human-caused ignitions would be reduced by the restriction on dispersed vehicle camping. All vehicle camping would occur at developed sites, where there would be some fuel reduction treatment and more managerial presence. Dispersed camping would be limited to backpacking, which is thought to be a limited activity during the fire season due to high temperatures. The larger number of acres managed in the Primitive zone would also result in fewer miles of road open to the public, reducing another area of high ignition risk. Alternative 1 also proposes the least amount of development of additional interpretive facilities and trailhead/staging areas in all RMZs. It is thought that this will likely result in the smallest increase in visitor use in the future, which would also result in decreased human-caused ignition risk, as compared with the other Action Alternatives.

Lands and Realty

There would be minimal impacts expected to fire ignition from the minor rights-of-way proposed.

Since BLM already provides the direct protection responsibilities for all land (public and private) within the CPNM area, acquisition of private land within the CPNM will have no effect on BLM's fire protection responsibilities. However, acquisition of private land may provide more flexibility during suppression, as private property values will not be a factor determining values at risk and suppression priorities. Fire ignition potential may decrease if overall human activity on the acquired land decreases after acquisition, or increase if more activity is realized from recreation use that did not exist prior to acquisition. Acquisition of private inholdings may facilitate prescribed burning by creating larger blocks of contiguous public land and eliminating the need to avoid private parcels or to get landowner approval to burn.

4.4.7 Impacts to Fire and Fuels Management under Alternative 3

4.4.7.1 Impacts to Fire and Fuels Management from Implementing the Fire and Fuels Management Program

Under Alternative 3, active suppression action would be taken on all fires to minimize the acres of wildland fire burned within the CPNM. Active suppression could include the use of mobile attack, aerial attack, and dozers (outside of sensitive cultural site areas). Mobile attack would be favored over more soil disturbing methods, such as dozer lines, where possible. The goal would be to contain 90 percent of fires

to 100 acres or less within the CPNM. Based on this strategy, it is estimated that in an average year the following impacts would occur from wildland fire suppression activities:

- Construct 3 miles of dozer line (approximately 1 acre of soil disturbance). Some dozer line construction may be dozing existing roads that are somewhat grown over.
- Construct 8 miles of handline (approximately 1 acre of disturbance).
- During mobile attack, spray approximately 2 miles of foam line (no surface clearance).
- Dump 4 loads of fire retardant (5,000 gallons total).
- Limited off-road travel by command vehicles (SUVs) and engines.

Based on the many uncontrollable factors that determine the number of acres burned each year (such as weather, ignition sources, suppression resource availability), it is difficult to estimate the number of acres burned each year. Using this strategy, it is estimated that approximately 400 acres per year would burn, on average. Fire size would tend to be smaller, as compared with the strategies proposed under Alternative 1 and the proposed plan (Alternative 2). The proposed strategy under Alternative 3 would reduce the risk of burning fire-sensitive resources, such as fire-intolerant saltbush. See other resource sections for more specifics on risks posed to cultural and natural resources under Alternative 3.

MIST would be utilized to the extent possible within the 17,984-acre Caliente Mountain WSA. This alternative proposes the least amount of MIST used. Utilization of MIST could extend the time needed to reach containment in some cases, such as when handline is constructed in favor of a dozer line. MIST may require less actual work on the ground, such as cold-trailing, where the fire edge is not lined, but monitored to ensure the fire is out. While these tactics may not require as much physical labor, they can be much more time-consuming and require more patrol. They can also pose a larger risk of an escape by having no containment line, if a hot spot is missed and later rekindles.

Fire suppression costs are estimated to be less than Alternative 1, since more aggressive suppression would result in smaller fires on average with less area to contain and patrol. Fires would be contained more quickly in most cases, enabling BLM fire commanders to release cooperating agency resources within the mutual aid time frame of 6 hours into initial attack, which would result in reduced suppression reimbursement costs, as compared with Alternative 1. Costs are estimated to be approximately the same as the proposed plan (Alternative 2), for the same reasons as above.

Alternative 3 proposes the same amount and location of fuels treatment as proposed in the proposed plan. Impacts would therefore be the same as the proposed plan. As wildfire size would be kept somewhat smaller, this alternative proposes slightly more acres of prescribed burning, with up to 1,500 acres every other year. Effects would be similar to that for the proposed plan. Slightly more dozer line may need to be constructed to facilitate the slightly larger burns.

4.4.7.2 Impacts to Fire and Fuels Management from Implementing Other Programs

WSA/Lands with Wilderness Characteristics

Alternative 3 would manage the least amount of area for wilderness character, limited to the existing Caliente Mountain WSA. Management direction does allow for the use of motorized vehicles and mechanical transport and the construction of temporary roads in the case of emergency, such as fighting fire. As described above in the fire impacts section, MIST would be used to the extent possible in these areas. Use of MIST may extend the time needed for containment of wildland fires.

Management of the WSA would not affect the ability to implement prescribed burning to support wildlife habitat modification in core areas. It would also not affect the ability to implement fuels reduction activities along major travel corridors and around facilities and recreation sites.

Livestock Grazing

Effects to fire and fuels management from livestock grazing under Alternative 3 would be similar to the proposed plan (Alternative 2) within vegetation management areas and similar to the No Action alternative within Section 15 allotments.

Recreation and Travel Management

Effects to fire and fuels management related to public use are mostly related to the risk of human-caused ignition based on expected numbers of visitors, the amount of area open to various activities, and the level of management presence provided under each alternative. Since recreation and travel are closely related, they will be discussed together.

Under Alternative 3, the potential risk of human-caused ignitions would be increased over that predicted for Alternative 1 with the retention of dispersed vehicle camping. Dispersed vehicle camping in areas where there has not been fuel reduction and where managerial presence is less, represents some of the highest risk of human-caused ignitions.

Under Alternative 3, the current mix of road classifications would be retained. As with the No Action Alternative, this represents the greatest miles of road open to the public. Alternative 3 also proposes the greatest amount of development of additional interpretive facilities and trailhead/staging areas in all RMZs. The recreational development under Alternative 3 would likely increase visitor use to the CPNM, as compared with the other alternatives, leading to an increased risk of human-caused ignitions. However, this increase may be moderated somewhat since most visitation would take place in the more developed areas where there is fuel reduction and more managerial presence.

Lands and Realty

Impacts would basically be the same as for Alternative 1.

4.4.8 Impacts to Fire and Fuels Management under the No Action Alternative

4.4.8.1 Impacts to Fire and Fuels Management from Implementing the Fire and Fuels Management Program

Under the No Action Alternative, current objectives and guidelines in the Caliente Field Office Fire Management Plan would be employed throughout the CPNM. Active fire suppression tactics would be utilized to protect life, property, and sensitive cultural and natural resources, such as fire intolerant shrub species and the National Register District cultural properties. Active suppression could include the use of mobile attack, aerial attack, and dozers (outside of sensitive cultural site areas). Mobile attack would be favored over more soil disturbing methods, such as dozer lines, where possible. Fires on the valley floor burning in grassland areas away from sensitive cultural sites and fire intolerant shrub areas may be managed using a confine strategy, burning to the nearest roads. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres. Based on this strategy, it is estimated that in an average year the following impacts would occur from wildland fire suppression activities:

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- Construct 2 miles of dozer line (approximately 1 acre of soil disturbance). Some dozer line construction may be dozing existing roads that are somewhat grown over.
- Construct 6 miles of handline (approximately 1 acre of disturbance).
- During mobile attack, spray approximately 2 miles of foam line (no surface clearance).
- Dump 2 loads of fire retardant (5,000 gallons total).
- Limited off-road travel by command vehicles (sport utility vehicles [SUVs]) and engines.

Based on the many uncontrollable factors that determine the number of acres burned each year (such as weather, ignition sources, suppression resource availability), it is difficult to estimate the number of acres burned each year. Using this strategy it is estimated that approximately 500 acres per year would burn, on average. Fire size would tend to be smaller, as compared with the strategy proposed under Alternative 1, the same as the proposed plan (Alternative 2), and slightly larger than proposed under Alternative 3. The proposed strategy under this alternative would reduce the risk of burning fire-sensitive resources, such as fire-intolerant saltbush. See other resource sections for more specifics on risks posed to cultural and natural resources under this alternative.

MIST would be utilized to the extent possible within the Caliente Mountain WSA. Under the No Action Alternative, MIST would be considered for use on 17,984 acres, which is less than Alternative 1 and the proposed plan (Alternative 2), and the same as Alternative 3. Utilization of MIST could extend the time needed to reach containment in some cases, such as when handline is constructed in favor of a dozer line. MIST may require less actual work on the ground, such as cold-trailing, where the fire edge is not lined, but monitored to ensure the fire is out. While these tactics may not require as much physical labor, they can be much more time-consuming and require more patrol. They can also pose a larger risk of an escape by having no containment line, if a hot spot is missed and later rekindles.

Fire suppression costs are estimated to be less than Alternative 1, since more aggressive suppression would result in smaller fires on average with less area to contain and patrol. Fires would be contained more quickly in most cases, enabling BLM fire commanders to release cooperating agency resources within the mutual aid time frame of 6 hours into initial attack, which would result in reduced suppression reimbursement costs, as compared with Alternative 1. Costs are estimated to be approximately the same as the proposed plan (Alternative 2) and Alternative 3, for the same reasons as above.

The No Action Alternative proposes the same amount of fuels treatment as the proposed plan and Alternative 3, which is more than proposed under Alternative 1. Up to 350 acres along major roadways, in recreation sites, and adjacent to buildings and other facilities would be mowed. This would reduce hazardous fuels in the areas of highest public use, which are also the areas with the highest ignition risk. Reduction of fuels would likely reduce the number of human caused ignitions and/or reduce the size and intensity of ignitions in these areas. The mowed areas, especially along roadways, also provide increased defensible space that can be utilized during suppression activities to provide a more secure fire control break due to a larger area of decreased fuels. Burning up to 10 acres of piled material, such as tree trimmings and/or tumbleweeds along roadways will also decrease fuel loadings and reduce ignition risk.

Prescribed burning would be used as a habitat management tool in this alternative, with on average, 1,000 acres burned every other year. The amount of burning would be based on vegetation conditions and the need to burn. See the Wildlife and Botany sections for specific effects of burning on these resources. Burned areas provide large areas of decreased fuels, which help break up the continuity of fuels in the landscape and could contribute to wildland fire suppression success. Each 1,000-acre prescribed burn would require the construction of approximately 5 miles of dozer line, which equals approximately 5

acres of surface disturbance. Less dozer line would be required if an existing road can be utilized as a control line.

4.4.8.2 Impacts to Fire and Fuels Management from Implementing Other Programs

WSA/Lands with Wilderness Characteristics

The No Action Alternative would manage the least amount of area for wilderness characteristics, limited to the existing Caliente Mountain WSA. Management direction does allow for the use of motorized vehicles and mechanical transport and the construction of temporary roads in the case of emergency, such as fighting fire. As described above in the fire impacts section, MIST would be used to the extent possible in these areas. Use of MIST may extend the time needed for containment of wildland fires.

Management of the WSA would not affect the ability to implement prescribed burning to support wildlife habitat modification in core areas. It would also not affect the ability to implement fuels reduction activities along major travel corridors and around facilities and recreation sites.

Livestock Grazing

The main impact to fire and fuels management from livestock grazing is to decrease the amount of grass fuel available to burn. To better understand the effect on fire behavior from changes to the fuel loadings, the computer-based BEHAVE fire model was run for four different dry climate grass fuel models to display possible results on fire spread, flame length, and the ability of different fire suppression resources to fight the fire. Average summertime fuel and weather conditions were modeled for cured grass vegetation: 90 degrees, 3 percent fuel moisture of fine fuels, with three wind speeds (0, 5, and 10 miles per hour [mph]). The results are shown in Table 4.4-1 below:

Table 4.4-1. Fire Behavior Characteristics of Dry Climate Grass Fuel Models Burning in Hot/Dry Conditions

Fuel Model	GR1 Grass is short, patchy, and possibly grazed			GR2 Moderately coarse continuous grass, average depth about 1 ft			GR4 Moderately coarse continuous grass, average depth about 2 ft			GR7 Moderately coarse continuous grass, average depth about 3 ft		
	ROS, ch/h	FL, ft	SUP*	ROS, ch/h	FL, ft	SUP*	ROS, ch/h	FL, ft	SUP*	ROS, ch/h	FL, ft	SUP*
0 mph	1.2	0.6	Hand	2.6	1.4	Hand	5.3	2.7	Hand	9.8	6.4	Hand/Equip
5 mph	27.3	2.6	Hand	65.5	6.3	Equip	131.5	11.8	Indirect	191.7	25.0	Indirect
10 mph	27.3	2.6	Hand	175	9.9	Indirect	351.9	18.6	Indirect	510.6	39.2	Indirect

ROS – Rate of spread in chains/hour (1 chain equals 66 feet)

FL – Flame length in feet

SUP – Suppression resources able to attack the fire:

- Hand – head of fire can generally be attacked by persons using hand tools. Handline should hold the fire.
- Equip – fire is too intense to attack with hand tools. Dozers, engines, or aircraft can be effective. Handline will generally not hold the fire.
- Indirect – fire is too intense and control efforts at the head of the fire will generally be ineffective. Indirect attack (building line farther out in front of the fire) will be necessary.

Fuel model Grass 1 (GR1) would represent natural conditions in particularly dry years or conditions following grazing. The Grass 2 (GR2) model would represent conditions under an average precipitation regime, before grazing. A wet precipitation year would be represented by the Grass 4 (GR4) model, with the Grass 7 (GR7) model limited to unusually wet years.

As the table shows, conditions such as that found in dry years, or following grazing, would generally lend themselves to fighting wildland fires with hand tools under all modeled wind conditions, up to 10 mph. Hand tools would also be effective against fires burning in grass types up to 3 feet in depth, if there is no wind present. Higher levels of wind at grass depths of only 1 foot quickly increase the fire intensity and would require mechanized equipment or indirect fire line tactics.

Under the No Action Alternative, grazing could be used on up to 170,052 acres of the CPNM. Grazing would be used as a vegetation management tool to reduce the amount and height of vegetative cover, according to pasture-specific prescriptions in the pasture matrix (Appendix M). Generally, the adaptive management guidelines for when grazing would be applied are correlated to the times when grass fuel levels would be at their highest levels. Overall, application of grazing under these conditions acts as a fuels reduction treatment and will decrease the fire behavior potential of the area and contribute to wildland fire suppression success under average weather conditions. Grazed areas would exhibit the less intense fire behavior more representative of the GR1 model. Grazed areas would also be more conducive to application of a confine strategy, as a less intense fire would be easier to hold at existing fire control lines, such as roads. In times of high winds, weather conditions override fuel conditions and lead to control problems with any fuel depth.

Recreation and Travel Management

Effects on fire and fuels management related to public use are mostly related to the risk of human-caused ignition based on expected numbers of visitors, the amount of area open to various activities, and the level of management presence provided under each alternative. Since recreation and travel are closely related, they are discussed together.

Under the No Action Alternative, the potential risk of human-caused ignitions would be increased over that predicted for Alternative 1 with the retention of dispersed vehicle camping. Dispersed vehicle camping in areas where there has not been fuel reduction and where managerial presence is less represents some of the highest risk of human-caused ignitions.

The current mix of road classifications would be retained under the No Action Alternative. This is the same as Alternative 3, and represents the greatest miles of road open to the public. Roadways can be areas of increased human-caused ignitions.

Similar to the proposed plan (Alternative 2), the No Action Alternative represents an intermediate level of development of additional interpretive facilities and trailhead/staging areas. Visitor use would likely increase as facilities are developed, which could result in increased fire ignitions. The increase is not expected to be as much as is predicted for Alternative 3.

Lands and Realty

Construction by a commercial utility of power line could increase the risk of fire ignition in the area from arcing or downed power lines. There would be minimal impacts expected to fire ignition from the other minor rights-of-way proposed.

Since BLM already provides the direct protection responsibilities for all land (public and private) within the CPNM area, acquisition of private land within the CPNM would have no effect on BLM's fire protection responsibilities. However, acquisition of private land may provide more flexibility during suppression, as private property values will not be a factor determining values at risk and suppression priorities. Fire ignition potential may decrease if overall human activity on the acquired land decreases

after acquisition, or increase if more activity is realized from recreation use that did not exist prior to acquisition. Acquisition of private inholdings may facilitate prescribed burning by creating larger blocks of contiguous public land and eliminating the need to avoid private parcels or to get landowner approval to burn.

4.4.9 Cumulative Impacts

4.4.9.1 Assessment Area

The assessment area for cumulative effects for fire and fuels management includes the CPNM area itself in addition to the adjacent areas within BLM's Direct Protection Area. Adjacent areas within the Direct Protection Area include the Chimineas Ranch, private land south of the CPNM to the Cuyama River, and the private land adjacent to the northwest boundary of the CPNM, which is bounded by Seven Mile Road. The northern boundary would be the crest of the Temblor Mountains. BLM is responsible for fire suppression protection in this area.

4.4.9.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area and Cumulative Impacts

Past actions that have affected fire and fuels management include historic farming and grazing practices that have led to the replacement of a majority of native vegetation with nonnative species. Past and present management practices have created a road network that is useful to fire suppression activities in the area.

Present actions on the CPNM were described in the Alternatives section. Management activities on the Chimineas Ranch are similar to that on the BLM land within the CPNM, including some grazing and vegetation clearance around structures. The private parcel between Seven Mile Road and the CPNM boundary under the BLM Direct Protection Area is fairly undeveloped, with only a few private developments with structures. BLM's Midway Fire Station was relocated from the Shafter area to the city of Taft in May 2009. This has moved two fire engines and a water tender much closer to the CPNM and shortened response times to the CPNM by over an hour.

Future actions include native species restoration efforts that should increase the amount of native vegetation throughout the Monument over time. It is likely that visitor use will increase over time on the CPNM as the area becomes better known. Future development of private land parcels within the CPNM could increase the amount of wildland urban interface in the area, although the difficulty of securing potable water in the area will likely limit the amount of private development. Based on the long history of mutual aid within California, cooperation with adjoining fire suppression agencies will continue in the future.

The interaction of RMP actions together with other past, present, and reasonably foreseeable future actions were considered in analyzing cumulative impacts. Past conversion of native species to primarily nonnative species has affected the overall fire regime, increasing the interval of fire return over natural conditions. Current fire suppression resources, including cooperating agencies, have provided adequate fire suppression protection, which is anticipated to continue in the future. The relocation of the Midway Fire Station to Taft has shortened suppression response times to the CPNM, which should increase fire suppression success. This will also facilitate having BLM personnel who are more familiar with the resource management concerns on scene earlier in the fire when planning suppression tactics. Overall, RMP actions, when considered with other past, present, and reasonably foreseeable future actions, are not anticipated to have a significant effect in terms of fire and fuels management.

Cumulative contributions to global climate change: Prescribed burns and wildfire would result in the release of greenhouse gases. However, the rapid regrowth of vegetation and the light fuels found within proposed burn areas would offset these impacts with renewed carbon storage.

4.5 Impact Analysis for Air Quality

The following resources/programs will have no or negligible impacts to air quality: wildlife (effects of various habitat management tools will be covered in the fire and grazing sections), vegetation, soils, water resources, geology and paleontology, cultural resources, visual resources, and lands and realty.

4.5.1 Impacts to Air Quality Common to All Action Alternatives

4.5.1.1 Impacts to Air Quality from Implementing the Air Quality Program

All alternatives share the objectives of maintaining or improving air quality through conformance with applicable local, state, and federal air quality regulations; using alternative energy sources where feasible; and minimizing dust emissions on roads and with other earth-disturbing activities, which also minimizes the exposure to the spores that cause valley fever. These actions would all contribute to reduction of pollution and maintenance of good air quality in the CPNM.

4.5.1.2 Impacts to Air Quality from Implementing Other Programs

No impacts common to all alternatives were identified.

4.5.2 Impacts to Air Quality under the Proposed Plan (Alternative 2)

4.5.2.1 Impacts to Air Quality from Implementing the Air Quality Program

The main action proposed by the air quality program is the reduction of fugitive dust on main roads in the CPNM through the use of road aggregate or gravel base or the application of chemical binders or water for dust control. The use of aggregate or gravel would provide the most efficient method of dust control, as benefits would be realized for longer periods as opposed to the more temporary method of watering or chemical binders. The proposed actions would reduce particulate matter and improve air quality in the CPNM.

Impacts would be similar to Alternative 1, with similar actions proposed to reduce fugitive dust emission from roads.

Impacts under Alternative 1 (for reference):

The main action proposed by the air quality program is the reduction of fugitive dust on main roads in the CPNM through the use of road aggregate or gravel base or the application of chemical binders or water for dust control. The use of aggregate or gravel would provide the most efficient method of dust control, as benefits would be realized for longer periods as opposed to the more temporary method of watering or chemical binders. The proposed actions would reduce particulate matter and improve air quality in the CPNM.

Additional minor emission reductions could be realized through implementation of the other proposed action under this alternative: to install solar panels to replace generators, where feasible. Elimination of gas or diesel fueled generators would provide a slight reduction in emissions of NO_x and VOCs, which are precursors to ground level ozone.

4.5.2.2 Impacts to Air Quality from Implementing Other Programs

Fire and Fuels Management Program

The proposed plan (Alternative 2) proposes the use of prescribed burning as a habitat management tool. It is estimated that on average a broadcast burn of about 1,000 acres would be conducted every other year, or as conditions warrant. Up to 10 acres of piled vegetation would also be burned each year. Burning would be conducted under the guidance of the APCD and under weather conditions conducive to the dispersion of emissions. It would likely take 1 to 2 days to burn 1,000 acres in the grass vegetation type. During the burning, air quality may be affected through emissions of particulate matter and VOCs. However, past burning in the area has shown that emissions disperse readily and no public health impacts have been reported. Minor effects to air quality from prescribed burning would be limited in amount and duration.

Fire suppression tactics under Alternative 1 propose a more aggressive strategy, where important resource and habitat features are actively protected through suppression actions. Acres burned by wildland fire are expected to be less than under Alternative 1. Large wildland fires could still produce emissions that could temporarily affect air quality for surrounding communities. Effects would still be limited in amount and duration due to the fast burning nature of grass fuels.

More aggressive suppression tactics would require construction of more fire line, both by dozer and by hand, which would increase particulate matter emissions over Alternative 1. This would also increase the exposure to the spores that cause valley fever for both firefighting personnel and the public. Firefighters would be warned of these hazards during suppression operations and would take steps to minimize activity in areas where dust is still obviously airborne.

Minerals

Proposed actions for oil and gas development are the same for all alternatives, leading to the same impacts to air quality under all alternatives. Oil and gas operations can affect air quality through various air emissions, including exhaust emissions from gasoline or diesel engines used to power the drill rigs; particulate matter from well pad construction and the use of dirt roads to access facilities; fugitive emissions, which are unintentional gas leaks from leaky fittings, seals, or pipes; and venting of gases during various well maintenance operations. The main pollutants from oil and gas operations are PM₁₀ and PM_{2.5}, VOCs, NO_x, and hydrogen sulfide. Ground level ozone is formed in the atmosphere through a reaction of VOCs and NO_x in the presence of sunlight.

The Petroleum industry is highly regulated in California by numerous Federal, State, and local regulations. Prohibitory rules and regulations are imposed by Federal, State, and local regulatory agencies to control the emissions of air contaminants from crude oil production and gas processing operations. The Federal Clean Air Act (CAA) established minimum air quality standards and each state is responsible for developing a plan to meet or exceed those standards. Control has been delegated by the State to local jurisdiction, at the air basin level.

All new sources of air pollution, or modified existing sources of air pollution, are subject to New Source Review (NSR). NSR is designed to limit the negative impact to air quality from new and/or modified projects, processes, or facilities.

Unless otherwise exempt **all** activities that may cause air pollution or control air pollution, require an Authority to Construct (ATC) and a Permit to Operate (PTO). An ATC acts as a temporary PTO until the final PTO is issued by the appropriate APCD. In addition, “major” sources of air pollution require a Title

V Operating Permit. Title V Operating Permits contain a substantially greater number of conditions than NSR permits and are subject not only to local, but federal enforcement action.

Oil and gas production in the CPNM is limited to valid existing rights that were in place prior to the Monument Proclamation. An estimate of well development on these leases plus private leases is up to 23 wells, and associated roads, facilities, and pipelines. Existing roads will be utilized to the extent possible. Due to the limited amount of oil and gas development proposed under All Action Alternatives, effects to air quality will be limited in amount and intensity and will have minor impacts.

BLM requires that the lessee/operator take on the responsibility for ensuring that all operations are properly permitted with the appropriate agencies, and that the operations are in compliance with all mobile and stationary source guidelines. Mitigation measures (BMPs) would include such items as dust control using application of water or pre-soaking and limiting traffic speed on unpaved roads. It would also include such items as use of low-emission construction equipment, use of low sulfur fuel, and/or use of the existing power transmission facilities, where available, rather than temporary power generators. The failure of the lessee/operator to follow the air quality rules would likely result in fines and could also lead to the loss of the BLM and air district authorizations.

All Other Resource/Public Use Programs

Various public and resource uses of the CPNM have the potential to affect air quality primarily as they relate to the amount of miles driven within the Monument. Increased use of non-paved roads increases fugitive dust and the amount of particulate matter present in the air. Increased road usage also increases emissions related to fuel combustion by gasoline or diesel engines, including particulate matter, VOCs, and NO_x.

The proposed plan (Alternative 2) would likely result in an increased amount of vehicular travel within the CPNM and therefore a greater amount of potential emissions from fugitive dust and fuel combustion relative to Alternative 1. More land is available for grazing under the proposed plan, leading to continued use of dirt roads by permittees and BLM personnel to administer grazing authorizations. Fewer miles of road are open to the public under the proposed plan than are available under existing management, and dispersed vehicle camping is allowed. Painted Rock is open for guided tours, as well as self-guided access part of the year, which could increase road travel to visit this popular attraction. Under the proposed plan, both street legal vehicles and vehicles licensed under the state's OHV program (green and red sticker vehicles) would continue to be allowed on open roads in the CPNM. This would result in a probable increase in OHV use within the CPNM, as compared with Alternative 1. While vehicle miles traveled would likely be greater under the proposed plan as compared with Alternative 1, use is not expected to be so much that more than minor impacts to air quality are expected. Effects would be limited in intensity and duration and would nowhere approach vehicle emissions experienced in urban areas.

4.5.3 Impacts to Air Quality under Alternative 1

4.5.3.1 Impacts to Air Quality from Implementing the Air Quality Program

The main action proposed by the air quality program is the reduction of fugitive dust on main roads in the CPNM through the use of road aggregate or gravel base or the application of chemical binders or water for dust control. The use of aggregate or gravel would provide the most efficient method of dust control, as benefits would be realized for longer periods as opposed to the more temporary method of watering or chemical binders. The proposed actions would reduce particulate matter and improve air quality in the CPNM.

4.5.3.2 Impacts to Air Quality from Implementing Other Programs

Fire and Fuels Management

The fire and fuels management program primarily affects air quality through production of emissions from wildland and prescribed fire. The primary emissions resulting from the combustion of vegetation are particulate matter and VOCs. Particulate matter is also produced through the construction of firelines, especially dozer lines.

Under Alternative 1, prescribed burning operations are limited to burning up to 5 acres of piled vegetation each year. Burning would be conducted under weather conditions conducive to the dispersion of emissions, resulting in minor effects to air quality that would be limited in amount and duration.

Fire suppression tactics under Alternative 1 propose use of a confine strategy where possible, where fires are suppressed when they reach the nearest existing control line, such as a road. This less aggressive suppression tactic would likely result in more acres burned by wildfire as compared to the other alternatives. Large wildfires can produce large amounts of emissions that can be carried into surrounding communities and possibly affect public health. Due to the fast burning nature of grass fuels, fires would tend to be shorter in duration with less burnout time than compared with other heavier fuels such as thick brush, or timber, which would lessen the duration of unhealthy air effects.

The least amount of ground disturbing suppression tactics, such as dozer line construction, is proposed under Alternative 1. This would lead to less exposure to the spores that cause valley fever for both firefighting personnel and the public. Less particulate matter would also be produced from fire line construction.

All Other Resource/Public Use Programs

Various public and resource uses of the CPNM have the potential to affect air quality, primarily as they relate to the amount of miles driven within the Monument. Increased use of non-paved roads increases fugitive dust and the amount of particulate matter present in the air. Increased road usage also increases emissions related to fuel combustion by gasoline or diesel engines, including particulate matter, VOCs, and NOx.

Alternative 1 would likely result in the least amount of vehicular travel within the CPNM and therefore the lowest contribution of emissions from fugitive dust and fuel combustion. The least amount of grazing would be authorized, leading to the least amount of travel on dirt roads by permittees and BLM personnel to administer grazing authorizations. With the largest amount of area characterized in the Primitive recreation zone, Alternative 1 would result in the fewest number of miles of road open to the public. In addition, dispersed vehicle camping is not allowed under Alternative 1, further decreasing the likelihood of visitors driving onto spur roads to find suitable camping areas. Driving may be further reduced with the closure of Painted Rock to all public use, as some visitors interested in viewing the cultural site may not be as inclined to travel to the CPNM at all. Under Alternative 1, only street legal vehicles are allowed on roads within the CPNM, meaning that vehicles licensed by the state's OHV program (green or red sticker vehicles), would not be allowed on Monument roads. This would lead to the least amount of OHV activity under all the alternatives.

4.5.4 Impacts to Air Quality under Alternative 3

4.5.4.1 Impacts to Air Quality from Implementing the Air Quality Program

Impacts would be similar to the proposed plan, with slightly more reduction of particulate matter with the proposal to pave main roads and gravel secondary routes. Alternative 3 includes similar emission reductions through replacement of generators with solar panels, where feasible.

4.5.4.2 Impacts to Air Quality from Implementing Other Programs

Fire and Fuels Management

Alternative 3 proposes the greatest amount of prescribed burning as compared with the other alternatives. It is estimated that on average a broadcast burn of about 1,500 acres would be conducted every other year, or as conditions warrant. Up to 10 acres of piled vegetation would also be burned each year. Burning would be conducted under the guidance of the APCD and under weather conditions conducive to the dispersion of emissions. It would likely take 1 to 3 days to burn 1,500 acres in the grass vegetation type. During the burning, air quality may be affected through emissions of particulate matter and VOCs. However, past burning in the area has shown that emissions disperse readily and no public health impacts have been reported. Minor effects to air quality from prescribed burning would be limited in amount and duration.

Fire suppression tactics under Alternative 3 would be the most aggressive as compared to the other alternatives, with all ignitions actively suppressed. Acres burned by wildland fire are expected to be less than under Alternative 1 and the proposed plan (Alternative 2). Large wildland fires could still produce emissions that could temporarily affect air quality for surrounding communities. Effects would still be limited in amount and duration due to the fast burning nature of grass fuels.

More aggressive suppression tactics would require construction of more fire line, both by dozer and by hand, which would increase particulate matter emissions over Alternative 1 and the proposed plan. This would also increase the exposure to the spores that cause valley fever for both firefighting personnel and the public. Firefighters would be warned of these hazards during suppression operations and would take steps to minimize activity in areas where dust is still obviously airborne.

All Other Resource/Public Use Programs

Various public and resource uses of the CPNM have the potential to affect air quality primarily as they relate to the amount of miles driven within the Monument. Increased use of non-paved roads increases fugitive dust and the amount of particulate matter present in the air. Increased road usage also increases emissions related to fuel combustion by gasoline or diesel engines, including particulate matter, VOCs, and NOx.

Alternative 3 would result in similar effects to air quality from vehicle travel as the proposed plan (Alternative 2). Slightly more miles of road are open to the public under Alternative 3, as compared with the proposed plan, so effects could be slightly higher. However, Alternative 3 has the objective to work with San Luis Obispo County to pave the main access road through the CPNM (Soda Lake Road), which would result in a decrease of fugitive dust in the Monument. Painted Rock is also not open to self-guided access under this alternative, so trips to this popular destination may be reduced, as compared with the proposed plan. Vehicle use for grazing is expected to be basically the same as the proposed plan. OHV access is also similar, with vehicles licensed under the State's OHV program (red and green sticker vehicles) allowed on open roads in the Monument. While vehicle miles traveled would likely be greater under Alternative 3 as compared with Alternative 1, use is expected to be such that minor to moderate

localized impacts to air quality are expected. Effects would be limited in intensity and duration and would nowhere approach vehicle emissions experienced in urban areas.

4.5.5 Impacts under the No Action Alternative

4.5.5.1 Impacts to Air Quality from Implementing the Air Quality Program

Under the No Action Alternative there are no specific actions proposed for implementation of the air quality program. All management activities would be done in conformance with applicable local, state, and federal regulations regarding air quality.

4.5.5.1 Impacts to Air Quality from Implementing Other Programs

Fire and Fuels Management

Prescribed burning would be regulated by the air pollution control district (APCD), with burning conducted when atmospheric conditions would promote adequate dispersion of pollutants. Due to the undeveloped nature of the surrounding area, there are limited sources of emissions. The proximity to the coastal region also promotes more wind flow through the area that helps disperse pollutants. The mountain ranges surrounding the CPNM help limit the drift of pollution from other developed areas into the CPNM, although transport of ozone has been monitored at the Carrizo Plains School monitoring site. Particulate matter is produced on dirt roads in the area. Effects are temporary and localized. Overall, implementation of the No Action Alternative would have negligible to minor effects to air quality in the region.

Minerals

Proposed actions for oil and gas development are the same for all alternatives, leading to the same impacts to air quality under all alternatives. Oil and gas operations can affect air quality through various air emissions, including: exhaust emissions from gasoline or diesel engines used to power the drill rigs; particulate matter from well pad construction and the use of dirt roads to access facilities; fugitive emissions, which are unintentional gas leaks from leaky fittings, seals, or pipes; and venting of gases during various well maintenance operations. The main pollutants from oil and gas operations are particulate matter (PM₁₀ and PM_{2.5}), volatile organic compounds (VOCs), nitrogen oxides (NO_x), and hydrogen sulfide. Ground level ozone is formed in the atmosphere through a reaction of VOCs and NO_x in the presence of sunlight.

Oil and gas production in the CPNM is limited to valid existing rights that were in place prior to the Monument Proclamation. An estimate of well development on these leases plus private leases is up to 23 wells, and associated roads, facilities, and pipelines. Existing roads will be utilized to the extent possible. Due to the limited amount of oil and gas development proposed under All Action Alternatives, effects to air quality will be limited in amount and intensity and will have minor impacts.

BLM requires that the lessee/operator take on the responsibility for ensuring that all operations are properly permitted with the appropriate agencies, and that the operations are in compliance with all mobile and stationary source guidelines. Mitigation measures (BMPs) would include such items as dust control using application of water or pre-soaking and limiting traffic speed on unpaved roads. It would also include such items as use of low-emission construction equipment, use of low sulfur fuel, and/or use of the existing power transmission facilities, where available, rather than temporary power generators. The failure of the lessee/operator to follow the air quality rules would likely result in fines and could also lead to the loss of the BLM and air district authorizations.

4.5.6 Cumulative Impacts

4.5.6.1 Assessment Area

The assessment area for consideration of cumulative effects to air quality would be the air districts that the CPNM is located within. A small portion is within Kern County, which is in the San Joaquin Valley APCD. The majority of the CPNM area is within the San Luis Obispo APCD. The San Joaquin Valley APCD has some of the worst air pollution in the nation, especially when considering ozone and particulate matter. The San Joaquin Valley APCD is in non-attainment for the state air quality standard for 1-hour ozone levels; and the state and federal standards for 8-hour ozone levels, and PM₁₀ and PM_{2.5}. San Luis Obispo County APCD has better overall air quality, due to the marine weather influence. The San Luis Obispo County APCD is in non-attainment status for the state standard for ozone and PM₁₀. Exceedances of the state 8-hour ozone standard have been measured at the Carrizo Plains School monitoring site (which is just northwest of the CPNM) a total of 52 times in 2006, 31 times in 2007, and 5 times in 2008, as of May. The annual air quality report for San Luis Obispo County attributes these ozone exceedances to transport pollution coming from the San Joaquin Valley APCD.

4.5.6.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area and Cumulative Effects

It is likely that continued growth within both the San Luis Obispo County APCD and the San Joaquin Valley APCD will contribute to continued poor air quality in urbanized areas. Stringent regulations and state implementation plans aimed at reaching attainment of air quality standards will contribute to improved air quality; however, reaching attainment goals is likely several years in the future.

While air quality may remain bad in the surrounding San Joaquin Valley APCD and contribute to transport pollution, proposed management actions within the CPNM will have little effect on regional air quality conditions. Management activities that produce harmful emissions are limited in scope and duration. The undeveloped nature of the CPNM and surrounding areas contribute to low levels of pollution sources in the near vicinity. If pollution control measures are successful in decreasing harmful air pollution in the future, the CPNM would benefit from less transport pollution into the area.

4.6 Impact Analysis for Soils

4.6.1 Assumptions Used for the Analysis

Excess nonnative weedy biomass may help protect soils from erosion but may also deplete soil nutrients. Although some nonnative plant communities may have properties that protect soil from erosion (for example, dense cover of annual grasses during wet years), and some native animals (for example, giant kangaroo rat) engage in soil disturbance, it is assumed the healthiest soils for the Monument are those associated with ecologically functional native plant and animal communities, and actions promoting those communities will promote soil health.

Climate change may result in erratic weather patterns, beyond the wide range of variation already observed in the Monument, and will result in hotter, drier weather on average.

Surface disturbances would be restored or reclaimed to meet Rangeland Health standards on project completion.

4.6.2 Incomplete Information

As most actions occur across soil type boundaries and the soils are generally subject to similar impacts although to varying degree, information on specific characteristics of the Monument's soil types and their vulnerability to different impacts is generally not included in this analysis except when an action addresses a specific soil type, for example, clay dunes.

4.6.3 Resources/Programs with No or Negligible Impacts

No or negligible impacts to soils are expected from the Cultural Resources, Visual Resources, or WSA/Other Lands with Wilderness Characteristics programs, and they are not further discussed.

4.6.4 Impacts to Soils Common to All Action Alternatives

4.6.4.1 Impacts to Soils from Implementing the Soils Program

The proactive, specific management measures common to all action alternatives will benefit soils. Measures common to all three action alternatives include specifying conservation of sensitive soils such as clay dunes and biological crusts; restoring biological soil crusts; identifying, evaluating, and correcting erosion problems; managing land uses for appropriate erosion and sedimentation rates; limiting fugitive-dust pollution by reducing soil disturbance, and developing and implementing best management practices to reduce the threat of valley fever.

4.6.4.2 Impacts to Soils from Implementing Other Programs

Biological Resources

Vegetation Management and Native Plants Objectives/Actions

Assuming that healthy plant communities are based on and promote healthy soils, overall, the effects of vegetation management actions on soils are expected to be beneficial. Vegetation management actions may have moderate short-term, localized effects involving some soil loss or loss of soil productivity. Mechanical treatments, an action option common to all alternatives, would reduce vegetative cover and expose soil to localized short-term erosion in the treated area, and, if heavy equipment is used, soil would undergo some localized compaction which could slow vegetation regrowth and lead to longer-term erosion.

Core Area Threatened and Endangered Animal Objectives/Actions

Managing the more open, desert-like habitat prescribed for core area species would potentially expose more soil to wind and water erosion. The effects of specific actions to achieve these conditions are discussed under vegetation management for each alternative. Also, encouraging giant kangaroo rat populations to thrive will promote the soil disturbance and vegetation clipping in which they naturally engage. While this exposes soils to erosion, it is assumed to have an overall beneficial effect, accomplishing open habitat structure and soil mixing, aeration, and other benefits, appropriate for other animals and plants that have evolved to share the ecosystem for which giant kangaroo rats are a keystone species.

Animal Population, Avian Species, and Nonnative Animal Objectives/Actions

Actions expected to have a positive impact on soils include protecting Kern primrose sphinx moth habitat from surface impact, protecting vernal pools and sag ponds for fairy shrimp and spadefoot toads, and protecting habitats for ground-roosting birds. Providing suitable open habitat for mountain plovers may

increase moderate localized long-term vulnerability to erosion (see Vegetation Management). An action with positive effects on soil would be the control of nonnative feral pigs, whose rooting can increase rates of erosion, with localized, short to long-term, moderate to major effects.

Riparian, Soda Lake, Vernal Pool, and Sag Pond Objectives/Actions

Measures to exclude livestock from riparian areas, restore native vegetation, and limit the deleterious actions of feral pigs will have positive impacts toward stabilizing streambank soils and reducing erosion, compaction, and sedimentation. Protecting the ecological and hydrological functions of Soda Lake, vernal pools, and sag ponds should also have indirect positive effects on soils.

Fire and Fuels Management

Fire, especially wildfire, has the potential to create major, widespread, long-term negative impacts to soils. It can impact physical, chemical, hydrological, and microbial properties of soil, expose soil to accelerated erosion by destroying soil-holding vegetation in the short term, and change or destroy fire intolerant plant communities in the long term. Fire suppression activities such as construction of fire line (removing a swath of vegetation to limit the spread of a wildfire) can also impact soils via exposure to erosion, disturbance, and compaction if heavy equipment is used. Conversely, fire can also be used to manage vegetation, creating positive impacts for native plant and wildlife communities; and by reducing build-up of fuels it can be used to help prevent large-scale wildfires that might not only burn much larger areas but also may burn at higher and more destructive temperatures. Actions common to all alternatives include several directing that wildfire suppression be conducted with care to minimize damages to resources, and some are especially relevant to soil resources: “utilize existing natural and human made barriers (roads, trails) where feasible,” which would minimize negative impact to soils from constructing new fire line; “minimize the loss of fire intolerant saltbush vegetation,” protecting soils from erosion due to long-term vegetation loss; “park vehicles and set up suppression support facilities in areas that have already been impacted [or] outside the CPNM,” minimizing compaction of soils and exposure to erosion due to vegetation lost to clearing for facilities or crushing by vehicles.

Air Quality

Closure and reclamation of unnecessary roads is an air quality action that shares objectives with the soils program for minimizing erosion and exposure to spores that may result in valley fever, and is expected to have a beneficial effect on soils.

Water

Objectives and actions to maintain and improve water quality have positive effects on soils. They are largely targeted at preventing erosion of soils into water, including ensuring wetland, riparian, and spring sites meet proper functioning condition and fencing them as necessary; managing upland areas to maintain or improve hydrologic function and minimize adverse downslope impacts; and providing livestock watering away from springs and surface waters. These are the same for all alternatives.

Geology and Paleontology

Paleontological and geological resources intrinsically involve soils, and share with soils sensitive areas (for example, the clay dunes) and overlapping concerns. This program is expected to have beneficial effects to soils overall, as it includes measures to monitor and protect these resources from natural and human-caused disturbances, such as erosion, and to implement corrective actions such as stabilization, erosion protection, public education, and law enforcement. Research and data recovery activities that do

not compromise the physical integrity of the resources may be permitted; these may involve negligible to minor, localized, short- to long-term soil disturbances. Research may also result in beneficial effects to soils by increasing knowledge, interest, and public awareness, leading to better stewardship.

Livestock Grazing

Potential impacts of livestock grazing on soil health include effects of reducing vegetative cover that helps protect soil from erosion; and effects of trampling that can result if domestic livestock are heavier, more numerous, and/or differently distributed than animals native to the ecosystem, including soil compaction, breakdown of sensitive landforms such as stream banks, and destruction of biological soil crusts. The Central California Standards for Rangeland Health (Appendix E) include the basic standard “Soils exhibit functional biological and physical characteristics that are appropriate to soil type, climate, and land form,” and the specific soils indicators and guidelines that follow from this. Under all alternatives, livestock grazing would be assessed and adjusted according to the standards and the associated guidelines. This includes monitoring for adequate ground cover, litter, and plant vigor and reproduction, and monitoring for multiple forms of soil erosion, compaction, damage to biological soil crusts, and other impacts, and adjusting use levels accordingly such that any impacts to soil would be widespread but negligible to minor and short term. Soil protecting actions common to all alternatives also include managing grazing to ensure no conflict with other Monument programs, and monitoring compliance.

Recreation

Recreation use levels are currently relatively low for such a large area and are expected to increase moderately over current levels (projected increases over 20 years range from 10 percent under Alternative 1 to 50 percent under Alternative 3). Recreational uses allowed in the Monument, such as hiking, horseback riding, and mechanized/motorized travel on designated roads, have the potential to create negligible to moderate localized disturbance and compaction impacts to soils and biological soil crusts. (Note that under the Monument Proclamation, no off-road motorized or mechanized travel is allowed.) Periodic monitoring and adaptive corrective actions will have a beneficial effect, offsetting any increase in recreation use or concentration of recreation use in popular areas. Some potentially soil-disturbing recreation activities are only allowed in certain RMZs, with the size of the zones varying by alternative (see analyses by alternative below).

Travel Management

Effects of travel management on soils are mostly localized to roads and their immediate vicinity. The soil of dirt roads is subject to devegetation, erosion, rutting, and compaction by vehicle use, particularly if steep or muddy. Drivers’ attempts to pull off and park alongside the road, or to circumvent areas that become impassable due to mud, washouts, or erosion, may compound these impacts beyond the existing roadbed, and destroy biological soil crusts. Roads may channel water through erodible soils, potentially spreading impacts further. Actions common to all alternatives—closure of roads during wet periods and after washouts, and a road maintenance plan aimed at resource protection—are designed to reduce these potential impacts and to offer beneficial effects to soils. Actions to reduce illegal off-road travel will also benefit soils.

4.6.5 Impacts to Soils under the Proposed Plan (Alternative 2)

4.6.5.1 Impacts to Soils from Implementing the Soils Program

The soils program's somewhat more aggressive approach in the proposed plan (Alternative 2) promotes greater beneficial effects to soils than Alternative 1. This alternative specifies considering seasonal closures to areas of sensitive soils and to roads where excessive ruts occur.

4.6.5.2 Impacts to Soils from Implementing Other Programs

Biological Resources

Vegetation Management and Native Plants Objectives/Actions

See Impacts Common to All Action Alternatives. For additional vegetation management treatment options available only under the proposed plan (Alternative 2) and Alternative 3, prescribed fire would potentially impact physical, chemical, hydrological, and microbial properties of soil, as well as exposing soil to accelerated erosion in the short term; livestock grazing could result in localized soil compaction and destruction of biological soil crusts; and area spraying of herbicides could alter chemical properties of soil. These vegetation management impacts would range from minor to moderate and short-term to long-term, would be localized to treatment areas, and may result in long-term positive effects by helping establish healthy native biological communities and by reducing fuel loads and the likelihood of unplanned catastrophic wildfire with more widespread, uncontrolled effects.

The proposed plan and Alternative 3 also have proactive, protective measures with long-term, localized to widespread, positive impacts to soils. These include protection of target plant communities from fire and livestock grazing; restoration of degraded habitats such as previously cultivated fields; reestablishment of landscape water flow patterns, potentially reducing erosion; restoring oak communities, including active restoration of leaf litter mulch and soil functions and inoculating with healthy soil organisms; and protecting and restoring biological crusts. Overall, the effects of vegetation management actions on soils under the proposed plan and Alternative 3 are expected to be positive, with the potential for greater positive effects than the more passive approach under Alternative 1.

Nonnative Plants Objective/Actions

The proposed plan and Alternative 3 call for controlling the spread of other nonnative plants as well as noxious weeds, and allow for the use of grazing, mowing, and burning in addition to hand tools (see above for effects). Thus, direct, potentially negative effects of nonnative plant control could be more widespread and varied than under Alternative 1, but with corresponding greater overall benefits under the assumption that native plant communities promote healthy soils in the long term.

Fire and Fuels Management

This alternative is between Alternatives 1 and 3 in both number of acres of wildfire targeted to burn and number of acres targeted for prescribed fire. It predicts 10,000 acres of wildfire per decade (with individual fire size 100 acres 80 percent of the time), compared to 40,000 acres under Alternative 1 and 5,000 under the proposed plan (Alternative 2). It targets another 10,000 acres for prescribed fire, vs. 0 acres in Alternative 1 and 5,000 acres in Alternative 3). Thus the total combined acreage (20,000) predicted to be exposed to fire is half that of Alternative 1, and the same as for Alternative 3 but with a higher ratio (1:1) of wildfire to prescribed fire. Thus, large-scale, moderate to major, short- to long-term negative impacts of wildfire to soils could occur under the proposed plan but they would be smaller in scale than under Alternative 1; and similar negative impacts could occur as a result of prescribed fire, but they would be expected to be reduced in severity by the relatively controlled nature of fire application,

and mitigated by the positive effects on natural communities for which the fire is prescribed (see the Biological Resources section of the impact analysis for soils). The proposed plan calls for actively suppressing fires that threaten life, facilities, private property, and fire sensitive natural or cultural resources, using mobile attack in preference to more disturbing methods such as dozer line construction; and in other areas, applying a confine strategy with existing features, such as roads, serving as fire line. Minor to moderate, short- to long-term impacts to soils from disturbance, compaction, and vegetation loss due to fire suppression activities would therefore be more localized than under the other alternatives.

Air Quality

Any localized, moderate, long-term impacts on soils as a result of altering the natural soils of roadways with aggregate, gravel base, or chemical binder/dust suppressant would apply to main access roads throughout the Monument but with a focus on high-use areas, potentially resulting in less impact than both Alternatives 1 and 3. Graveling will reduce off-road travel by vehicles trying to navigate wet/muddy areas.

Paleontology/Geology

Actions under the proposed plan (Alternative 2) are overall protective of these resources and thus expected to benefit soils. Research and data recovery using hand or mechanized tools may result in negligible to minor, localized, short- to long-term soil disturbance.

Livestock Grazing

Under the proposed plan (Alternative 2) livestock grazing would be used only as a vegetation management tool in some areas and would continue to be used to produce forage on the Section 15 allotments. This would result in the largest percentage of the Monument designated for grazing only for the purpose of vegetation management and experiencing the positive effects on soils of promoting ecologically functional native plant and animal communities. These could be minor to major, widespread, long-term positive effects, concurrent with the negligible to minor, widespread, short-term negative soil impacts that would be allowable under the Standards for Rangeland Health. Grazing would be allowed on about 20 percent of the Monument under Section 15 grazing allotments, as resource conditions allow (approximately 5 years out of 10). This could result in the negligible to minor impacts allowable under the Standards with or without the concurrent beneficial effects of vegetation management. The lesser acreage where it has been determined that grazing would not promote management goals would not be grazed. In areas designated “available for livestock grazing” pending possible voluntary relinquishment of permitted use and evaluation for suitability for management via grazing, the proportions of positive and negative effects would be unknown until such evaluation.

Recreation

Under the proposed plan (Alternative 2), a total of 62,353 acres (27 percent of the Monument) would be designated as Primitive zone and thus protected from any impacts from activities allowed in the Backcountry and Frontcountry zones. Under the proposed plan alternative (Alternative 2) and Alternative 3, dispersed camping with vehicles would continue to be allowed, resulting in minor to moderate disturbance and compaction of soils and destruction of biological soil crusts, especially along roadways. Monitoring and corrective actions prescribed under these alternatives would help minimize these impacts. Rustic improvements at known dispersed camping areas in the Backcountry zone would reduce the impacts on soils by encouraging use in previously impacted areas. As with the other alternatives, developing trailheads, parking areas, interpretive sites, and roadside stops in the Frontcountry zone would result in moderate, localized, long-term disturbance and compaction of soils, which would be offset by the

benefits of defining and localizing these impacts to the extent that they avert user-created pull-outs in previously undisturbed sites.

Travel Management

Under the proposed plan (Alternative 2), 28 percent of roads would be designated Limited, 10 percent designated Closed, and 21 percent of acreage would be completely closed to vehicle travel. The proposed plan offers long-term beneficial effects to soils by closing and rehabilitating roads, with less protection from potential soil disturbance, devegetation, compaction, and erosion by vehicles than Alternative 1, and more than Alternative 3.

Minerals

Minerals extraction is an intrinsically soils-disturbing activity. Given that valid leases, claims, and other existing minerals rights may see mineral development on the Monument's federal lands, the goals, objectives, and actions of the proposed plan will provide the best protection of Monument resources. It is estimated that there would be 30 acres of disturbance to soils on the Carrizo Plain valley floor from the construction of well pads, roads, and facilities. An additional 115 acres would potentially be disturbed by cross-country travel associated with geophysical exploration. In the Russell Ranch oilfield, it is estimated that there would be 6.5 acres of disturbance from new well pads and roads and an additional 25 acres from cross-country travel for geophysical exploration.

The overall impacts to soils from mineral development within the Monument would be minor in flat to gentle sloping topography. The impacts may be minor to moderate within the steep slopes of the existing Russell Ranch oilfield. These impacts would be localized to project sites, and would be due to construction activities and associated upgrading or construction of roads; these activities may remove, mix, add, and compact soils within the project footprint. However, well pad placement, BMPs, and SOPs are included in BLM authorizations to avoid sensitive resources, minimize the amount of surface disturbance, promote the use of previously disturbed sites, reduce erosion, conserve topsoil, and enhance restoration success. Impacts to soils from spills/contamination are expected to be very localized. Any contaminated soils will be removed/mitigated as required by California Department of Oil and Gas Oil Spill Contingency Plans and by BLM. BLM spill reporting requirements and cleanup guidelines are included as Appendix Y.

Identifying a site within the Monument for minor amounts (less than 10 yards per incident) of emergency/administrative sand/gravel extraction for road maintenance or other uses would have minor to moderate localized impacts depending on the extent of use. These impacts may be offset by the benefits to soils of maintaining roads and stabilizing problems that might otherwise develop, such as erosion, compaction, rutting, and gulying of vulnerable road soils and surrounding areas where drivers might attempt to leave the roadbed to circumvent impassable sections.

The proposed plan promotes the implementation of actions with positive effects on soils. It calls for measures above and beyond those under existing federal standards. It requires protection of Monument resources for all new lease actions, based on lease stipulations, conditions of approval, and other requirements. Inspections to ensure compliance would occur with a goal of at least every other year, more often when problems are found. The plan prioritizes the termination of idle leases and reclamation of disturbed areas. The proposed plan also includes provisions for purchasing split estate mineral estate and acquiring private minerals from willing sellers, and limits authorization of geophysical exploration to activities with minimal potential to damage soils.

Lands and Realty

The proposed plan's targeted approach to lands acquisition would potentially bring less land under protective management as compared to Alternative 1, but would still have positive impacts. By allowing new communication rights-of-way to be considered on a case-by-case basis, it opens the possibility of localized short-term (assuming rehabilitation) soil disturbance resulting from their construction, which may be minimized by the provision that they only be considered in areas with existing facilities if this leads to use of sites with previously disturbed soils.

4.6.6 Impacts to Soils under Alternative 1

4.6.6.1 Impacts to Soils from Implementing the Soils Program

Alternative 1 does not have specific soils program actions in addition to those common to all three action alternatives. While expected to benefit soils, it takes the least active approach to soil protection and restoration.

4.6.6.2 Impacts to Soils from Implementing Other Programs

Biological Resources

Vegetation Management and Native Plants Objectives/Actions

Negative impacts of vegetation management actions on soils would be lowest under Alternative 1, where vegetation management actions would be much more limited than the other alternatives. Impacts of hand removal of vegetation, and mechanical removal using hand tools, would be negligible. However, Alternative 1 lacks protective and proactive actions with positive impacts on soils found in the proposed plan alternative (Alternative 2) and Alternative 3.

Non-Core Threatened and Endangered Species, Avian Species, and Other Animal Objectives/Actions

In terms of impacts on soils, Alternative 1 differs from the other alternatives in its more passive approach to wildlife habitat management. This would result in a reduction of short-term impacts associated with treatments, but long-term benefits associated with restoration of native species could also be the lowest of the alternatives. (See above for effects.)

Nonnative Plants Objective/Actions

Alternative 1 calls for targeted removal of noxious weeds by hand or mechanical methods only, with no intervention for other nonnative plant species. Effects on soils would be negligible.

Fire and Fuels Management

The hands-off/natural processes approach of Alternative 1 allows for the most wildfire of all the action alternatives (40,000 acres per decade, with 90 percent of individual fires 1,000 acres in size). It does not allow any prescribed burning. Therefore, any positive effects of fire to soils would be the result of chance, whereas large-scale, moderate to major, short- to long-term negative impacts of wildfire could occur. The likelihood of these negative effects is somewhat mitigated by the option of managing lightning-caused fires within the WSA as wildland use fires for resource benefit, and the strategy in other areas to confine fires when they reach the nearest control feature such as a road (these also are found in the proposed plan [Alternative 2]).

Air Quality

Any localized, moderate, long-term impacts on soils as a result of altering the natural soils of roadways with aggregate, gravel base, or chemical binder/dust suppressant would apply to main access roads throughout the Monument, potentially resulting in a more widespread impact than in the proposed plan (Alternative 2). Impacts would still be minor and limited to the roads and immediately adjoining areas.

Geology and Paleontology

Actions under this alternative are overall protective of these resources and thus expected to benefit soils. Research and data recovery using hand tools may result in negligible, localized, short- to long-term soil disturbance.

Livestock Grazing

Under Alternative 1, all potential impacts of grazing would be eliminated except on less than two percent of the Monument where fences do not correlate with the Monument boundary. While this would prevent negative impacts of grazing, it would also preclude the positive impacts on soils that could result from using grazing as a vegetation management tool, under the assumption that actions promoting ecologically functional native biotic communities will tend to promote soil health in the long term. Removing livestock facilities such as fences and pipelines would potentially involve localized, minor, short-term impacts to soils if vehicles are used off road to transport materials or if buried pipelines are dug up.

Recreation

Under Alternative 1, a total of 83,202 acres (33 percent of the Monument) would be designated as Primitive zone, providing maximum protection against any impacts from activities allowed in the Backcountry and Frontcountry zones. Camping with vehicles would be allowed in developed campgrounds only, with the beneficial effect of preventing any disturbance and compaction impacts to soils and biological soil crusts that would result from user-selected dispersed camping sites in previously undisturbed areas. Backpacking would still be allowed, and rustic improvements at known dispersed camping areas in the Backcountry zone would have the further beneficial effect of encouraging camping at previously disturbed sites. As with the other alternatives, developing 3 to 5 trailheads, parking areas, interpretive sites, and roadside stops in the Frontcountry zone would result in moderate, localized, long-term disturbance and compaction of soils, which would be offset by the benefits of defining and localizing these impacts to the extent that they avert user-created pull-outs in previously undisturbed sites.

Travel Management

Under Alternative 1, 22 percent of roads would be designated Limited, 18 percent designated Closed, and 32 percent of acreage would be designated as a Closed Area to vehicle travel. Of the three alternatives, this provides the greatest long-term protection from potential soil disturbance, revegetation, compaction, and erosion by vehicles. Under this alternative, only street-licensed vehicles would be permitted on Monument roads, possibly reducing the likelihood of illegal off-road use by limiting vehicles with off-road capabilities, with long-term beneficial protective effects to off-road soils and biological soil crusts.

Minerals

Same as the No Action Alternative, except this alternative increases the potential for implementing actions with positive impacts on soils by calling for provision of BLM resources (funds, expertise), annual inspections, and prioritizing termination of idle leases and reclamation of “redundant/unnecessary” disturbed areas. It calls for obtaining any sand/gravel needed for Monument road maintenance or other

uses from outside the Monument, which would displace any negative impacts outside the Monument while retaining the positive effects of using these materials to armor sensitive soils against erosion, compaction, rutting, gullyng, or other impacts within the Monument. It also has actions to minimize disturbance from development on private minerals such as purchasing split estate mineral estate and acquiring private minerals from willing sellers. It limits authorization of geophysical exploration to activities with minimal potential to damage soils.

Lands and Realty

Alternative 1 takes an opportunistic approach to lands acquisition, which would bring more land under protective management. This alternative also prohibits new communication rights-of-way, preventing any potential localized short-term soil-disturbing impacts these would otherwise have.

4.6.7 Impacts to Soils under Alternative 3

4.6.7.1 Impacts to Soils from Implementing the Soils Program

The soils program, as outlined in Alternative 3, is more specific and aggressive than both Alternative 1 and the proposed plan (Alternative 2) in directly addressing impacts to soils, and therefore would offer the most beneficial effects. It adds a specific threshold of 2-inch depth to the prescription for “excessive ruts” in the proposed plan, extends consideration of seasonal closure to other conditions of road damage or sedimentation, specifies elimination of causes and restoration where erosion problems occur, and calls for visitor education to protect soil resources.

4.6.7.2 Impacts to Soils from Implementing Other Programs

Biological Resources

Impacts would be the same as the proposed plan (Alternative 2).

Fire and Fuels Management

Alternative 3 calls for the most active wildfire suppression, actively suppressing all wildfires, and the most active use of prescribed fire of all three action alternatives. The total acreage projected to be burned is the same as under the proposed plan (Alternative 2) (and half that of Alternative 1) but with a lower ratio of wildfire to prescribed fire (1:3). Thus, this alternative offers the highest degree of control over the potentially negative impacts of fire on soils. Minor to moderate, short- to long-term impacts to soils of active fire suppression methods (for example, dozer line construction) would be greatest under this alternative but highly localized in contrast to the widespread wildfires they would prevent.

Air Quality

Alternative 3 calls for working with local government to secure funding for paving major travel routes and graveling key secondary roads, resulting in greater and more widespread, moderate, long-term alteration of the natural soils of roadways and immediately adjoining locations than in Alternative 1 and the proposed plan (Alternative 2). The impact is still considered to be minor, since all of the impacts are on previously disturbed soils. Also, paving/graveling will reduce off-road travel by vehicles trying to navigate wet/muddy areas.

Geology and Paleontology

Impacts would be the same as the proposed plan (Alternative 2).

Livestock Grazing

The objective of Alternative 3 accommodates livestock use of forage in the Section 15 allotments as well as in areas used for vegetation management purposes. The differences at the implementation level, according to reasonably foreseeable applications of guidelines identified in the Conservation Target Table, would result in grazing 8 years out of 10 on approximately 20 percent of the Monument for purposes other than vegetation management, rather than 5 years out of 10 under the proposed plan (Alternative 2). This could result in somewhat greater negative soil impacts but they would still be limited to the negligible to minor, widespread, short-term impacts allowable under the Standards for Rangeland Health. Localized, negligible to moderate, short- to long-term impacts to soils could also result from creating, modifying, maintaining, or removing livestock facilities under Alternative 3. Impacts would be otherwise similar to those under the proposed plan.

Recreation

Impacts would be the same as the proposed plan (Alternative 2) except only 17,984 acres (7 percent of the Monument) would be designated as Primitive zone, and a higher number of trailheads and interpretive sites would be provided, resulting in slightly higher impacts.

Travel Management

Under Alternative 3, 26 percent of roads would be designated Limited, 2 percent Closed, and 7 percent of acreage would be designated as a Closed Area to vehicle travel. Of the three alternatives, this provides the least protection from potential soil disturbance, devegetation, compaction, and erosion by vehicles, but still offers beneficial effects as compared to the No Action Alternative.

Minerals

Alternative 3 includes fewer, and less stringent, protective measures compared to Alternative 1 and the proposed plan (Alternative 2). Existing leases would be managed to standards required by law. Like the proposed plan, it requires protection of Monument resources for all new lease actions, based on lease stipulations, conditions of approval, and other requirements, but inspections to ensure compliance would occur with a goal of at least every 3 years, more often when problems are found. The standard for idle leases would be to plug or return to production after 5 years idle; two idle leases would be kept at a low level of priority for termination. Disturbed areas would be reclaimed only upon final abandonment/lease termination. There is provision for acquiring private minerals from willing sellers in conjunction with purchase of surface estate but not for split estate. Like Alternative 1 and the proposed plan, it limits authorization of geophysical exploration to activities with minimal potential to damage soils, with the only difference being that the statement limiting vibroseis to existing roads is qualified by the phrase “to the maximum extent practicable.” Use of vibroseis equipment off of existing roads would cause soil compaction in those areas.

Lands and Realty

This alternative takes the same approach to land acquisition as the proposed plan (Alternative 2). It allows new communications facilities and maintenance/expansion of existing facilities, potentially resulting in more soil undergoing localized impacts than under the proposed plan.

4.6.8 Impacts to Soils under the No Action Alternative

4.6.8.1 Impacts to Soils from Implementing the Soils Program

As detailed under impacts of the Action Alternatives, the No Action Alternative is comparatively passive and nonspecific in describing actions for protecting soil resources, and would be expected to have less beneficial impact.

4.6.8.2 Impacts to Soils from Implementing Other Programs

Biological Resources

Current management goals, objectives, and actions are largely shared with the proposed plan (Alternative 2) and Alternative 3, with an active, hands-on approach as compared to Alternative 1. The long-term impact of this program would be beneficial to soils by restoring a higher level of functioning to natural ecosystems within the Monument.

Fire and Fuels Management

Estimated acreages burned by wildfire (50,000) and prescribed fire (30,000) are much greater than under any of the action alternatives, with total acreage subject to fire twice that of Alternative 1 and four times that of the proposed plan (Alternative 2) and Alternative 3. Because the ratio of wildfire to prescribed burn (5:3) is greater than under the proposed plan (1:1) and Alternative 3 (1:3), this alternative would be expected to offer less control over the potentially negative impacts of fire on soils.

Air Quality

The No Action Alternative for air quality shares with the soils program the objective of minimizing dust (that is, wind erosion) but does not prescribe specific actions. Impacts would be beneficial.

Water

Objectives are similar to those in the action alternatives but with fewer specific actions, so positive effects on soils may be slightly less.

Geology and Paleontology

This alternative allows research but does not state protective parameters nor proactive monitoring or stabilization measures. Impacts to soils would be negligible to minor based on the small acreage associated with paleontological excavations.

Livestock Grazing

Livestock grazing would continue in the Section 15 allotments for use of forage and for vegetation management purposes in the remaining areas designated as available to grazing. The impacts would be somewhat higher than the action alternatives, but they would still be limited to the minor, widespread, short-term impacts allowable under the Standards for Rangeland Health

Recreation

Impacts would remain similar to present levels, with slight increases from additional use. Overall impacts would continue to be minor, with most use focused on existing roads and developed facilities.

Travel Management

Under existing management, the travel network would remain the same. Continued illegal vehicle use off of existing roads could cause moderate to major localized impacts to soils from rutting and compaction, although implementation of law enforcement actions and education programs may reduce these impacts over the long term.

Minerals

Minerals extraction is an intrinsically soils-disturbing activity. Given that valid leases, claims, and other minerals rights existing as of the date of the Monument Proclamation may see mineral development on the Monument's federal lands, and that these are regulated by higher level law and policy and there can be no additional requirements conflicting with rights already granted by a lease, the goals, objectives, and actions of all alternatives are geared toward bringing about management practices that will best protect the Monument's resources within these parameters. It is estimated that there would be 30 acres of disturbance to soils on the Carrizo Plain valley floor from the construction of well pads, roads, and facilities. An additional 115 acres would be disturbed from cross-country travel associated with geophysical exploration. In the Russell Ranch oilfield, it is estimated that there would be 6.5 acres of disturbance from new well pads and roads and an additional 25 acres from cross-country travel for geophysical exploration.

The overall impacts to soils within the Monument would be minor in flat to gentle sloping topography. The impacts may be minor to moderate within the steep slopes of the existing Russell Ranch oilfield. These impacts would be localized to project sites, and would be due to construction activities and associated upgrading or construction of roads; these activities may remove, mix, add, and compact soils within the project footprint. However, well pad placement, best management practices, and SOPs are included in BLM authorizations to minimize the amount of surface disturbance, avoid sensitive resources, minimize the need for new roads, promote the use of previously disturbed sites, reduce erosion, conserve topsoil, and enhance restoration success. Impacts from spills/contamination are expected to be very localized because all activities will be subject to spill prevention and control plans, and any contamination will be removed/mitigated as required in those plans.

Lands and Realty

The acquisition of inholdings would continue, benefiting soil management by bringing additional acreage under protective management. Authorizations for rights-of-way would include soil protection stipulations and result in minor localized impacts from surface disturbance for road construction/site expansion.

4.6.9 Cumulative Impacts

4.6.9.1 Assessment Area

The assessment area for cumulative impacts of the soils program is the Monument itself and adjoining lands to the north within the Carrizo Plain. In general, soils actions are not expected to affect lands outside the Monument boundaries, except in that by helping protect Monument soils from wind erosion they may protect air quality and reduce airborne spores that could cause valley fever in nearby areas.

Similarly, actions outside the Monument boundary are only expected to affect soils within the Monument to a minimal degree. It is physically possible that severe impacts to soils upslope from the Monument in California Valley could result in erosion processes such as gullying that would intrude onto the Monument, but no such impacts are known for the foreseeable future.

4.6.9.2 Past, Present, Reasonably Foreseeable Future Actions and Cumulative Impacts

Cumulative effects from Monument management will mostly involve restoration of soil function and will provide some offsetting impacts to other soil disturbing actions in the assessment area. Past actions prior to Monument designation have created some disturbance to soils. Cultivation of crops and heavier levels of livestock grazing have had moderate widespread impacts that persist into the present, but none so severe as to irreversibly destroy the functioning condition of soils or preclude recovery of native plant and animal communities. Past actions such as the creation of roads have resulted in more severe but much more localized impacts. Present and reasonably foreseeable future management actions within the Monument are designed to promote recovery of soils from past impacts and to minimize future impacts.

Areas of California Valley continue to be cultivated for dryland farming, and development of additional vacant lots in the community will lead to additional road grading and soil disturbance. Disturbance of previously uncultivated soils is believed to have the highest risk of spreading valley fever spores. The development of the California Valley Solar Plant would also lead to soil disturbance.

Climate change is predicted to bring about hotter, drier conditions in the foreseeable future. Many climate change models also predict infrequent but strong storm activity. This would increase the susceptibility of soils to erosion. Drier soils are more susceptible to wind erosion, and drier conditions on the CPNM are known to promote a lower density of vegetative cover and root mass that would otherwise help hold soils against wind and water erosion. Strong winds and rainstorms could then have severe erosive effects. Climate change could thus reduce the cumulative beneficial effects of management actions on soils over time.

4.7 Impact Analysis for Water Resources

4.7.1 Assumptions Used for the Analysis

Funding and personnel levels will be sufficient to conduct all resource monitoring prescribed under the alternatives.

Management activities and use authorizations will be conducted in accordance with Standards for Rangeland Health for riparian and water quality.

Climate change may result in erratic weather patterns, beyond the wide range of variation already observed in the Monument, and will result in hotter, drier weather on average.

Vegetation management techniques such as burning and chemical application would be conducted away from water sources to the extent possible, and in a manner that minimizes effects to water quality.

4.7.2 Incomplete Information

There is a lack of water quality data for Soda Lake or the intermittent and ephemeral streams within its watershed.

Information on the amount of groundwater in storage and trends in groundwater levels is lacking. Limited data are available for water quality in springs and for groundwater quality.

4.7.3 Resources/Programs with No or Negligible Impacts

No or negligible impacts to water resources are expected from Cultural Resources, Geology and Paleontology, Air Quality, Visual Resources, and WSA/Other Lands with Wilderness Characteristics; these programs are not further discussed.

4.7.4 Impacts to Water Resources Common to All Action Alternatives

4.7.4.1 Impacts to Water Resources from Implementing the Water Resources Program

All goals and actions for this program are common to all action alternatives, and all are designed to benefit water resources. Goals and objectives for surface water are similar to actions planned under current management, but more specific; and groundwater quality and quantity are addressed by new goals and objectives. Actions in addition to those under current management (No Action Alternative) include several pertaining to groundwater: inventory and monitoring of existing groundwater wells, drilling groundwater monitoring wells, monitoring groundwater levels and quality, coordinating research with other entities and developing a hydrologic model for the Monument. Other actions not specified under current management for water resources are providing water for livestock /wildlife/administrative use from wells rather than springs as needed to protect the springs, monitoring and removing noxious weeds from wetlands, and using native plants for restoration in wetland areas. Both call for inventory and monitoring of springs, evaluation of the need for habitat protection, and protections by fencing as necessary. Effects of these actions will be beneficial; will range from short- to long-term; and will be localized, by nature of the resource.

4.7.4.2 Impacts to Water Resources from Implementing Other Programs

Biological Resources

Measures for protecting biological resources closely associated with surface water are expected to have positive effects on water resources. These include protecting vernal pools and sag ponds for fairy shrimp and spadefoot toads, protecting roosting habitat for shorebirds at Soda Lake, and all actions to protect and restore riparian areas including actions to identify and protect riparian areas appearing only in wet years. All actions under Soda Lake and Vernal Pool and Sag Pond objectives are directly beneficial to water resources, protecting water quality and quantity.

Fire and Fuels Management

Fire, especially wildfire, has the potential to create generally short-term but major negative impacts to water quality when ash, eroded soil from newly-exposed lands, and other materials enter surface water. Wildfire suppression actions are beneficial to water quality by limiting such sedimentation and water chemistry impacts, if the suppression actions themselves do not negatively impact water quality. Actions common to all alternatives include several directing that wildfire suppression be conducted to minimize damages to resources, including limiting the use of fire retardant drops on vernal pools and waterways, and limiting soil-disturbing activities (see impacts to soils).

Soils

Objectives and actions that benefit soils have positive effects on water quality whenever and wherever they help protect hydrologic function of soils and prevent erosion of soils into water. The hydrologic function of healthy soils includes absorbing, holding, and gradually releasing water rather than losing water to rapid run-off as can occur when soils are disturbed and compacted. Erosion of soil into surface water can result both in degraded water quality and changes in the shape and function of banks, channels, and other features that can affect hydrologic function, water temperature, and habitat quality for aquatic

organisms. Maintaining soil resources in proper functioning condition; identifying, evaluating and correcting erosion problems; and managing landscapes for appropriate erosion and sedimentation rates are actions that should produce long-term beneficial effects for surface water quality and quantity.

Livestock Grazing

If livestock have access to surface water, potential impacts on water resources include fecal contamination; reducing vegetative cover that helps protect soil from erosion into the water source; soil compaction that can impact hydrologic function, including absorption of water and timely recharge of springs and streams; and direct breakdown of spring or stream banks by trampling. Similar but less direct impacts can affect water via runoff from nearby uplands. The Central California Standards for Rangeland Health (Appendix E) include the water quality standard “*Surface and groundwater complies with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California State standards*” and specific water quality objectives and indicators for maintaining and restoring “the physical, biological and chemical integrity of water.” Hydrologic function is addressed by the riparian standard and associated indicators, “*Riparian/wetland vegetation, structure and diversity, and stream channels and floodplains are functioning properly, and meeting regional and local management objectives.*” Under all alternatives, livestock grazing will be assessed and adjusted according to these standards and the associated Guidelines, such that any impacts to water resources would be localized, negligible to minor, and short-term. Actions common to all alternatives that are protective of water resources also include managing grazing to ensure no conflict with other Monument programs, and monitoring compliance. Livestock consumption of water should have a negligible to minor impact on water quantity.

Recreation

Visitor education and interpretation actions under this program would be expected to have positive effects on water resources insofar as they address them, increasing understanding, appreciation, and stewardship. Alternatives 1, 2, and 3 all specify improving and expanding interpretive displays at Soda Lake Boardwalk and Soda Lake Overlook. Monitoring recreation impacts to natural resources and measures to correct them would also be expected to apply to water resources, which would reduce impacts from public use. As visitation numbers are low and not expected to rise steeply, developing potable water sources at facilities such as campgrounds and the education center would have a negligible effect on groundwater quantity.

Travel Management

Travel management actions that benefit soils will also indirectly benefit water quality by reducing erosion in the watershed along with compaction and rutting that can change hydrologic function and the routing of drainages; see impacts for soils. One action addresses direct impacts: “Minimize impacts to water quality... through proper design, maintenance, or minor rerouting of roads.” Travel management actions are expected to have positive effects on water resources overall and these effects do not differ appreciably among the action alternatives.

Minerals

While water is not addressed specifically, BLM goals, objectives, and actions for all alternatives under the Minerals program are protective of the objects of the Proclamation, including the geologic features such as Soda Lake, biological resources, and the rich human history of the Monument. Some minerals extraction activities that may be proposed by lessees in the Monument may use water and would need to

be evaluated for their potential to affect quantity and/or quality of groundwater resources. This is addressed under Cumulative Impacts.

Lands and Realty

Actions common to all alternatives do not have the direct potential to affect water resources, except in the event that any new rights-of-way granted and developed would have the potential to affect surface water, highly unlikely both because of the scarcity of surface water in the Monument and provisions for protecting these sensitive resources.

4.7.5 Impacts to Water Resources under the Proposed Plan (Alternative 2)

4.7.5.1 Impacts to Water Resources from Implementing the Water Resources Program

There are no separate action alternatives for this program. See Impacts Common to All Action Alternatives.

4.7.5.2 Impacts to Water Resources from Implementing Other Programs

Biological Resources

This alternative has an additional action addressing protection and restoration of vernal pool vegetation from livestock and human travel, which would be expected to also benefit water quality in vernal pools. New water developments for upland game birds could potentially have a negligible to minor, localized, long-term impact on the surface water or groundwater sources used. The same would be true of maintaining existing man-made water sources for pronghorn and tule elk, while maintaining natural critical water sources for pronghorn and tule elk would have a positive effect. Allowable vegetation management tools under this alternative include burning, grazing, and herbicides, which could impact water quality in the unlikely event they were used near surface water, and watering, which could impact groundwater quantity. These impacts would be localized, short-term, and probably negligible to minor. Active efforts to acquire privately held Soda Lake lands could result in beneficial effects for this unique water resource.

Fire and Fuels Management

The total combined acreage of wildfire and prescribed fire predicted to be exposed to fire under the proposed plan (Alternative 2) is half that of Alternative 1, and the same as for Alternative 3 but with a higher ratio (1:1) of wildfire to prescribed fire. Prescribed fire could help prevent wildfires that would affect surface water, under the assumption that they would be conducted with care to minimize impacts. This alternative also calls for actively suppressing fires that threaten sensitive natural resources. Thus localized, moderate to major, short-term negative impacts of wildfire to water quality would be less likely under this alternative than under Alternative 1, somewhat more likely than under Alternative 3, but rare under all three alternatives due to the scarcity of surface water and the unlikelihood of fire during the wet season when ephemeral streams flow.

Soils

This alternative prescribes a more active approach to soils management than Alternative 1 and may be expected to have greater beneficial effects to water quality.

Livestock Grazing

Under the proposed plan (Alternative 2), grazing would be used as a vegetation management tool only, except on the Section 15 allotments. An action specifying use of livestock facilities (for example, fences) to protect riparian areas reinforces the protection of water resources provided under all alternatives.

Minerals

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

The continued development of the existing federal leases would have negligible impacts to water quality in the Cuyama River watershed from runoff from roads and well pads. State and BLM standard operating requirements include provisions for controlling erosion and other off site impacts from these developments. The potential water use associated with private mineral estate development is discussed under cumulative impacts.

Lands and Realty

This alternative's active approach to acquiring lands with important ecological characteristics, specifically including as examples Soda Lake and playas and habitat for spadefoot toads and fairy shrimp, would potentially bring more surface water and surrounding lands under protective management as compared to Alternative 1 and the No Action Alternative. This would have positive long-term effects in increasing water quantity in public ownership, and protecting water quality via bringing the water and surrounding lands under policies that would minimize pollution or sedimentation.

4.7.6 Impacts to Water Resources under Alternative 1

4.7.6.1 Impacts to Water Resources from Implementing the Water Resources Program

There are no separate action alternatives for this program. See Impacts Common to All Action Alternatives.

4.7.6.2 Impacts to Water Resources from Implementing Other Programs

Biological Resources

This alternative does not include actions in addition to those common to all alternatives that could potentially affect water resources.

Fire and Fuels Management

The "hands-off" / "natural processes" approach of this alternative allows for the most wildfire of all the action alternatives, at a predicted 40,000 acres per decade. If fire occurs near surface water sources this could result in major short-term impacts to water quality. Due to the scarcity of surface water in the Monument and the lack of flowing water, such impacts would be unlikely and, if they did occur, highly localized unless affecting a seasonally flowing stream during the wet season (however, localized impacts to scarce water sources could have widespread impacts to wildlife dependent on them). Although fire impacts could be considered to be a natural part of healthy ecosystem function, the presence of nonnative grasses in the Carrizo causes unnatural fuel levels and changes fire intensity. There would be no prescribed burning under this alternative.

Soils

This alternative does not include actions in addition to those common to all alternatives that could potentially affect water resources.

Livestock Grazing

Under Alternative 1, all potential impacts of grazing would be eliminated except on less than 2 percent of the Monument along slivers of land where fences do not correlate with the Monument boundary. This would result in negligible effects on water resources, and the lowest of all the alternatives.

Minerals

Impacts would be the same as the No Action Alternative.

Lands and Realty

Impacts would be the same as the No Action Alternative.

4.7.7 Impacts to Water Resources under Alternative 3

4.7.7.1 Impacts to Water Resources from Implementing the Water Resources Program

There are no separate action alternatives for this program. See Impacts Common to All Action Alternatives.

4.7.7.2 Impacts to Water Resources from Implementing Other Programs

Biological Resources

Objectives and actions potentially affecting water are the same as under the proposed plan (Alternative 2) except that Alternative 3 calls for establishing new water sources for pronghorn and tule elk, with potential negligible to minor, localized, long-term effects on water quality and/or quantity depending on the water source used.

Fire and Fuels Management

Alternative 3 calls for actively suppressing all wildfires and the most active use of prescribed fire of all three alternatives. The total acreage projected to be burned is the same as under the proposed plan (Alternative 2) but with a 1:3 ratio of wildfire to prescribed fire. Thus, this alternative offers the greatest protection from the rare event of negative impacts of fire on water quality in the Monument.

Soils

This alternative prescribes a more active, assertive approach to soils management than both Alternative 1 and the proposed plan (Alternative 2), and may be expected to have greater beneficial effects to water quality.

Livestock Grazing

Impacts of grazing to water quality would be similar to the proposed plan (Alternative 2).

Minerals

Impacts would be the same as the No Action Alternative.

Lands and Realty

Impacts would be the same as the proposed plan (Alternative 2).

4.7.8 Impacts to Water Resources under the No Action Alternative

4.7.8.1 Impacts to Water Resources from Implementing the Water Resources Program

Actions under this alternative would benefit water resources. The No Action Alternative is comparatively nonspecific in describing objectives and actions for protecting water resources and does not address groundwater, so would be expected to have a lesser degree of beneficial impact. However, based on the declaration of a federal reserve water right in the Monument Proclamation, actions would be implemented under this and all other alternatives to protect water resources.

4.7.8.2 Impacts to Water Resources from Implementing Other Programs

Biological Resources

Current management goals, objectives and actions are similar to those of the proposed plan (Alternative 2) and Alternative 3, including provisions for protection and restoration of springs, vernal pools, and riparian areas; use of herbicides where necessary for weed control; and maintenance of water sources for wildlife. See impacts discussions for the proposed plan and Alternative 3.

Fire and Fuels Management

Estimated acreages burned by wildfire and prescribed fire are greater than under the action alternatives, with total acreage subject to fire twice that of Alternative 1 and four times that of the proposed plan (Alternative 2) and Alternative 3, and with the ratio of wildfire to prescribed burn (5:3) greater than under the proposed plan and Alternative 3. This alternative would be expected to offer less protection from the negative impacts of fire on water quality.

Soils

Objectives are similar to those in the action alternatives but with fewer specific actions than the proposed plan (Alternative 2) and Alternative 3, so positive effects on water resources may be slightly less.

Livestock Grazing

Impacts to water resources would be similar to those described for all action alternatives, with the Central California Standards and Guidelines for Rangeland Health providing overarching protection.

Recreation

This alternative does not specifically address water resources, but Soda Lake and possibly others would presumably be included in the Interpretation action to “Convey an understanding and appreciation of the unique resources so that visitors may enjoy and protect them.” Building an understanding among visitors of water resource protection needs would reduce impacts to water resources over present levels.

Travel Management

Actions protecting soils from erosion, compaction, rutting, and other impacts indirectly affect water quality and hydrologic function in the watershed. Because some of the soil-benefitting actions common to all action alternatives (evaluation of roads for closure, plans for road maintenance and for reducing illegal off-road use) are lacking, along with the provision that impacts to water quality be minimized through proper design, maintenance, or minor rerouting of roads, the No Action Alternative would have less beneficial effect on water resources as compared to the action alternatives. Sediment from use and maintenance of the existing road network would continue to have minor impacts on water resources.

Minerals

The continued development of the existing federal leases would have negligible impacts to water quality in the Cuyama River watershed from runoff from roads and well pads. State and BLM standard operating requirements include provisions for controlling erosion and other off site impacts from these developments. The potential water use associated with private mineral estate development is discussed under cumulative impacts.

Lands and Realty

This alternative is similar to the action alternatives in its approach to lands acquisition and could result in bringing more surface water and surrounding lands into public ownership, with beneficial effects of increasing water quantity in public ownership, and protecting water quality via bringing the water and surrounding lands under policies that would minimize pollution or sedimentation.

4.7.9 Cumulative Impacts

4.7.9.1 Assessment Area

The assessment area for cumulative impacts of the Water Resources program with reference to surface water is generally the Monument itself, as it lies mostly within a closed surface water basin with no drainage to outside the Monument boundaries. The main exceptions are the southwest aspect of the Caliente Range where water from the Monument drains into the Cuyama Valley, and the area north of the Monument (Including California Valley) where water from private lands drains into Soda Lake.

The Monument also lies within a closed groundwater basin; however, in contrast to surface water, drawdown of groundwater or changes in groundwater quality could potentially affect users of the same groundwater basin; for example, wells in California Valley could affect wells within the Monument and vice versa.

4.7.9.2 Past, Present, and Reasonably Foreseeable Future Actions/Cumulative Impacts

No BLM actions are planned that would increase groundwater use in the Monument beyond negligible amounts. Private mineral estate holders could propose to use steam injection within the Monument to facilitate extraction of viscous oil; typically this would use about 10,000 gallons of water per well per day. Water could potentially be pumped from the brackish groundwater layer of the Morales formation, which lies deeper than the layer used for drinking water in California Valley. BLM would evaluate any such proposal for potential impacts to groundwater quantity or quality and associated impacts to other Monument resources. Currently available data on groundwater amounts and trends are insufficient to analyze potential effects and the RMP calls for establishment of a monitoring program.

Actions outside the Monument boundary involving both groundwater and surface water could affect water within the Monument. There are no perennial streams flowing to the Monument from the California Valley area which lies upslope to the northwest; although one stream does have pools of surface water throughout most years. Also, ephemeral drainages flowing during the wet season and flood events could potentially carry pollutants from the surface and impact water quality in Soda Lake, which is the low point of the basin. Concerns have been raised regarding unregulated trash dumping, both outside and within the Monument boundary, and that septic systems may be missing or inadequate for some homes. BLM would need to monitor water quality in Soda Lake and in Monument wells, as proposed in this plan, in order to assess these potential impacts.

Concerns have also been raised regarding potential impacts from California Valley to groundwater quantity in the Monument. Approximately 200 families currently live in California Valley, with about 60 moving in over the past 20 years; assuming the growth rate increases, 100 to 150 more families may move to California Valley in the next 20 years. While anecdotal evidence indicates little or no change in well levels over the past 20 years, actual data on amount and trends of groundwater are lacking. BLM acknowledges a need to establish monitoring of groundwater levels, as proposed in this plan, in order to assess this potential impact.

A new solar energy facility currently proposed in California Valley has raised public concerns that such a facility may use large quantities of water and may use chemicals or chemically-treated water for cleaning and use herbicides, potentially impacting water quality and/or groundwater quantity. An ephemeral stream crosses the property proposed for the facility and drains into Soda Lake. State regulations would allow only clean, fresh water to be released from the plant; however, any outflow of fresh water reaching Soda Lake could change its unique water chemistry. Without more information on actual plans and without data for groundwater levels and trends, BLM is not able to assess the possible impacts at this time and acknowledges the need for monitoring.

The hotter, drier conditions predicted as a result of climate change in the foreseeable future may cause springs to dry or become ephemeral instead of perennial; Soda Lake to evaporate more rapidly, with the unique chemical properties of its water becoming more concentrated; and groundwater levels to drop as recharge from precipitation declines. These potential changes make the need for the proposed management actions to conserve water resources even more acute. Actions prescribing assessment and monitoring will make it possible to track these changes over time.

4.8 Impacts of RMP Related to Global Climate Change

Secretary of the Interior Order No. 3226, signed on January 19, 2001 requires all Department of the Interior agencies to evaluate climate change impacts in management planning. For the purposes of this RMP, climate change analysis includes two components: (1) consideration of climate change as it influences the resource conditions and effectiveness of implementing RMP objectives and actions; and (2) contributions to global climate change from implementing objectives and actions in the RMP alternatives. This PRMP/FEIS reflects the evolving nature of the analysis of climate change in environmental documents, and several changes have been made in the organization of the document (compared to the Draft RMP/EIS), as described below.

Discussion of component 1, the anticipated influence of climate change on the resource values of the planning area, has been moved to Chapter 3 (Affected Environment) to better reflect current guidance for NEPA analysis of climate change; that is, that climate change should be considered as a dynamic component of the affected environment discussion.

Discussion of component 2, the contributions of RMP actions to global climate change, has been moved to the cumulative effects discussion for each associated resource management programs. Cumulative effects from RMP implementation at a global level would be infeasible to measure and any estimates would be speculative. They would not meet the “reasonably foreseeable” impact standard identified under NEPA for assessing possible environmental effects. Therefore, the cumulative discussion regarding activities such as fire and fuels management, oil and gas development, vehicle use for recreation access, and livestock grazing are limited to a discussion of emissions that may contribute to climate change.

Note that in general, quantities of greenhouse gas emissions generated by use, protection, and maintenance of the CPNM under the proposed plan are anticipated to be equal to or less than those generated under the existing plan. For example, total miles of open vehicle route designations are less than under the existing plan. A reduction of livestock grazing would occur under all alternatives (except no action). Vegetation management (restoration of native plant communities) would improve the carbon storage capacity of Monument ecosystems. One exception is that recreational access would result in increased greenhouse gas emissions as Monument visitation increases. This is not an impact of the plan itself, but a reflection of continued population growth in the region.

4.9 Impact Analysis for Geology and Paleontology

4.9.1 Assumptions

- BLM would review all proposed ground disturbing undertakings and use authorizations on public land in the Monument to ensure no inadvertent impact to significant paleontological and geological formations/features pursuant to BLM Paleontological Program Manual 8270.
- It is a standard BLM policy to implement field inventory and identification of paleontological resources within a proposed project area when ground disturbance would occur in sensitive paleontological zones or localities.
- Any ground disturbing actions proposed on public land would include an evaluation of (1) the potential for presence of important paleontological resources, (2) the potential impacts to paleontological resources, and (3) the appropriate mitigating actions to protect important paleontological resources, including project avoidance, redesign, and if necessary, data recovery.
- BLM personnel and law enforcement would continue to have an on the ground presence

4.9.2 Incomplete Information

There has not been a complete on the ground inventory of paleontological resources in the Monument, but important vertebrate and invertebrate fossil formations occur in the Temblor and Caliente Ranges.

4.9.3 Resources/Programs with No Impacts

Because of standard paleontological program policy and review procedures as well as the flexibility of potential actions, impacts to important paleontological resources and geological features are not anticipated as a result of implementing management actions for the following resources: WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, Wildlife, Vegetation, Livestock Grazing, Lands and Realty, and Travel Management.

4.9.4 Impacts to Geology and Paleontology Common to All Alternatives

Impacts to important paleontological resources and geological features are not anticipated for any of the alternatives for the following resources: WSA/Other Lands with Wilderness Characteristics, Visual

Resources, Air Quality, Water Resources, Wildlife, Vegetation, Livestock Grazing, Lands and Realty, Travel Management, Fire and Fuels Management, and Minerals.

4.9.4.1 Impacts to Geology/Paleontology from Implementing the Geology/Paleontology Program

The action to conduct paleontological inventory on an estimated five to 15 percent of the federal land in the Monument would be beneficial as it would identify sensitive zones and localities of vertebrate and invertebrate fossils to monitor and protect in accordance to the Monument Proclamation.

The action to conduct three to four research and volunteer partnerships associated with the San Andreas Fault, Soda Lake, sag ponds, clay dunes and other areas of geological interest in the Monument would have the same impact and benefits as the No Action Alternative except there would be more research conducted.

Impacts under No Action Alternative (for reference):

San Andreas Fault/Soda Lake/Geological Formation Research – Formal research using minimal and mechanized tools pertinent to the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument would continue at about the same level which would be conducted in a manner that would not compromise the values of these resources. Impacts would be negligible to no impact to the integrity of these features while studies would benefit knowledge of these resources to be protected pursuant to the Monument Proclamation.

4.9.4.2 Impacts to Geology/Paleontology from Other Programs

Recreation

The action to interpret fossils formations/localities, unique geological landforms and features in the Caliente and Temblor ranges would be beneficial for public enrichment and would result in negligible no impact to the resources.

4.9.5 Impacts to Geology and Paleontology under the Proposed Plan (Alternative 2)

Impacts to important paleontological resources and geological features are not anticipated as a result of the proposed plan (Alternative 2) for the following resources: WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, Wildlife, Vegetation, Livestock Grazing, Lands and Realty, and Travel Management.

4.9.5.1 Impacts to Geology/Paleontology from Implementing the Geology/Paleontology Program

The combination of using hand tools and mechanized equipment which is a recognized research strategy at two to three locations to preserve significant fossils that may be lost to erosion or unauthorized collection would have negligible to no impact on the integrity of the fossil formations or localities. The benefits are the same as Alternative 1 but the research strategy is more efficient under this alternative.

The action to pursue an estimated three to four cooperative agreements, contracts or permits to identify fossil formations, sensitive localities and condition assessment of paleontological resources being impacted by soil erosion or human caused disturbances would have similar impacts and benefits as Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

Cooperative agreements, contracts or permits to identify fossil formations and sensitive localities being impacted from soil erosion or human caused disturbances and taking corrective action to mitigate the impacts would be beneficial for preserving important resources as recognized in the Monument Proclamation.

However, this alternative would identify and address more areas needing attention. Corrective actions to mitigate the impacts would be beneficial for preserving important resources as recognized in the Monument Proclamation.

Research using a combination of hand tools and mechanized equipment which is a recognized research strategy for field investigation at an estimated three to five locations in the Monument such as Soda Lake, San Andreas Fault, sag ponds, clay dunes and volcanic formations would have negligible to no impact on the integrity of the geological features. The benefits are the same as Alternative 1 (describe below), but the research strategy is more efficient under this alternative.

Impacts under Alternative 1 (for reference):

Research using minimal tools for excavation or coring at an estimated three to five locations in the Monument such as Soda Lake, San Andreas Fault, sag ponds, clay dunes and volcanic formations would have same impacts and restrictions as paleontological research noted above.

4.9.5.2 Impacts to Geology/Paleontology from Other Programs

Fire and Fuels Management

Prescribed fire and fuels management would have the same impacts as all other alternatives. However, under this alternative, there is higher potential for impacts to important paleontological and geological features than Alternative 1 but less potential for impact than Alternative 3 regarding proposed levels of line construction associated with fire suppression activities.

Recreation

The action of having public visitation and interpretation of geological and paleontological resources at an estimated two to three additional field locations in the Monument would have negligible to no impact to these natural resources. Benefits are public education and awareness of resources for protection.

The action to continue existing geology guided public tours and self-guided road tours to San Andres Fault/Wallace Creek and other points of geological interest would have negligible to no impact to these natural resources. Benefits are same as above.

Consideration to upgrade Wallace Creek interpretive trail program would have negligible to no impact to the San Andres Fault/Wallace Creek and would improve public appreciation of Monument geology.

Although there would be an increase in the number of trail heads / staging sites, number of miles of hiking / interpretive trails to support recreational activities, the potential for impacts to important paleontological and geological features would be the same as Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

Development of trails, trailheads interpretive overlooks in each of the RMZs would have negligible to no impact on important paleontological and geological features as these resources would be avoided.

The action to secure a permit to access geological feature and archaeological site (C06-1) situated atop the basalt hill on the KCL Ranch would potentially reduce public visitation by 25 percent to the cultural and geological feature. The permit conditions and educational information would eliminate inadvertent impacts to the geological feature and archaeological site. With permit conditions, anticipated impacts would range from negligible to no impact

Minerals

Impacts would be the same as under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

For the oil and gas resource program on the CPNM Valley floor and Russell Ranch area, the installation of exploratory wells and ancillary facilities such as spur roads, tank batteries, and development wells are anticipated to have negligible to no impact on the integrity of important paleontological/geological features as in most cases these resources would be avoided. Seismic operations would have no impact on the integrity of important paleontological/geological features.

4.9.5 Impacts to Geology and Paleontology under Alternative 1

Impacts to important paleontological resources and geological features are not anticipated from Alternative 1 for the following resources: WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, Wildlife, Vegetation, Livestock Grazing, Lands and Realty, and Travel Management.

4.9.5.1 Impacts to Geology/Paleontology from Implementing the Geology/Paleontology Program

Paleontological research using minimal tools at an estimated four to six fossil bearing formations in the Monument would have no negative impact on the integrity of the fossil formations or localities but it would limit accepted research field strategies to accomplish the studies in reasonable time and cost. The studies would benefit our knowledge of these sensitive fossil zones to be protected as recognized in the Monument Proclamation.

Cooperative agreements, contracts or permits to identify fossil formations and sensitive localities being impacted from soil erosion or human caused disturbances and taking corrective action to mitigate the impacts would be beneficial for preserving important resources as recognized in the Monument Proclamation.

Research using minimal tools for excavation or coring at an estimated three to five locations in the Monument such as Soda Lake, San Andreas Fault, sag ponds, clay dunes and volcanic formations would have same impacts and restrictions as paleontological research noted above.

4.9.5.2 Impacts to Geology and Paleontology from Other Programs

Fire and Fuels Management

Prescribed fire and fuels management would have the same impacts as all other alternatives.

Because there is less dozer and hand line construction under this alternative, the potential for impacts to paleontological and geological features from fire suppression activities would be slightly lower than the other alternatives.

Recreation

Development of trails, trailheads interpretive overlooks in each of the RMZs would have negligible to no impact on important paleontological and geological features as these resources would be avoided.

Closure of archaeological site (C06-1) on KCL Ranch would eliminate public visitation to this popular geological feature. The benefits to closure would be the elimination of inadvertent impacts to an important archaeological site associated with the geological formation. Some unknown number of college students, geologists, and other interested parties would lose the opportunity to visit this geological point of interest. Unauthorized access and potential impacts would level off after a couple of years, once the public is aware of its closure via of education and signage. Potential installation of signage and road closure barrier would deter site access and result in negligible to no impact to cultural and geological features.

Continued use of natural history educational displays at Wallace Creek would be beneficial to geological resources by providing education and interpretive information for public enrichment. This action would avoid impact to natural history values being interpreted.

Minerals

Impact would be the same as the No Action Alternative.

4.9.6 Impacts to Geology and Paleontology under Alternative 3

Impacts to important paleontological resources and geological features are not anticipated as a result of Alternative 3 for the following resources: WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, Wildlife, Vegetation, Livestock Grazing, Lands and Realty, and Travel Management.

4.9.6.1 Impacts to Geology/Paleontology from Implementing the Geology/Paleontology Program

Implementing paleontological research actions would have the same benefits and potential for impacts as the proposed plan (Alternative 2).

Implementing San Andreas Fault seismic/ Soda Lake/geological formation research actions would have the same benefits and potential for impacts as the proposed plan (Alternative 2).

4.9.6.2 Impacts to Geology/Paleontology from Other Programs

Fire and Fuels Management

Prescribed fire and fuels management would have the same impacts as all other alternatives. However, under Alternative 3, there is a slightly higher potential for impacts to important paleontological and geological features relative to Alternative 1 and the proposed plan (Alternative 2) regarding fire suppression activities due to the proposal to use additional line construction for control.

Recreation

The action of having public visitation and interpretation of geological and paleontological resources at the same number of locations in the Monument would have the same impacts and benefits as the proposed plan (Alternative 2). An upgrade of the Wallace Creek interpretive trail program would have the same benefits and impacts as the proposed plan.

Although there is an increase in the number of overlooks and interpretive sites, trail heads /staging areas, and miles of hiking under this alternative, impacts to important geological and paleontological would be the same as the proposed plan.

Minerals

Impacts would be the same as the No Action Alternative.

4.9.7 Impacts to Geology and Paleontology under the No Action Alternative

4.9.7.1 Impacts to Geology/Paleontology from Implementing the Geology/Paleontology Program

Paleontological Resource Scientific Research

The opportunity for paleontological inventory would be available for an estimated one to two paleontological studies which would have negligible to no impact on the integrity of the fossil formations or localities as these resources would be preserved. Studies would benefit our knowledge of these sensitive fossil locations to be protected as recognized in the Monument Proclamation.

San Andreas Fault/Soda Lake/Geological Formation Research

Formal research using minimal and mechanized tools pertinent to the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument would continue at about the same level which would be conducted in a manner that would not compromise the values of these resources. Impacts would be negligible to no impact to the integrity of these features while studies would benefit knowledge of these resources to be protected pursuant to the Monument Proclamation.

4.9.7.2 Impacts to Geology/Paleontology from Other Programs

Fire and Fuels Management

With prescribed fire and fuels management, there would be negligible to no impact to important paleontological/geological features as in most cases these resources would be identified and avoided in advance of fire operations under all alternatives.

The emergency nature of wildfire can lessen management ability and priority to protect important paleontological/geological features. Surface and subsurface disturbing impacts to these resources from wildfires are largely associated with fire suppression activities. Suppression activities have a considerable potential to damage important paleontological/ geological features through hand and bulldozer construction of fire lines, clearing for helicopter pads, fire camps and related activities. Impacts to these resources would potentially range from minor to major. However, this action is beyond the scope of this plan and would be addressed through standard protocols for emergency response and through NEPA analysis in the fire rehabilitation plan.

Recreation

The continuation of existing geology guided public tours and self-guided tours to the San Andres Fault/Wallace Creek and other points of seismic/geological interest in the Monument would have negligible to no impact to these resources.

An unspecified number of visitors to geological feature and archaeological site (C06-1) would potentially cause negligible to moderate impacts to the site, mostly due to the inadvertent movement of site components or rocks associated with the geological formation.

Minerals

For the oil and gas resource program on the CPNM Valley floor and Russell Ranch area, the installation of exploratory wells and ancillary facilities such as spur roads, tank batteries, and development wells are anticipated to have negligible to no impact on the integrity of important paleontological/geological features as in most cases these resources would be avoided. Seismic operations would have no impact on the integrity of important paleontological/geological features.

4.9.8 Cumulative Impacts

4.9.8.1 Assessment Area

The assessment area is the southern portion of the California Coast Range Physiographic Province.

4.9.8.2 Past, Present, and Reasonably Foreseeable Future Actions and Cumulative Impacts

Implementing the Geology and Paleontology Program would have positive cumulative effects on these resources. Paleontological research would supplement the database for the region encircling the Monument as no formal field research has been conducted in the confines of the Monument, although important vertebrate and invertebrate formations are known within and adjacent to the Monument.

The unique geological formations in the Monument such as the San Andreas Fault are world renowned for their importance to scientific study as well as the public. Continued investigations of the San Andreas and other landforms in the Monument would complement existing and future research being conducted along other parts of the fault by the U.S. Geological Survey and university researchers. This would have a positive cumulative effect as it would help build a better understanding of geological structures, processes, and earthquake activity.

4.10 Impact Analysis for Cultural Resources

4.10.1 Assumptions for the Analysis

- BLM would review all proposed ground disturbing undertakings and use authorizations on public land pursuant to the State Protocol Agreement among the BLM California State Director, the California and Nevada State Historic Preservation Officers (SHPOs); Section 106 of the *National Historic Preservation Act* (NHPA); NEPA; and the *American Indian Religious Freedom Act*.
- Standard BLM policy would be followed to implement field inventory and identification of cultural resource sites within a proposed project area of potential effect for all ground disturbing undertakings.
- Any actions proposed on public land would include an evaluation of (1) the potential for presence of important cultural resources, (2) the potential impacts to cultural resources where project actions may cause surface disturbance or provide access to cultural resources, and (3) the appropriate mitigating actions to protect cultural resources, including project avoidance, redesign, and if necessary, data recovery.
- Avoiding impact, whenever possible, to National Register and traditional cultural properties as a standard management practice. This could involve avoidance of sites by means of project design or redesign, fencing, capping or other protective measures.

- BLM personnel and law enforcement would continue to have an on the ground presence to monitor/protect sites from illegal and inadvertent public impacts.
- Site protection priority would be focused on National Register and traditional cultural properties.
- National Register property or site/historic property/archaeological property/cultural property/traditional cultural property are synonymous by legal definition (key word is property). Cultural properties are either eligible or listed in the National Register of Historic Places.
- For the treatment of historic properties where preservation, rehabilitation, restoration, and reconstruction are involved, treatment would be pursuant to Secretary of the Interior Standards (36 CFR Part 68).

4.10.2 Incomplete Information

BLM has completed close to 10 percent cultural resource field inventory of public land in the Monument, which is relatively higher than other public land units. However, additional cultural inventory is needed to provide a comprehensive understanding of the types of cultural resources (prehistoric and historic) and the levels of cultural sensitivity within the upland and valley landscape zones.

Over 90 historic properties in the Monument have been determined eligible, listed, or nominated for inclusion to the National Register of Historic Places. Other cultural resources have not yet been evaluated for eligibility to the National Register.

With the exception of one excavation on the Washburn Ranch, there have been no other documented formal archaeological excavations carried out in the Monument.

4.10.3 Programs with No Effects on Cultural Resources

Because of standard cultural resource program review procedures and regulatory requirements as noted above under assumptions as well as the flexibility of potential actions, impacts to cultural resources are not anticipated as a result of implementing management actions under any alternatives for the following programs: WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, and Geology/Paleontology.

4.10.4 Impacts to Cultural Resources from Actions Common to All Action Alternatives

Because of standard cultural resource program review procedures and regulatory requirements as noted above under assumptions as well as the flexibility of potential actions, impacts to cultural resources are not anticipated as a result of implementing management actions for WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, and Geology/Paleontology.

4.10.4.1 Impacts to Cultural Resources from Implementing the Cultural Resources Program

With the allocation of 89 cultural properties for purposes of Conservation for Future Use, these sites would be protected from other uses such as public or experimental use. This allocation would result in no impacts to cultural resources.

Painted Rock would be allocated to Traditional and Public Use management categories thereby providing a balance between site protection and managed public visitation. Authorized public use of the site and protective measures would be carried out in manner that does not impact the integrity of this National Register property. Any potential protective barriers or delineated trails on site would be confined to

disturbed soils within the alcove and the immediate area encircling the rock. There are minimal impacts from foot traffic by visitors to the site which tends to loosen the soils. However, subject traffic is confined within the site's interior/exterior trails that have been subjected in years past to livestock use (including corralling), and agricultural disking while the site was in private ownership. The resulting soil loosening by site visitors and the sporadic occurrence of surface sheet erosion results in minimal soil movement of previously disturbed soils. Native vegetation cover or trail protection such as geo-textile cloth could be used to stabilize soils.

The El Saucito Ranch, Washburn Ranch, and Selby Cow Camp would be allocated to the Public Use and Scientific Use categories. These three sites are eligible National Register properties and have received some level of stabilization or rehabilitation for preservation and public interpretive use. It is anticipated that public use and interpretive information would be confined to the ranch compound or adjacent ancillary facility. Potential scientific use of these three sites would consist of projects such as hand excavation of several units at each site. It is estimated that between 40 and 90 square feet would potentially be excavated at each of these sites over the life of this plan. The resulting impacts to cultural resources would be positive and effects would be resolved by the recovery of important information about the historic life-ways on the Carrizo Plain.

The remaining 86 cultural resource sites in the Monument and those that could be discovered during the life of the plan would be allocated to the appropriate use categories once sites have been formally evaluated for their potential National Register eligibility in accordance to the State Protocol between BLM/SHPO and after Native American consultation is implemented pursuant to Federal regulations.

The development of a protocol agreement in the Monument with the Native Americans to implement the statewide policy regarding traditional plant gathering and cultural practices would have no impact on cultural properties. However, the recovery and use of native plants used traditionally for domestic, medicinal and for ceremonial rites would be beneficial to the indigenous people and the trust responsibilities between the native people and BLM.

Implementation of intensive and mixed sample cultural resource inventories (no surface disturbance) on an additional 20 percent of 250,000 acres of the federal, state, and private land in the Monument would have no ground disturbing impacts on cultural properties. However, the action would be beneficial to cultural resources by identifying the location and condition of prehistoric and historic resources to be managed and protected pursuant to the Monument Proclamation and the BLM/SHPO State Protocol.

The development and implementation of a Cultural Resource Project Plan for restoring, rehabilitating, stabilizing, or reconstructing National Register eligible sites would be beneficial to the preservation of cultural properties as recognized in the Monument Proclamation and as part of the BLM/SHPO Historic Preservation Program.

The development and use of procedural agreements with Native Americans would be an on-going throughout the life of the plan and would consist of the actions such as:

- 1) Meetings with tribal governments, Native American Advisory Committee, and other Native people with cultural ties to the Monument would be an open and on-going process to enhance trust responsibilities.
- 2) Excavations and data collection would be implemented in a fashion to avoid impacts with sites associated with the Native American Graves Protection and Repatriation Act (for example, burials and sacred objects).

- 3) Monitoring of archaeological sites of Native American origin, now totaling to 132 sites and others that would be discovered during the life of the plan, would be available for Native American monitoring pursuant to coordination between BLM and the Native Americans having cultural ties to the CPNM. The site stewardship effort would track the condition of sites being affected from natural and human causes for purposes of site preservation.

Cultural permits issued for research investigations of rock art where photography is proposed would be approved on a case by case basis through the implementation of standard BLM procedures for fieldwork permitting and authorization, resulting in no impacts to cultural resources and Native American values pursuant to the State Protocol between BLM/SHPO and Native American consultation.

4.10.4.2 Impacts to Cultural Resources from Other Programs

Wildlife

Maintaining two human-made historic structures for use by bats would have no impact to cultural properties as both sites are ineligible for National Register inclusion. Erecting two new bat roost structures as well as fencing and signage for the protection of the sphinx moth would have no impact on cultural resources as the standard cultural procedures and avoidance of cultural properties would be applicable.

Construction of two condor feeding station, fencing of riparian areas, and trails and pullouts at Soda Lake would have no impact on cultural resources as the procedures and potential for impact would be the same as the above paragraph regarding site avoidance.

Research and inventory of three to five large scale wildlife projects would result in no impact to cultural resources as research actions would avoid impacts to cultural properties.

Vegetation

The projected 500 acres to be fenced over the life of the plan would result in no impact to cultural resources as sites can easily be avoided through project design or realignment. Procedures in the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA would be implemented in advance to ensure cultural properties are safely avoided.

The planting of rare plant seeds on 100 acres ten times over the life of the plan as a likely part of other restoration efforts on previously cultivated lands would not impact cultural resources as sites would be avoided. However, seeding activities requiring earth disturbance on prehistoric resources previously cultivated would result in negligible to minor impact to an already disturbed site from past years of disking. In such case, the project would not impact the qualities that make the site National Register eligible. Standard cultural procedures and Section 106 of the NHPA would be applicable to resolve potential effects to the site.

The eradication of invasive nonnative plants on historic sites such as the tree of heaven would potentially occur at 25 percent of the 41 recorded historic sites in the Monument which would consist of approximately 10 sites. With regard to the eight multi-component sites consisting of historic and prehistoric elements, the eradication of plants would likely occur at one or two sites at most over the life of the plan. This action would be implemented pursuant to federal regulations and Native American consultation in a manner that would not impact the integrity of the historic landscape by introducing a combination of acceptable non-invasive nonnative plants and/or native plants, especially where sites of Native American origin are present on an historic site.

Fire and Fuels Management

The fire and fuels management program would have no anticipated impact to cultural resources properties, as the standard cultural resource procedures and site avoidance measures would be identified and employed in advance of fire operations under all alternatives.

The emergency nature of wildfire can lessen management ability and priority to protect cultural resources. Surface and subsurface disturbing impacts on cultural resources from wildfires are largely associated with fire suppression activities. Suppression activities have a considerable potential to damage prehistoric and historic sites through hand and bulldozer construction of fire lines, clearing for helicopter pads, fire camps and related activities. Fire camps and staging areas in or near known or unidentified prehistoric or historic sites may be subject to illegal collection of artifacts and displacement of cultural features. The use of fire retardant would have impacts on rock art images painted on the surface of outcroppings. For fire suppression activities, impacts to cultural properties would potentially range from minor to major. Built historic buildings and structures would potentially be impacted if not destroyed by fire burning over the facility.

The intensity of impacts to cultural properties from fire suppression would be the same for all alternatives. However, the potential for impacts to the number of cultural properties that would be affected would potentially increase under each alternative as there would be more miles of dozer and hand line construction, potentially more use of fire retardant, and an increase in the number of acres involved.

Livestock Grazing

The dispersed nature of livestock grazing creates difficulties in identifying areas of potential disturbance due to livestock. Locations where livestock congregate or trail across cultural resources, impacts could potentially occur by the displacement of artifacts and features as well as mixing of site deposits and disruption of context. Cattle congregating and rubbing could potentially damage standing historic structures and accelerate exfoliation of rock art panels. Livestock trampling or congregating at water sources and salt licks could denude vegetation cover and increase compaction, creating potentially indirect impacts on cultural resources by accelerating erosion and exposing artifacts to illegal surface collection and feature displacement. These impacts would potentially range from negligible to moderate and would be localized to individual sites. Mitigation through appropriate treatment such as soil stabilization or fencing to exclude cattle from sensitive areas would be applied as part of BLM/SHPO Supplemental Procedures for Grazing Permits/Leases.

Based on past and on-going inventory and monitoring of cultural resources in the Monument, it is anticipated under all alternatives there would be a range from negligible to moderate impacts to cultural resources in areas that are available to grazing.

The adjustment of boundary fences, modification of grazing authorizations and allotments boundaries are anticipated to have negligible to no impact to cultural resources. Fence adjustments would avoid impact with cultural properties pursuant to standard cultural procedures.

Recreation

The implementation of directional signs at major road intersections would not impact cultural properties as the standard cultural procedures, including advance field inventory and identification of eligible cultural properties, would be determined and avoided. Installation of signs within the Primitive zone would follow the same cultural process as noted above, thereby resulting in no impact to cultural

properties. The development of potable water system at the Goodwin Education Center, Selby Campground, and KCL Campground would result in negligible to no impact to cultural properties. For KCL, this would involve project design and possibly realignment of the water line to avoid impact to cultural properties in the general vicinity.

The retrofit of facilities to full accessibility standards when historic buildings may be involved, the Secretary of the Interior Standards for rehabilitation and adaptive reuse of buildings would be applicable to avoid or resolve impacts.

Expansion of the visitor center in its existing location would have no impact on cultural properties.

The Traver Ranch and KCL Ranch would be allocated to Public Use. Both sites are ineligible for the National Register and therefore any additional development of the interpretive facilities at these two sites would have no impact on historic properties. However, the site is beneficial to cultural as it provides educational awareness of historic resources in the Monument. Any additional interpretive development at these two sites would be within the footprint of the ranch compound.

Implementation of restricted access to El Saucito Ranch interpretive and educational trail would be beneficial for the short and long term preservation of the historic ranch property. Use and maintenance of the access would have no impact on cultural resources.

Activities associated with inadvertent disturbance by recreational visitors, unauthorized OHV travel, vandalism, and illegal artifact collection would result in a loss of cultural resource information. As most public use activities are dispersed on the landscape and do not require permitting, discovered impacts would be mitigated on a case-by-case basis as they are discovered. Additional signage will be posted at information kiosks, Monument entrances, and other appropriate locations informing visitors of *Archaeological Resources Protection Act* regulations and violation consequences.

Travel Management

The primary cause of potential impact to cultural properties under travel management is ground disturbance activities with heavy equipment to maintain existing roads or the rehabilitation of roads to be closed. The intensity of potential impacts to cultural properties would range from minor to major should road grading or rehabilitation cut across a cultural property. Transportation use or driving over an extant road that crosses a cultural property could cause impacts ranging from negligible to no impact. However, secondary impacts from road erosion could cause impacts to cultural properties ranging from minor to major. With implementation of the standard cultural procedures to inventory, identify and avoid cultural properties, negligible to no impact to cultural properties are anticipated.

Trail maintenance where ground disturbance takes place would potentially impact cultural properties should the trail cross a site. Secondary impacts from trails to cultural properties would potentially occur from soil erosion or the illegal collection of artifacts or displacement of cultural features where a site is within or adjacent to the trail. However, with implementation of standard cultural procedures to avoid sites, negligible to no impacts are anticipated.

Under all alternatives, where cultural properties are known to be located on existing roads, subject segments of roads would be closed under this plan or mitigated to eliminate the potential for impact.

Under all alternatives, the level of road maintenance from Levels 1 to 4 would have varying potential of impacts to cultural properties. With Level 1 and 2, there would be minimal to no potential impacts to cultural properties. Level 3 maintenance (road grading) would have the greatest potential to impact

cultural properties in the Monument as that is where most of the roads requiring grading on BLM are located. It would be unlikely that there would be impact to cultural properties where Level 4 grading occurs as those primary roads such as Soda Lake Road are within a zone in the valley floor where the probability is low for the occurrence of cultural properties. However, under all alternatives, negligible to no impacts to cultural properties are anticipated as standard cultural procedures defined by the Section 106 process (to inventory, identify, assess for potential effects, and avoid cultural resources) would be applicable. These procedures will be applied toward actions affecting all existing roads within the Monument managed by BLM.

The potential for negligible to minor impacts to sites from existing administrative road use to sites in the Rock Art Historic District such as Saucito Rocks, Sulphur Spring, and Abbott Canyon or other National Register properties is estimated between one to five sites receiving some level of disturbance. It is estimated that approximately one mile of site avoidance would be employed by one or more mitigation measures such as road realignment, closure, capping, fencing, or some other form of protection. These mitigation actions would avoid impacts with cultural resources and provide long term site preservation benefits.

Implementation of emergency closure or access restrictions to National Register properties such as Painted Rock, El Saucito Ranch, and site C06-1 on the KCL Ranch would be beneficial for site protection. There would be no impacts to cultural resources as closures would be implemented off-site.

Minerals

Impacts would be the same as under the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Oil and Gas CPNM Valley Floor (Private Mineral Estate) –

The installation of exploratory wells and ancillary facilities such as spur roads, tank batteries, and development wells are anticipated to disturb 30 acres of land in the valley floor which would be processed in a manner to avoid impact to cultural and traditional cultural properties through implementation of the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA. The management of cultural resources on the CPNM during oil and gas actions will be conducted through Section 106 compliance procedures, guided by the BLM California State Protocol. At the project level, inventory, identification, eligibility assessments and effects will be performed, along with appropriate Native American consultation. Mitigation of any adverse effects to eligible cultural properties is coordinated through SHPO consultation. With oil and gas activities, as with any action which may impact cultural sites, site preservation through avoidance is always the preferred alternative. The nature of most oil and gas actions easily allows for project redesign in the case of any cultural sites found within the project area. The Bakersfield BLM Field Office, which manages the CPNM commonly, conducts cultural resource compliance projects for oil and gas actions and, through this avoidance policy, rarely proceeds to the mitigation process resulting in a high degree of preservation for cultural sites.

It is anticipated that seismic operations (115 miles) on the Carrizo Plain would be implemented primarily by means of drilled shot holes/explosives rather than use of the vibroseis truck to minimize ground surface disturbance. As with past seismic operations in the region, cultural resources would be safely avoided by moving source and receiver locations as necessary in a lateral direction away from cultural sites and infrequently by skipping over sensitive cultural areas where a site(s) may encompass a large amount of acreage making it difficult to laterally avoid site impact.

Oil and Gas CPNM-Russell Ranch Area (Existing Leases) –

The installation of in-field development wells, exploratory wells and ancillary facilities such as spur roads and tank batteries would disturb an anticipated 6.5 acres of land in the Russell Ranch Unit area which would be processed in a manner to avoid impact to cultural and traditional cultural properties through implementation of the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA.

It is anticipated that seismic operations (50 miles) in the Russell Ranch Unit area would be implemented primarily by means of drilled shot holes/explosives rather than using the vibroseis truck to minimize ground surface disturbance. Cultural resources would be safely avoided by moving source and receiver locations as necessary in a lateral direction away from cultural sites and infrequently by skipping over sensitive cultural areas where a site(s) may encompass a large amount of acreage.

Lands and Realty

The prohibition on commercial photography of the rock art images would deter commercial exploitation of the rock art images, and protect traditional Native American values associated with the images. The acquisition of private or state lands would provide regulatory protection to cultural resources as well as further the protection of natural and cultural resources recognized in the Monument Proclamation.

4.10.5 Impacts to Cultural Resources from the Proposed Plan (Alternative 2)

Because of standard cultural resource program review procedures and regulatory requirements as noted above under assumptions as well as the flexibility of potential actions, impacts to cultural resources are not anticipated as a result of implementing management actions for WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, and Geology/Paleontology.

4.10.5.1 Impacts to Cultural Resources from Implementing the Cultural Resources Program

It is estimated that, over the life of the plan, 21 recorded rock art sites and yet undiscovered rock art sites would be subject to either protective and or conservation treatment as appropriate on a case by case bases. Conservation and protective measures implemented would avoid site impacts and preserve Native American values associated with specific sites.

The reduction in natural and potential human disturbance to rock art sites by implementing measures such as dust abatement, installation of physical barriers, boardwalks, interpretive panels and other appropriate preservation measures to manage public access to sites would be beneficial for the long term preservation of these fragile rock art sites. Actions would be implemented in a manner that would not impact site integrity and Native American values associated with specific sites.

It is estimated that Native American access to Painted Rock would likely increase over the life of the plan to approximately 75 to 100 visitors per year which would result in no impacts to archaeological resources. It would be beneficial to the Native Americans as they would continue their traditional and cultural practices and ceremonial rites at the site.

Over the life of the plan, it is estimated that at least six locations where historic machinery and equipment are scattered in the Monument would be subject to removal from the landscape, especially targeting removal of items posing a safety hazard. It is anticipated that none of the six locations targeted for clean up would have impacts on National Register properties. At least six additional field locations would remain in place for public visitation and educational awareness. Less than one-half acre in total would be used to minimize the footprint for field interpretation and to avoid impact to cultural resources.

It is estimated that machinery and equipment from approximately four to six locations in the Monument would be relocated to existing facilities such the Traver Ranch and the Goodwin Education Center. This action would have no impact to cultural properties but would be beneficial for public interpretation.

It is estimated that one to three ranching and farming facilities would be razed and removed from the Carrizo Plain and areas within the Primitive RMZ. For the sites that do not meet National Register eligibility, their removal action would result in no impact to cultural properties.

It is estimated that four to six National Register eligible ranching and farming facilities would be stabilized, rehabilitated, or restored for public education, interpretation and or administrative adaptive reuse such as El Saucito, Washburn and Selby ranches. This action would be beneficial for cultural resources as representative examples of significant historic properties recognized in the Monument Proclamation and useful for public educational and administrative uses. Thus, this action would be accomplished in a manner that results in no impact to eligible cultural properties by meeting the Secretary of the Interior Standards for the Treatment of Historic Properties.

It is estimated that two to three historic buildings or structures ineligible for inclusion to the National Register would be saved and used for public education such as the Traver Ranch and KCL Ranch shed. This action would have no impact on National Register properties but beneficial for public interpretation.

4.10.5.2 Impacts to Cultural Resources from Other Programs

Wildlife

It is highly unlikely that cultural resources would be impacted in the non-core threatened and endangered species areas from the limited amount of prescribed burning, while dispersed livestock grazing 2 years out of 20 may have negligible to no impact to cultural resources. However, prescribed burning and grazing would be subject to cultural inventory and monitoring to reduce the potential for inadvertent impacts to cultural resources pursuant to the BLM/SHPO Protocol and livestock supplemental procedures.

Prescribed burns under the Pronghorn Objective and Nesting Site Habitat Objective would result in the standard inventory/protocol procedures to minimize potential impacts resulting in minor impacts.

The modification of 60 miles of fencing and the removal or relocation of 32 miles of fencing would require the same standard cultural procedures as Alternative 1 but the potential for negligible to no impacts to cultural properties would be less but similar to Alternative 1.

Impacts under Alternative 1 (for reference):

Fencing that may be applied or relocated would require standard practice of cultural resource inventory and record search in advance of project implementation. It is anticipated that fencing projects would be implemented in a manner to avoid cultural resources through project design or redesign. Action would be processed through implementation of the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA to avoid potential impact to cultural and traditional cultural properties.

With mowing of grass and installation of signs along Soda Lake Road edge, no impacts to cultural resources would be anticipated. Standard cultural procedures would be implemented.

Introduction of the tule elk and pronghorn would result in no impact to cultural resources. The Native Americans would consider the action beneficial to the herds that are native to the region and the association of these species with their traditional culture.

Removal of extant fences and relocation of fences back from Soda Lake Road under the Tule Elk Objective would follow standard cultural clearance/monitoring procedures and potential for impacts would be minimized.

Restricting public access to raptor nesting sites at Painted Rock, Selby Rocks, and other rock outcrops would result in no impact to cultural properties but beneficial for the added protection to cultural sites. Restricting public access atop Painted Rock would be respectful to Native American religious values associated with the site.

It is unlikely that cultural resources would be impacted by construction of five new wildlife guzzlers as such ground disturbing projects would be subject to cultural inventory and record search to ensure no impacts occur to cultural resources pursuant to the BLM/SHPO State Protocol and in compliance with Section 106 of the NHPA. Projects would be designed or redesigned to avoid impacts to cultural resources.

Control of feral pigs by traps or other methods such as 10 acres of fencing in the vicinity of springs over the life of the plan would be beneficial to cultural resources as feral pigs have been known to disturb sites in the Monument by their extensive earth rooting activities. New fencing would avoid cultural resources and thus no impact to cultural properties.

Possible use of insecticides to remove nonnative honey bees that may exist at Painted Rock would be beneficial for the protection of rock art where it is being impacted by honey bees at the site. Native Americans would likely prefer the eradication of the bees at the site by means other than poison.

For the Upland Game Bird Objective, the projected acreage of prescribed burns is relatively low and therefore no anticipated impact to cultural resources would occur as standard cultural procedures would be implemented pursuant to the BLM/SHPO State Protocol.

Vegetation

The restoration of 200 to 500 acres per year of native plants by seeding, pretreatment burning and possibly herbicides would in most cases not impact cultural resources as sites would be avoided. However, seeding activities requiring earth disturbance on prehistoric resources previously cultivated would have the same impact and implementing procedures under all alternatives, except the potential for negligible to minor impact would be greater under this alternative as more acreage would be treated. The use of herbicides would result in no impact to cultural properties but over spray of herbicides on native plants could have potential impact on Native American traditional plant gatherers where plants are used for basket weaving. Standard cultural procedures would be applicable.

The prescribed burning of 200 to 1,000 per year to promote native species would not impact cultural resources as result of site avoidance and with implementation of the standard cultural procedures.

The restoration of 1 to 100 acres over the life of the plan to improve the natural water flows across the landscape is anticipated to have no impact on cultural resources as cultural properties would be safely avoided.

The one to five miles of fencing to be constructed to protect oak trees would be designed and if necessary realigned to avoid disturbance of cultural resource properties.

The 1 to 10 acres of oak understory habitat restored over the life of the plan would potentially impact cultural properties. However, through implementation of standard cultural procedures and inventory to identify sites, cultural properties would be avoided resulting in no impact to sites.

The 10 to 100 acres of crust restoration over the life of the plan by means of burning, inoculation with crust biota and possibly herbicides would not impact cultural properties due to project design to avoid National Register eligible sites.

Nonnative weed control of 10 to 100 acres per year by methods such as pulling, mowing, burning, and use of herbicides would have no impact to cultural properties as these sites would be safely avoided.

In some instances where nonnative plants would be removed from historic and prehistoric properties, there would be temporary impacts. The cutting or removal of nonnative trees from a historic property would range from minor to moderate visual impact to the historic landscape on the short term. To mitigate impacts by the removal of nonnative plants such as the tree of heaven, consideration would be given to replace the tree with an acceptable native tree or non-invasive nonnative plant to restore the historic landscape, pursuant to standard cultural procedures and Section 106 of the NHPA.

With regard to eradication on nonnative plants on prehistoric sites, the impacts would range from minor to moderate. However, impact would be short term as the nonnative plant such as horehound would be replaced with a native plant to restore the site's natural setting, pursuant to Section 106 of the NHPA and Native American consultation.

Fire and Fuels Management

The intensity of impacts to cultural properties from fire suppression would be the same as the other alternatives. However, the potential for impacts to the number of cultural properties under this alternative would be more relative to Alternative 1 but less than Alternative 3.

Livestock Grazing

The actions to authorize grazing on the Section 15 allotments and vegetation management areas would provide for considerably more acres to be grazed than Alternative 1. Consequently, the potential for cultural properties to be impacted would be greater under this alternative and the intensity of impacts would be negligible to moderate.

The action to not have grazing on the Elk Canyon, Brumley, West Painted Rock, Tripod, Sulphur Spring, Sand Canyon, and Widow Women pastures provides protection to a number of cultural properties in these pastures and core areas of the National Register District and National Historic Landmark (nominated properties). This action results in no impact to cultural properties and provides further protection to Native American heritage resources.

The closure of the Painted Rock Exclusion Zone to livestock grazing would eliminate potential impacts to cultural properties from authorized grazing. The action provides protection to 22 prehistoric sites in the National Register District.

It is anticipated that livestock grazing may have some level of disturbance to one to three cultural properties in the National Register District which would range from negligible to moderate impact. Should the Section 15 pasture south of Painted Rock pasture be leased for grazing, construction of a fence as a protective measure would exclude cattle from encroaching on 22 cultural properties within and adjacent to the National Register District, thereby eliminating the potential impact from grazing.

Pastures where there is no reason to graze for vegetation management purposes and where cultural properties are located in the Hill, Back Canyon, Goat Spring, KCL, and Abbott Canyon pastures would provide protection to a number of cultural properties as well as prehistoric sites nominated for inclusion to the National Historic Landmark. Potential for impact and benefits are the same as the above paragraph.

Grazing in the Old Adobe pasture north of Abbott Canyon pasture would potentially result in negligible to moderate impact to sensitive cultural properties nominated for listing in the National Historic Landmark. With implementation to exclude grazing in this sensitive area, the potential for impact would be eliminated for two cultural properties.

The action to build, maintain, modify, or remove fences, water systems, and roads would potentially impact cultural resources. However, projects where cultural properties are located would be safely avoided by means of project design, redesign, or capping to protect sites within existing roads or otherwise.

Recreation

The impacts to the Primitive zone would be the similar to Alternative 1, except there would be less miles of trail.

Impacts under Alternative 1 (for reference):

Developments of 5-35 miles of trails and use of extant roads in the Primitive Zone is anticipated to have negligible to no impacts on cultural properties as sites would be avoided by project design or realignment to avoid impact to cultural properties or if necessary cultural resources would be capped with a protective cover such as soil to avoid impact.

Within the Backcountry zone, recreation modifications and improvements associated with dispersed camping areas would be implemented to avoid impacts with cultural properties.

An increase in the number of overlooks and interpretive sites in the Backcountry would have the same impacts as Alternative 1, except there would potentially be more sites interpreted.

Impacts under Alternative 1 (for reference):

An increase in the number of overlooks and interpretive sites by three to five within the Backcountry Zone would result in no impact to cultural properties as sites would be avoided by design or redesign. Where cultural resources might be interpreted, mitigation measures would be applied to ensure negligible to no disturbance of cultural properties.

Development of five to ten trail heads / staging sites to support recreational activities in the Backcountry would have the same potential for impact as Alternative 1, except there would be more trail head / staging areas.

Impacts under Alternative 1 (for reference):

The development of three to eight trail heads and staging areas in the Backcountry to support recreational activities would be selected to avoid impact to cultural properties.

With an increase of 5 to 10 miles of hiking / interpretive trails in the Backcountry, the potential for impacts to cultural properties would be the same as Alternative 1.

Impacts under Alternative 1 (for reference):

Development of three to five miles of hiking / interpretive trails in the Backcountry would be selected at areas to avoid impact to cultural properties. Where cultural resources are being interpreted, mitigation measures would be applied to ensure negligible to no disturbance of cultural properties.

In the Frontcountry zone, although there is an increase the number of overlooks and interpretive sites under this alternative, the potential for impact to cultural properties would be the same as Alternative 1.

Impacts under Alternative 1 (for reference):

An increase in the number of overlooks and interpretive sites by three to eight sites within the Frontcountry zone is anticipated to have no impact to cultural resources as standard cultural procedures and avoidance measures would be applicable.

With the increase in the number of trail heads / staging sites, number of miles of hiking / interpretive trails to support recreational activities in the Frontcountry, the potential for impacts to cultural properties would be the same as Alternative 1.

Impacts under Alternative 1 (for reference):

Development of one to three trail heads / staging sites in the Frontcountry to support recreational activities would result in no impact to cultural properties.

Development of one to five miles of hiking / interpretive trails in the Frontcountry would be subject to the same cultural procedures and potential for impact as discussed above. Where cultural resources are being interpreted, mitigation measures would be applied to ensure negligible to no disturbance of cultural properties.

Visitation to Painted Rock is expected decrease initially based on the permit requirement, but would eventually start increasing based on additional public demands to approximately 3000 visitors annually. Impacts to Painted Rock would be negligible to none and likely the lowest of all of the alternatives due to the balance between site protection and reasonable public access. Minor to no disturbances to cultural soils loosening by foot traffic would be anticipated.

With closure of the Painted Rock Exclusion Zone to horses, dogs, non-motorized bikes, cache type activities, and discharge of firearms, it would reduce potential impacts and increase site protection from 15 to 22 prehistoric sites in the National Register District. The potential for these unauthorized activities would be limited and impacts would likely be minor.

Issuance of an estimated three to four Special Recreation Use Permits to Painted Rock annually would deter impacts to the site but minor disturbances such as loosening of cultural soils by foot traffic would be anticipated.

The action to secure a permit to access archaeological site (C06-1) situated atop the basalt hill on the KCL Ranch would potentially reduce public visitation by 25 percent to the cultural site and geological feature. The permit conditions and educational information would eliminate inadvertent impacts to archaeological components, although public visitation would potentially result in negligible to no impact to resources.

Impacts from public education and interpretation under the proposed plan (Alternative 2) are the same as Alternative 1 except, as part of a comprehensive interpretive plan, BLM would analyze the feasibility of developing a new or expanded public interpretive/educational center in the Monument that would accommodate group uses and researchers. Considerations would include the expansion of the floor space

at the Goodwin Education Center, reconstruction of the 1890s barn at El Saucito Ranch, or some other viable location in the Monument. The potential expansion of the square footage of usable space at the Goodwin Education Center or the construction of a new facility would potentially disturb less than one-half acre of land and result in no impacts to cultural and natural history values.

Impacts under Alternative 1 (for reference):

Development of cultural and natural history interpretive and education awareness information at approximately eight additional sites at field locations on-site or off-site locations would result in less than one-half acre of land disturbance. This action would avoid impact to all cultural and natural history values being interpreted. Benefits would be realized for the long term protection of cultural and natural history values through public education and awareness. Maintaining or enhancing the Goodwin Education Center or replacing it with a new facility would result in no impact to cultural or natural history values.

Continued use of cultural resource and natural history educational displays at locations such as Painted Rock, Wallace Creek, El Saucito Ranch, and Selby Ranch would be beneficial to cultural and geological resources by providing education and interpretive information for public enrichment. This action would avoid impact to all cultural and natural history values being interpreted.

Lands and Realty

Although there is less acreage of land acquisition than Alternative 1, efforts would be targeted towards lands with significant cultural or biological values, which would benefit the protection of cultural resources by placing them under public ownership.

The modification to bring permitted right-of-way sites up to VRM classification would result in no impact to cultural resources.

4.10.6 Impacts to Cultural Resources from Alternative 1

Because of standard cultural resource program review procedures and regulatory requirements as noted above under assumptions, as well as the flexibility of potential actions, impacts to cultural resources are not anticipated as a result of implementing management actions for WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, and Geology/Paleontology.

4.10.6.1 Impacts to Cultural Resources from Implementing Cultural Resources Program

Stabilizing, rehabilitating or restoring historic sites would preserve sites at different levels of intensity. Some sites would be managed in a state of arrested decay in-place resulting in the potential loss of structures over the next 30-50 years. Other sites would be rehabilitated for adaptive reuse or restored to its original likeness in building materials and construction methods. It is estimated that three to four historic sites would be treated for the benefit of cultural property preservation as well as public education and administrative uses.

Over the life of the plan, it is estimated that eight to ten rock art sites would be stabilized without treatment intervention of the rock art elements which would be beneficial for long preservation of these sites being affected by soil/water erosion and shrub abrasion effects on pictographs or rock art panels.

Allowing natural deterioration of rock art panels and motifs by not intervening with prudent conservation measures would within the lifetime of this plan lead to the potential loss of part or entire rock art panels, or individual motifs to approximately 80 percent of the rock art sites in the Monument (17 sites). Impacts

of no intervention of conservation measures to preserve rock art would potentially lead to (moderate to major) partial loss of 17 of the 21 National Register rock art sites in the Monument.

The three to four National Register eligible ranching and farming facilities that would be stabilized, rehabilitated for adaptive reuse, or restored would be beneficial to cultural resources as representative examples of significant historic properties as recognized in the Monument Proclamation and useful for public education and administrative uses.

The action to remove historic machinery and equipment scattered within the Monument at an estimated 12 locations would result in potential negligible to moderate impacts to one to three historic properties which would require mitigation to resolve effects.

The action to potentially raze and remove an estimated four to five ranching and farming facilities from the Carrizo Plain and the Primitive RMZ would result in no impact to historic resources as these sites do not meet National Register eligibility.

4.10.6.2 Impacts to Cultural Resources from Other Programs

Wildlife

Fencing that may be applied or relocated would require standard practice of cultural resource inventory and record search in advance of project implementation. It is anticipated that fencing projects would be implemented in a manner to avoid cultural resources through project design or redesign. Action would be processed through implementation of the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA to avoid potential impact to cultural and traditional cultural properties.

Removal of all artificial water features and livestock fences would potentially result in negligible to moderate impact to historic resources which meet National Register eligibility and therefore would require either site avoidance or mitigation to resolve impacts to an historic property. Otherwise if the site is National Register ineligible there would be no impact to historic properties.

Protecting nesting raptors at Painted Rock and Selby Rocks would be favorable for preserving species that are important in Native American cultural and traditional ways of life. However, the continued raptor nesting at these archaeological sites would potentially impact pictograph panels and individual motifs resulting from bird excretions over the painted images. Impacts would range from negligible to moderate. Conservation measures could be implemented to protect the images from bird excretions pursuant to regulatory consultation and compliance.

Removal of trees and human built structures would result in potential impacts to National Register historic properties and associated landscapes unless resources are avoided or mitigated to resolve effects. Ineligible historic sites would result in no impact to historic properties.

Removal of non-historic guzzlers would result in no impact to historic properties. If a guzzler is historic (at least 50 years in age) there is a potential for impact to eligible properties. However, it is probable that these features would not meet National Register eligibility. If eligible property, it is most likely that it would be preserved in-place.

Vegetation

It is anticipated that the objective to control nonnative plants on ten 100 acre areas over the life of the plan would not impact National Register properties as the standard cultural procedures and site avoidance measures would be applicable.

Fire and Fuels Management

The intensity of impacts to cultural properties from fire suppression would be the same as the other alternatives. However, the potential for impacts to the number of cultural properties that would be affected would potentially be less under this alternative relative to the proposed plan (Alternative 2) and Alternative 3.

Livestock Grazing

With the cancellation of grazing authorizations and the designation of almost all Monument acreage as unavailable to grazing, potential impact to cultural and traditional cultural properties from grazing would be eliminated. Continued use of the grazing allotments along the Monument boundary would result in negligible to minor since the number of cultural resources sites found on these allotments would be low relative to other areas dropped from grazing.

The action to remove fences, gates, cattle guards, corrals, water pipelines, water tanks, and troughs would potentially impact historic properties. However, standard cultural procedures and compliance with Section 106 of the NHPA would allow for the avoidance and preservation of sites eligible for the National Register. Otherwise, mitigation such as data recovery or detail site recordation would be appropriate. It is anticipated that the majority of these built features would not be eligible as most have been upgraded over the years causing a loss of physical integrity. Hence, there would no impact to historic properties in most cases.

It is anticipated that the actions to maintain perimeter fences and to construct new fences to separate BLM lands from private land to prevent grazing on BLM lands would result in no impact to cultural properties as standard cultural procedures would be applicable and cultural properties would be avoided.

Recreation

Developments of 5–35 miles of trails and use of extant roads in the Primitive Zone is anticipated to have negligible to no impacts on cultural properties as sites would be avoided by project design or realignment to avoid impact to cultural properties or if necessary cultural resources would be capped with a protective cover such as soil to avoid impact.

An increase in the number of overlooks and interpretive sites by three to five within the Backcountry Zone would result in no impact to cultural properties as sites would be avoided by design or redesign. Where cultural resources might be interpreted, mitigation measures would be applied to ensure negligible to no disturbance of cultural properties.

The development of three to eight trail heads and staging areas in the Backcountry to support recreational activities would be selected to avoid impact to cultural properties.

Development of three to five miles of hiking/interpretive trails in the Backcountry would be selected at areas to avoid impact to cultural properties. Where cultural resources are being interpreted, mitigation measures would be applied to ensure negligible to no disturbance of cultural properties.

An increase in the number of overlooks and interpretive sites by three to eight sites within the Frontcountry zone is anticipated to have no impact to cultural resources as standard cultural procedures and avoidance measures would be applicable.

Development of one to three trail heads/staging sites in the Frontcountry to support recreational activities would result in no impact to cultural properties.

Development of one to five miles of hiking/interpretive trails in the Frontcountry would be subject to the same cultural procedures and potential for impact as discussed above. Where cultural resources are being interpreted, mitigation measures would be applied to ensure negligible to no disturbance of cultural properties.

Painted Rock would be closed to public access. Unauthorized access could increase over present levels and relative to the other alternatives as the site is generally easy to access from existing roads and “legitimate” users would not be present (which usually is a deterrent to unauthorized users). Site monitoring, patrol, and public education would serve to deter illegal activities that would potentially range from minor to moderate.

Closure of Painted Rock pasture to horses, dogs, non-motorized bikes, cache type activities, and discharge of firearms would reduce the potential of impact to 15 prehistoric sites in the National Register District. The potential for these unauthorized activities would be limited and impacts would likely be minor as deterred through site monitoring, ranger patrol and public education.

Closure of archaeological site (C06-1) on KCL Ranch would eliminate public visitation to this popular geological feature. The benefits to closure would be the elimination of inadvertent impacts to an important archaeological site associated with the geological formation. Some unknown number of college students, geologists and other interested parties would lose the opportunity to visit this geological point of interest. Unauthorized access and potential impacts would level off after a couple of years, once the public is aware of its closure via of education and signage. Potential installation of signage and road closure barrier would deter site access and result in no impact to cultural resources.

Development of cultural and natural history interpretive and education awareness information at approximately eight additional sites at field locations on-site or off-site locations would result in less than one-half acre of land disturbance. This action would avoid impact to all cultural and natural history values being interpreted. Benefits would be realized for the long term protection of cultural and natural history values through public education and awareness. Maintaining or enhancing the Goodwin Education Center or replacing it with a new facility would result in no impact to cultural or natural history values.

Continued use of cultural resource and natural history educational displays at locations such as Painted Rock, Wallace Creek, El Saucito Ranch, and Selby Ranch would be beneficial to cultural and geological resources by providing education and interpretive information for public enrichment. This action would avoid impact to all cultural and natural history values being interpreted.

Lands and Realty

The acquisition of private land surface would be beneficial for cultural resources as cultural sites would likely be located on the parcels. Acquisition of private mineral estate would afford BLM a better opportunity to protect and manage cultural resources on the subject parcels associated with exploration and extraction of fluid minerals. As public land, Federal laws would be applicable for protection of cultural resources. No impact to cultural properties under this action.

There would be no impact to cultural resources with the removal of two permitted sites when they expire.

4.10.7 Impacts to Cultural Resources from Alternative 3

Because of standard cultural resource program review procedures and regulatory requirements as noted above under assumptions, as well as the flexibility of potential actions, impacts to cultural resources are not anticipated as a result of implementing management actions for WSA/Other Lands with Wilderness Characteristics, Visual Resources, Air Quality, Water Resources, and Geology/Paleontology.

4.10.7.1 Impacts to Cultural Resources from Implementing the Cultural Resources Program

For actions involving Native American access to Painted Rock, at-risk archaeological resources, and rock art protection, impacts would be the same as the proposed plan (Alternative 2).

For ranching/farming machinery and equipment, the impacts to cultural resources would be the same as the proposed plan.

Under this alternative, emphasis is placed on the stabilization of eligible National Register Properties while ineligible sites would be subject to removal when they pose a public safety hazard. It is estimated that from four to six ranching and farming facilities would be razed and removed from the Carrizo Plain and within the Primitive RMZ. The removal of subject cultural sites would result in no impact to National Register properties. However, BLM would lose the opportunity to use these historic facilities for public education and interpretive uses.

An estimated 4 to 10 National Register ranching and farming facilities (including El Saucito, Washburn, Selby, and others) would be stabilized in a state of arrested decay rather than rehabilitated, restored or reconstructed for public education, interpretation and or administrative adaptive reuse. This action would fall short of BLM's responsibility to preserve important historic resources as recognized in the Monument Proclamation and would not meet the intent of the BLM Historic Preservation Plan as associated with the State Protocol between BLM and the SHPO.

Under this action, historic buildings or structures ineligible for the National Register would not be saved or used for public education such as the KCL Ranch and Traver Ranch. This action would have no effect on National Register properties but BLM would lose the opportunity to use these facilities for educational and interpretive uses.

4.10.7.2 Impacts to Cultural Resources from Other Programs

Wildlife

Implementation of vegetation treatment by means of dispersed livestock grazing or limited burning of two years out of 20 would have similar impacts as the proposed plan (Alternative 2) for cultural resources in the non-core threatened and endangered species areas. The standard cultural procedures as described in the proposed plan would be applicable.

Prescribed burns under this alternative would be similar to the proposed plan and therefore the cultural procedures and potential for impact are similar.

The potential for impacts to cultural resources from grass mowing and sign installations along Soda Lake Road edge is similar to the proposed plan.

Chapter 4: ENVIRONMENTAL CONSEQUENCES

The modification of 50 miles of fencing, removal and relocation of 12 miles or more of fencing, and realignment of 100 miles of fencing would require the same standard cultural procedures and potential for impacts to cultural properties as the proposed plan.

Introduction of the tule elk and pronghorn would result in the same procedures and potential for impact to cultural properties and Native American interest as the proposed plan.

It is anticipated that construction of 10 new water troughs in the pronghorn and elk habitats would increase the potential for impact to cultural resources. However, with implementation standard cultural procedures and measures to avoid cultural resources, no impacts to cultural properties would be anticipated.

Restricting public access to raptor nesting sites at Painted Rock, Selby Rocks and other rock outcrops would result in the same cultural procedures, impacts, and benefits as the proposed plan.

Control of feral pigs by traps or other methods such as four fence projects in the vicinity of springs over the life of the plan would have the same benefits and impacts as the proposed plan regarding heritage properties.

The eradication of noxious weeds on 100 acres per year with herbicides and the application of 100 acres of prescribed burns for six out of 10 years would have negligible to no impact on cultural resources. However, the use of herbicides may result in over spray and potential impact to native plants used by Native American traditional plant gatherers for basket weaving.

For the Upland Game Bird Objective, the projected acreage of prescribed burns is relatively low and therefore no anticipated impact to cultural resources would occur as standard cultural procedures would be implemented pursuant to the BLM/SHPO State Protocol.

Vegetation

The actions and impacts to cultural resources from vegetation are the same as the proposed plan.

Fire and Fuels Management

The intensity of impacts to cultural properties from fire suppression would be the same as the other alternatives. However, the potential for impacts to the number of cultural properties that would be affected would potentially be more under Alternative 3 than Alternatives 1 and 2.

Livestock Grazing

With implementation of the standard cultural operating procedures, the potential for impact to cultural and traditional properties as well as benefits to cultural preservation would essentially be the same as the proposed plan (Alternative 2). However, the frequency of grazing within Section 15 allotments would be more often under this alternative.

Recreation

Primitive Zone: The potential for impact to cultural properties would be the same as the proposed plan (Alternative 2), except there would be fewer miles of trails and signage.

Backcountry Zone: Although there is an increase in the number of overlooks and interpretive sites, trail heads /staging areas, and miles of hiking under this alternative, impacts to cultural properties would be the same as the proposed plan.

Frontcountry Zone: Although there is an increase in the number of overlooks and interpretive sites, trail heads / staging sites, and miles of hiking under this alternative, impacts to cultural properties would be the same as the proposed plan.

Visitation to Painted Rock is expected to decrease considerably due to access being restricted to guided tours only. However, with additional public demands, site visitation would eventually increase to 2,000 to 2,500 visitors annually. Impacts to Painted Rock would be negligible to none or similar to the proposed plan as a result of fewer visitors and closely managed access. However, with elimination of the self guided access, unauthorized access would increase but not to the levels anticipated under Alternative 1, thus resulting in relatively fewer impacts than Alternative 1 but more potential for impact than the proposed plan from unauthorized access.

With closure of Painted Rock pasture to horses, dogs, non-motorized bikes, cache type activities, and discharge of firearms, the potential for impact to multiple cultural sites would be similar to Alternative 1.

Under this action, the existing structures and floor space at the Goodwin Education Center would be maintained or upgraded within the same footprint. For potential improvements to the El Saucito Ranch and Selby Barn for educational awareness, the action would be implemented in a manner that would not impact the historic integrity of these two cultural properties. There would be no impact to prehistoric resources.

The impacts to cultural resources would be the same as the proposed plan regarding the feasibility of potential expansion of the square footage of usable space at the Goodwin Education Center or the construction of a new facility such as the reconstruction of the 1890 barn at El Saucito Ranch.

In addition to maintaining the existing educational field locations such as Painted Rock, Wallace Creek, and El Saucito Ranch, a comprehensive interpretive plan would consider an estimated two to four additional field locations for educational use. This action would result in no impacts to cultural resources or natural history values at existing locations or any new field locations. New locations would be confined to less than one-half acre in total. Benefits would be realized in the long term protection of these resources through public education and awareness.

Lands and Realty

Land acquisition acreage and impacts would be the same as the proposed plan (Alternative 2).

It is anticipated that the two new rights-of-way and modification of to a couple of permits to bring them in accordance with VRM classification would be processed in a manner to avoid impact with cultural resources and traditional cultural properties through implementation of the BLM/SHPO State Protocol.

4.10.8 Impacts to Cultural Resources under the No Action Alternative

4.10.8.1 Impacts to Cultural Resources from Implementing Cultural Resources Program

Native American access to Painted Rock would continue. No conservation by intervention would take place to reduce the rate of natural deterioration to rock art panels and individual motifs affected by natural

processes such as wind and water erosion. Lack of such conservation would potentially result in moderate to major impact to rock art.

Stabilization and rehabilitation of built facilities would continue at El Saucito Ranch, Washburn Ranch, and Selby Ranch.

There would be continued emphasis on the removal and relocation of historic machinery and equipment under this alternative to centralized locations such as the Traver Ranch, El Saucito Ranch, and Goodwin Education Center. This would preserve the equipment, but it would be removed from its historic context. Buildings or structures would continue to be removed if toppled or compromised to the point that physical integrity no longer exists, and the facility is a safety hazard. All structures would be documented before removal.

4.10.8.2 Impacts to Cultural Resources from Other Programs

Wildlife

Maintaining grazing in the vernal pool habitat and the introduction of pronghorn and elk would have the potential for negligible to no impact on cultural resources. Native Americans would look favorably upon the introduction of native animals associated with the traditional use of lands in the CPNM.

The implementation of prescribed burns, grass mowing, and use of herbicides to eradicate nonnative plants and to improve habitat would have no impact to cultural resources as standard cultural procedures would be implemented to ensure no impact to cultural resources. The use of herbicides would be the same as Alternative 3 with respect to Native Americans.

There would be potential negligible to moderate impact to cultural resources from livestock grazing to promote the expansion of listed species. However, standard cultural procedures would be implemented and the supplemental procedures for livestock grazing in the BLM/SHPO State Protocol would be applied to monitor and identify impacts. If impacts are identified, appropriate mitigation measures would be applied to protect cultural properties.

The construction of fence enclosures and other infrastructure would have no impact on cultural resources as standard cultural procedures and site avoidance measures would be applicable.

Vegetation

Procedures and the potential for impacts are the same as those discussed above regarding vegetation in the wildlife section.

Fire and Fuels Management

The intensity of impacts (negligible to major) to cultural properties from fire suppression would be the same as the other alternatives. However, the potential for impacts to the number of cultural properties that would be affected would be similar to the proposed plan (Alternative 2).

Livestock Grazing

Under this alternative grazing in the Monument would continue at similar to current levels. Thus, the potential for impact to cultural properties would continue and the impact intensity would range from negligible to moderate.

The Elk Canyon, Brumley, West Painted Rock, Selby, Tripod, Sulphur Spring, and Sand Canyon would be available for grazing. If grazed, there is the potential for negligible to moderate impacts to cultural properties in these pastures which are located in portions of the National Register District and National Historic Landmark (nominated area). The level and intensity of impact would be similar to that reflected in the above paragraph. As a preventative measure, sensitive cultural zones in the pastures would be excluded from grazing.

The Hill, Back Canyon, Goat Spring, KCL House, and Abbott Canyon pastures would be available for grazing. However, if grazed the potential and intensity of impacts to cultural properties would be the same as the previous paragraph for cultural properties and portions of the area nominated for inclusion to the National Historic Landmark.

The action of having grazing unavailable in the Painted Rock and Widow Women pastures would protect cultural properties including a core area of the National Register District.

The construction of a fence south of Painted Rock pasture as a protection measure would exclude cattle from encroaching 22 cultural properties within and adjacent to the National Register District, thereby eliminating the potential for impact to these cultural properties.

Fences within the Painted Rock pasture that are in a poor state of condition would potentially be removed if the historic feature does not meet National Register eligibility, thus resulting in no impact to cultural properties. If fence is eligible, appropriate mitigation would be implemented such as preservation in place or removal after detail recordation.

Continued grazing in the Old Adobe pasture north of Abbott Canyon would potentially result in negligible to moderate impact to sensitive cultural properties nominated for listing in the National Historic Landmark. However, mitigation measures to avoid two cultural properties would be implemented to ensure no impacts from grazing.

The action to build, maintain, modify, or remove fences, water systems, and roads would potentially impact cultural resources. However, projects where cultural properties are located would be safely avoided by means of project design, redesign, or capping to protect sites within existing roads or otherwise. Therefore, no impacts to cultural resources are anticipated under this action.

Recreation

Painted Rock (current visitor average of 3,700 per year) would be open to guided tours on a routine schedule to include an estimated 18 guided tours per year (18 tours x 25 people per tour on average), totaling to 450 visitors. Additionally, self-guided access and group tours with less than 20 visitors without a permit would continue (approximately 7.5 months/year), totaling to close to 3250 visitors. The overall visitor use average of 3,700 per year would increase gradually over the life of the RMP taking into account that there are peak years and lower visitation years in the Monument. The self-guided access to Painted Rock without a permit as well as the total number of visitors to the site annually increases the potential for negligible to minor impacts to the site. The lack of a permit system foregoes the opportunity to more directly educate the visitors, inform them of the fragile nature of rock art, and provide them the rules for preservation ethics when visiting the site. Information at the Interpretive Trail and the Goodwin Education Center addresses the rules and preservation ethics when visiting site but direct contact through a permit or guided access is much more effective.

The continued closure of the Painted Rock pasture to horses, dogs, non-motorized bikes, cache type activities, and discharge of firearms would minimize potential impacts to this sensitive area.

Resource information displays would be provided to educate visitors about Painted Rock, Wallace Creek, and El Saucito Ranch and Selby Ranch, resulting in an approved appreciation of these resources.

An unspecified number of visitors to archaeological site (C06-1) would potentially cause negligible to moderate impacts to the site, mostly due to the inadvertent movement of site components or rocks associated with the geological formation.

Minerals

Oil and Gas CPNM Valley Floor (Private Mineral Estate)

The installation of exploratory wells and ancillary facilities such as spur roads, tank batteries, and development wells are anticipated to disturb 30 acres of land in the valley floor which would be processed in a manner to avoid impact to cultural and traditional cultural properties through implementation of the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA. The management of cultural resources on the CPNM during oil and gas actions will be conducted through Section 106 compliance procedures, guided by the BLM California State Protocol. At the project level, inventory, identification, eligibility assessments and affects will be performed, along with appropriate Native American consultation. Mitigation of any adverse affects to eligible cultural properties is coordinated through SHPO consultation. With oil and gas activities, as with any action which may impact cultural sites, site preservation through avoidance is always the preferred alternative. The nature of most oil and gas actions easily allows for project redesign in the case of any cultural sites found within the project area. The Bakersfield BLM Field Office, which manages the CPNM commonly, conducts cultural resource compliance projects for oil and gas actions and, through this avoidance policy, rarely proceeds to the mitigation process resulting in a high degree of preservation for cultural sites.

It is anticipated that seismic operations (115 miles) on the Carrizo Plain would be implemented primarily by means of drilled shot holes/explosives rather than use of the vibroseis truck to minimize ground surface disturbance. As with past seismic operations in the region, cultural resources would be safely avoided by moving source and receiver locations as necessary in a lateral direction away from cultural sites and infrequently by skipping over sensitive cultural areas where a site(s) may encompass a large amount of acreage making it difficult to laterally avoid site impact.

Oil and Gas CPNM-Russell Ranch Area (Existing Leases)

The installation of in-field development wells, exploratory wells and ancillary facilities such as spur roads and tank batteries would disturb an anticipated 6.5 acres of land in the Russell Ranch Unit area which would be processed in a manner to avoid impact to cultural and traditional cultural properties through implementation of the BLM/SHPO State Protocol and compliance with Section 106 of the NHPA.

It is anticipated that seismic operations (50 miles) in the Russell Ranch Unit area would be implemented primarily by means of drilled shot holes/explosives rather than using the vibroseis truck to minimize ground surface disturbance. Cultural resources would be safely avoided by moving source and receiver locations as necessary in a lateral direction away from cultural sites and infrequently by skipping over sensitive cultural areas where a site(s) may encompass a large amount of acreage.

Lands and Realty

Lands within the Monument would continue to be acquired as opportunities arise, resulting in positive benefits to the cultural resource program.

Authorizing new rights-of-way and modification of to a couple of permits to bring them in accordance with VRM classification would be processed in a manner to avoid impact with cultural resources and traditional cultural properties through implementation of the BLM/SHPO State Protocol.

4.10.9 Cumulative Impacts

4.10.9.1 Assessment Area

For prehistoric and Native American resources, the assessment area is the ancestral territories of the Chumash, Yokuts, and Salinan people.

For historic resources, the assessment area is the central interior California agricultural and ranching areas.

4.10.9.2 Past, Present, and Reasonably Foreseeable Future Actions and Cumulative Effects

Prehistoric and Native American Resources

Within the assessment area, a number of prehistoric sites have suffered from looting and vandalism, although on federal and state lands in the region, the level of vandalism has been reduced greatly in recent years through protection and conservation efforts. There are limited legal requirements requiring protection of cultural sites on private lands, and consequently, protection levels are generally lower resulting in damage or loss of resources. There are exceptions where private landowners afford a high level of protection to known sites on their property

The continued implementation of rock art conservation in the Monument would have positive cumulative effects on the treatment and preservation of rock art sites in the central region of California if not the entire state, as similar site conditions and natural forces that threaten rock art in the Monument apply to other locations in California. Initial rock art conservation in the Monument was a collaborative effort between BLM and the Getty Conservation Institute, which established a baseline model for rock art conservation. That interest has been carried forward by ongoing conservation studies at Painted Rock by a graduate student at the UCLA/Getty Conservation Program. An extensive inventory of public lands in the Monument to identify rock art sites and condition assessment of images and the rock surface has been ongoing the past several years with archaeologists and rock art conservators. Recommendations for conservation of these fragile resources are being developed on a case by case site evaluation. The work in the Monument could establish a baseline for future conservation efforts in the Monument and likewise in the state.

From a cultural regional perspective, BLM has been active in maintaining an open dialogue with the Native Americans having cultural ties to the Monument including the Chumash, Yokuts, and Salinan people, concerning their interest in protecting and preserving the heritage of their cultures as well as traditional beliefs and practices. For example, they have in the past and would likely continue to show interest in the summer solstice ceremony, as well as the restoration and gathering of native plants that were used traditionally by their people for domestic, medicinal, and ceremonial rites. This has a positive cumulative effect on meeting BLM's obligations and trust responsibilities with the native people of the region.

With regard to the prehistory, studies conducted by BLM through the efforts of archaeologists over the past several years provide a comprehensive interpretation of an area that was not well understood archaeologically and ethnographically. This has a positive cumulative effect on the understanding of the prehistoric life-ways in the Central Interior Region of California and the preservation of this non-renewable resource. Complementary studies and protection efforts are ongoing on other lands in the region including the Los Padres National Forest.

Historic Resources

Most of the historic farms and ranch structures in central California are located on private lands. Many have been lost as they outlive their utility, and are allowed to decay or are razed – typically without any historic recordation. The Monument protects a large array of historic structures in the region and offsets the impacts from loss of the structures on private lands. Other buildings are being preserved on state lands such as the Chimineas Ranch (CDFG).

BLM has been active over the past several years in conducting field inventory of historic buildings, structures, and features in the Monument and implementing preservation of facilities through stabilization, restoration, or rehabilitation for adaptive reuse. The vernacular architecture that is typical in the Monument appears likely to have regional implications for building materials used, construction style, and methods of building historically in the back country of San Luis Obispo and Kern counties. The preservation of this historic model should serve others in their preservation efforts with like resources in the region.

From a historical perspective, very limited written history is available about the history of the Carrizo Plain and the geographic region. The ongoing compilation of historic records, photographs, and research for this region, coupled with field inventory of historic resources, would have a positive cumulative effect as work continues to establish a written documentation of the Carrizo and the encompassing region.

4.11 Impact Analysis for Visual Resources

4.11.1 Assumptions Used for the Analysis

- The expansive undeveloped vistas in south central California such as those within the CPNM will become more scarce and important to the public over the life of the RMP.
- Management of all resources and uses under the discretionary authority of BLM would be consistent with the visual resources objectives for the CPNM. All surface disturbing projects would have visual contrast rating as part of project and mitigating measures built in to minimize impacts
- Establishment of VRM classes would not in and of themselves result in reduced/increased visual impacts. Instead, the classes establish guidelines to mitigate/reduce impacts from implementation of actions and allowable uses in other resource programs.
- The level of visual impacts is a function of the impacting development itself, and its visibility to viewers from key observation points such as overlooks, travel corridors, trails, and residences.
- BLM authorized projects or activities would be avoided or mitigated if they would fail to meet visual resources objectives. Mitigation could include incorporation of design features or relocating projects to reduce visual impacts.
- The panoramic landscape of the valley floor makes it difficult to mitigate impacts of developments in this part of the Monument. The topographic screening in the Temblor and Caliente Ranges makes projects much less visually impacting in these areas.

4.11.2 Incomplete Information

The impact analysis is based on a general inventory of scenic resources within the planning area, and not a site-specific analysis of impacts to sensitive sites such as viewpoints and other public use locations. This more detailed level of analysis will be completed during analysis for individual projects and authorizations.

4.11.3 Programs with Negligible or No Impacts to Visual Resources under Any of the Alternatives

No impacts to visual resources are expected from the programs for Air Quality, Soils, Water Resources, and WSA/Other Lands with Wilderness Characteristics. (Note: All WSA/wilderness characteristic areas would be managed under VRM Class I in all alternatives, so the existing landscape character would be maintained or enhanced.)

4.11.4 Impacts to Visual Resources Common to All Action Alternatives

4.11.4.1 Impacts to Visual Resources from Implementing the Visual Resources Program

The retrofitting of existing facilities to meet current VRM classifications would improve the visual quality of the planning area. Facilities would be altered to meet or exceed the VRM class resulting in less developments being visible to the casual observer. For example, changing the color of a water tanks to earth-tone colors would make them less visible from a distance. This would improve the opportunities for visitors to have views of more naturally appearing and pastoral characteristic landscapes within the Monument.

Removal of old structures that are not used and not considered to be historic would improve the wide open views and naturally appearing landscapes of the Monument.

Retrofitting lighting would result in minor improvements to the night sky qualities of the Monument. Removing unneeded lights as well as placing shields on existing and new lights would reduce impacts to negligible levels as there would be less light traveling long distances and distracting from the night sky.

Any new development or activity on BLM-managed lands would need to meet VRM classifications. (See VRM maps for alternatives). Any new development within the Monument would have a contrast rating completed and would need to meet the classification rating of the zone where the project or activity is planned. This would benefit visual resources by ensuring that there is consistency throughout the zones in the level of visual intrusions.

The visual resources inventory (VRI) class acreages inventoried within the planning area are:

- VRI Class 1: 62,353 acres
- VRI Class 2: 165,319 acres
- VRI Class 3: 19,144 acres

These acreages can be compared to the VRM class acreage identified for each alternative to determine the net change.

4.11.4.2 Impacts to Visual Resources from Implementing Other Programs

Wildlife

Maintaining two human-made structures for bat habitat would not change any of the viewsheds on the Monument since the buildings already exist. Fencing and signing three miles of sphinx moth habitat would have a localized moderate impact on the viewshed immediately around the sphinx moth habitat. Constructing two supplemental feeding stations for the California condor will have a negligible impact on the visual resources since these feeding stations would be in remote areas of the Monument and would most likely only be seen by the people who are working with them. Limiting the development of trails, facilities, and visitors in certain areas around the shore of Soda Lake to protect roosting – shorebirds, cranes, curlews, waterfowl – will not allow for additional viewing opportunities, but will retain the visual integrity of the area. Fencing up to 10 miles of riparian area would result in both positive and negative visual impacts – there would be additional visual intrusions from the fencing, but also an enhancement of the characteristic vegetation in the riparian zone. Use of historic/rustic materials for the fence (split wooden posts) and specific placement criteria could reduce impacts to negligible levels.

Vegetation

The fencing of 500 acres would cause a minor to moderate impact to visual qualities.

Fire and Fuels Management

The wildfire burning of an average of 500 acres a year and the chance of a large fire of 5,000 acres would continue the present level of visual impacts from fires. Although fire scars are natural, they are seen as a major impact to the visual resources by many viewers. However, this impact is short-term and localized, and is not visible after the following growing season.

Geology and Paleontology

Placement of small interpretive displays would cause negligible visual intrusions.

Cultural Resources

Cultural resources management actions would include the possibility of road realignment, closure, or capping of roads and the addition of interpretation at Native American sites. These actions could cause some minor impact to visual resources. The road realignment, closure or capping could cause a minor impact depending on the location of the new alignment. Additional interpretation would cause a negligible impact on visual resources as displays could be designed in a way that would be small scale and low in profile.

WSA/Other Lands with Wilderness Characteristics

The conversion of roads to trails could cause a minor beneficial impact to visual resources because the disturbed area from the trail would be narrower than the road and causing less of a disturbance to the line, color, and texture of the landscape. The removal of unneeded structures would increase the naturalness of the characteristic landscape.

Livestock Grazing

Realigning the fence lines so that they are along the Monument boundary could cause minor to moderate visual impacts. However, the relocation would only be completed if it met visual resource class objectives.

Recreation

Placement of signs of additional directional, safety, and regulatory signing along roadways and other public use locations in the Monument would cause a minor impact to the visual resources of the Monument because the signs would be small and designed to not detract from the visual resources of the Monument. These signs would not be visible from a distance and would be placed mostly in areas that already contain developments. Retrofitting of existing facilities to meet standards for disabled access would have negligible impacts.

Lands and Realty

The 5 minor rights-of-way anticipated for BLM for administrative purposes and the 10 rights-of-way anticipated for scientific monitoring could have a negligible to minor impact because of the nature of the rights-of-way (small instruments, located away from popular public use areas). Land use permits such as filming permits will have a negligible impact because they would be short-term and would only be authorized on existing roads and developed sites.

The survey and monumenting of the Monument boundary would cause minor impact to visual resources because the boundary is in a location where it is not visible from the majority of visitors, and boundary signing would be small and inconspicuous.

4.11.5 Impacts to Visual Resources under the Proposed Plan (Alternative 2)

4.11.5.1 Impacts to Visual Resources from Implementing the VRM Program

Note: VRM class boundaries correspond to RMZs. See Map 2-3, RMZs and Route Designations, Alternative 2.

Under the proposed plan (Alternative 2), 62,455 acres would be managed as VRM Class I, 165,180 acres would be managed as VRM Class II, and 19,181 acres would be managed as VRM Class III. This alternative provides for a high level of protection of visual resources while providing some flexibility for resource restoration projects and recreational facility development. Any developments within the Class III areas would be rustic and would blend in with the natural landscape but would cause a noticeable change in the natural landscape. Based on the projects proposed under this plan by BLM (discretionary projects), any visual impacts from this alternative would be minor. Retrofitting existing facilities so that they contrast less with the surrounding landscape would result in moderate positive impacts. Valid and existing rights would be maintained.

4.11.5.2 Impacts to Visual Resources from Implementing Other Programs

Biological Resources

Impacts would be the same as Alternative 1, except as described in the following paragraphs.

Impacts under Alternative 1 (for reference):

The removal of artificial watering sources and livestock fence would enhance the natural landscape qualities of the Monument. Fencing and watering systems are the only visible human-made structures on parts of the Monument, and these would be restored to a naturally appearing landscape. Removing these would increase the chances of visitors having views with no human-made structures. The removal of guzzlers would have a negligible impact on visual resources as the guzzlers are already in remote locations not normally seen by the public.

Prescribed burning for habitat protection would have a major but localized short-term impact on visual resources. Depending on the time of year the burn is completed, the impact may only last a few months. The removal of 20 miles existing fences would improve the natural qualities of the landscape. The introduction of additional pronghorn would have a positive impact on visual resources by placing additional viewable wildlife back into the landscape.

Planting of trees for nesting habitat would have minor impacts on visual resources as long as they are planted in naturally appearing groups (as opposed to straight lines) The construction of five new wildlife guzzlers would have a minor impact on the visual resources of the Monument. These structures would be placed in areas that are not visible to the general user of the Monument. Also these structures are mostly underground and only seen from a close distance. The fencing of springs would allow for native riparian vegetation to return, resulting in a positive impact. However, the fences themselves would detract from the viewsheds.

Vegetation

All of the actions under vegetation management would have negligible short-term impacts except the construction of 10 to 20 miles of fencing to protect oaks. The protection of the oaks would improve the visual qualities, but the fence lines themselves would reduce the naturalness of the landscape. These impacts would be mitigated by placing the fences along natural breaks in the landscape.

Fire and Fuels Management

Impacts would be the same as Alternative 1, except that additional hand and dozer lines could be constructed for suppression of wildfires. This would result in slightly higher visual impacts than Alternative 1.

Impacts under Alternative 1 (for reference):

This alternative would not involve prescribed fire use, so the visual impacts from burning itself would be reduced in frequency from present levels. Construction of dozer line during wildfire suppression could have a moderate to major localized impacts to visual resources, as this construction would take place under emergency operations with minimal priority given to visual resource protection. Dozer lines result in very visible change of the line, color, and texture of the landscape and are of a much longer duration than the actual fire itself.

The mowing of weeds to reduce fuels around buildings and along roadways would cause negligible impacts to visual resources considering most of the weed abatement would be concentrated around already disturbed areas.

Dozer line impacts would take several years to rehabilitate. Construction of lines along abandoned roads and other previously disturbed areas would minimize impacts. Mowing weeds around buildings, facilities, and road would cause a negligible impact to visual resources as the mowing will be concentrated in

already disturbed lands and would be a short-term disturbance. Burning piled materials could cause a minor short-term impact. The prescribed burning of 1,000 acres of grass every other year would have the moderate to major localized and short-term impacts until the next growing season.

Geology and Paleontology

Development of interpretive sites would be a minor impact and would be consistent with the VRM class where the interpretation is taking place. The expansion of the Wallace Creek interpretive trail could have a minor localized impact on the visual resources. The extension of the trail could cause a break in the line, color, and texture of the landscape and the additional interpretive signs could also cause a minor impact for the same reasons as the extension of the trail. There would be a minor to moderate temporary visual impact from excavation for research. The allowable use of motorized/mechanized equipment would increase the impacts over Alternative 1, but they would still be localized and short-term in nature.

Impacts under Alternative 1 (for reference):

The placement of small low-profile interpretive signs would cause negligible impacts. Paleontological resource scientific research would result in minor short-term localized impacts where excavations are conducted. Use of “minimum tool” requirements (that is, normally only hand tools would be used) would minimize impacts. Geological research related to the San Andreas Fault and other features would cause minor temporary visual impacts from excavation and/or coring efforts. There would be short-term surface disturbance that would be rehabilitated upon completion of the research.

Cultural Resources

The installation of 1.5 miles of fence to protect Painted Rock and exclude livestock would have moderate localized impact to visual resources. The Painted Rock area is heavily visited and culturally significant and so is especially sensitive to landscape intrusions. Modification of the preliminary fence location proposed in the RMP (after site-specific contrast analysis) may reduce the impacts. The removal or relocation of certain farm equipment, removal of some structures, and the preservation of some equipment and structures on site would result in an opportunity for Monument users to view a mix of both natural landscapes and historic pastoral landscapes. The addition of interpretation and educational displays at historic sites would cause a minor impact to visual resources, as they would be placed near existing developments

WSA/Other Lands with Wilderness Characteristics

Management and restoration of wilderness qualities on 62,455 acres would enhance visual resource values in the Class I VRM zone that corresponds to these areas.

Livestock Grazing

Impacts would be the same impacts as the No Action Alternative, except that livestock would be less visible on the valley floor. Also, some fences would be realigned over the life of the plan to follow natural terrain features, reducing the visual impacts from present levels.

Impacts under No Action Alternative (for reference):

Livestock would continue to use the CPNM at present levels, and existing range improvements would be maintained. This would continue maintaining the present visual qualities associated with livestock grazing. The visual landscape on the valley floor would continue to have the pastoral characteristic

landscape qualities associated with grazing and support facilities, but those who desire a landscape with natural qualities would be impacted by these same facilities.

Recreation

In the Primitive zone, impacts would be the same as Alternative 1, except that acreage of the Primitive zone would be reduced to 62,455 acres.

Impacts under Alternative 1 (for reference):

In the Primitive zone, the development of 5 to 35 miles of trails could have a negligible to minor impact to visual resources, since most of the trails would be located on reclaimed roads. Some trails would be newly constructed, and would improve opportunities for visitors to view the scenic landscapes of the Primitive zone, while causing minor impacts to the characteristic landscape.

Impacts in the Backcountry zone would be the same as Alternative 1, except for the allowance of dispersed camping.

Impacts under Alternative 1 (for reference):

In the Backcountry zone, the increased number of overlooks and trailheads could cause a minor to moderate impact, but with proper design and placement there should only be localized impacts to the visual qualities immediately surrounding the developments.

This would continue the current minor visual impacts from dispersed use areas. If erosion, vegetation impacts, trash, or other negative impacts occur at dispersed camping locations, rehabilitation and possible closure would occur to mitigate/restore these impacts.

In the Frontcountry, a higher number of interpretive waysides and other visitor amenities would be constructed under this alternative (relative to Alternative 1). These facilities would cause minor to moderate visual impacts, but would be located in already developed areas and constructed with low-key rustic designs that blend with the elements of the characteristic landscape.

Travel Management

The closure of 42 miles of roads and rehabilitation or natural revegetation of these routes would result in a major long-term enhancement of the natural characteristic landscape by reducing the visual impacts associated with these roads, and allowing them to revert (or in some instances actively restoring them) to a naturally appearing condition.

Minerals

Impacts would be the same as Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

Impacts would be the same as the No Action alternative except that BLM would work with existing leaseholders to mitigate existing visual impacts from structures and other developments, and to accelerate abandonment / restoration of idle wells. This would result in minor improvements to visual resources, as most of the existing wells are not in major use areas of the Monument. Also, geophysical exploration would be the most limited among the alternatives, but restrictions would still need to enable private mineral estate holders to explore in a reasonable fashion.

Impacts under No Action Alternative (for reference):

Private Mineral Estate –

Exploration and development of private mineral estate would require surface disturbance to the valley floor including up to 18 acres of long-term disturbance for initial wells/tanks, 12 acres of temporary disturbance from unsuccessful wells and associated roads, and 115 acres of short-term disturbance from cross-country seismic lines. Activities would include up to approximately 6 exploration wells, 10 development wells, and 2 tank batteries. The seismic lines would result in minor to moderate temporary impacts to visual resource values and would only be visible until the first growing season after the disturbance (tire tracks and flattened vegetation where cross-country ATV use occurs). The development of wells and associated roads/structures would result in moderate to major visual impacts within foreground and middle ground viewing distances. Careful siting and design (such as paint colors) of these structures would reduce some of the contrast and impacts. However, the location of the developments on the wide expanse of the valley floor, which offers no topographic screening, would still make them highly visible as their forms will strongly contrast with natural landscape elements.

Of these existing oilfields, the majority are contained in one unit, in and adjacent to a local ranch. The area is currently classified as VRM Class III or VRM Class IV, even though most of this development is in areas not readily visible from roads the general public uses. All oilfield operators will be encouraged to apply best management practices (Appendix P) and recommendations in the Surface Operating Standards and Guidelines for Oil and Gas Exploration Development (The Gold Book) as part of ongoing maintenance and repair, including such actions as use of appropriate paint colors when repainting and placing new pipelines within road rights-of-way; therefore, the areas will be moving toward VRM Class II, as shown on Maps 2-2, 2-3, and 2-4. All new development would follow the best management practices and recommendations contained in the Gold Book.

Existing Federal Leases –

The development of up to 2 exploratory wells and 5 development wells and associated roads would result in up to 6.5 acres of new temporary to long-term surface disturbance. This would result in minor to moderate visual impacts to the foreground and middle ground zone as visible from Highway 166. The topography of the existing oil fields is such that it would allow for topographic screening and other mitigating measures to reduce the visibility of the developments to moderate levels of contrast. Up to 25 acres would have transitory disturbance from cross-country seismic exploration. This impact would be minor, localized (ATV tracks), and short-term and would not be visible after the first growing season following exploration.

Lands and Realty

Land acquisition would be targeted in areas with biological and cultural resource values, resulting in less acreage acquired, and therefore less protection of visual resources than Alternative 1. There would still be a net benefit over present conditions, as acquired lands would be protected from development. The acquisition of mineral rights would benefit visual resources at a minor to major level, depending on whether viable minerals were found/developed if the area were not acquired. The addition of facilities to two communication structures would have a negligible impact due to the fact there are many other communication facilities in the close vicinity, and they would be placed on existing towers.

Impacts under Alternative 1 (for reference):

The acquisition of 16,000 to 32,000 acres of private land would enhance visual resources by ensuring that the lands are not developed. The acquisition of 0 to 40,000 acres of mineral rights would enhance visual

values eliminating possible oil and gas exploration and development on the acquired lands. The removal of two communication facilities upon lease expiration would result in negligible to minor enhancement of visual qualities, since numerous communication facilities would remain in place.

4.11.6 Impacts to Visual Resources under Alternative 1

4.11.6.1 Impacts to Visual Resources from Implementing the Visual Resources Program

Alternative 1 calls for management of the 83,591-acre Primitive zone as VRM Class I, the 150,844-acre Backcountry zone as VRM Class II, and the 15,382-acre Frontcountry zone as VRM Class III. This alternative would provide the highest level of protection/restoration of the characteristic landscapes and visual resource values within the Monument. The retrofitting of existing facilities to meet VRM class objectives would enhance visual resource values.

4.11.6.2 Impacts to Visual Resources from Implementing Other Programs

Wildlife

The removal of artificial watering sources and livestock fence would enhance the natural landscape qualities of the Monument. Fencing and watering systems are the only visible human-made structures on parts of the Monument, and these would be restored to a naturally appearing landscape. Removing these would increase the chances of visitors having views with no human-made structures. The removal of guzzlers would have a negligible impact on visual resources as the guzzlers are already in remote locations not normally seen by the public.

Vegetation

Removal of nonnative plants species would have minor short-term impacts from ground disturbance. In the long term, regrowth of native species would result in enhancement of visual values.

Fire and Fuels Management

This alternative would not involve prescribed fire use, so the visual impacts from burning itself would be reduced in frequency from present levels. Construction of dozer line during wildfire suppression could have a moderate to major localized impacts to visual resources, as this construction would take place under emergency operations with minimal priority given to visual resource protection. Dozer lines result in very visible change of the line, color, and texture of the landscape and are of a much longer duration than the actual fire itself.

The mowing of weeds to reduce fuels around buildings and along roadways would cause negligible impacts to visual resources considering most of the weed abatement would be concentrated around already disturbed areas.

Geology and Paleontology

The placement of small low-profile interpretive signs would cause negligible impacts. Paleontological resource scientific research would result in minor short-term localized impacts where excavations are conducted. Use of “minimum tool” requirements (that is, normally only hand tools would be used) would minimize impacts. Geological research related to the San Andreas Fault and other features would cause minor temporary visual impacts from excavation and/or coring efforts. There would be short-term surface disturbance that would be rehabilitated upon completion of the research.

Cultural Resources

The addition of interpretation and educational sites through the life of the plan could cause a minor visual impact, although any signing would be placed away from sensitive sites and view corridors. The removal of farm equipment to centralized locations and the demolition of non-historic ranch structures would result in the greatest reduction of structures from the landscape, increasing the natural appearance. This will enhance visual values for those seeking a more natural landscape, but will slightly reduce the pastoral farming landscape that is desirable to others. Historic structures eligible for the national register would still be retained. The four to five ranching and farming facilities that would be removed are primarily located within the Primitive zone where most visitors would be seeking views with natural qualities.

WSA/Other Lands with Wilderness Characteristics

This alternative results in the greatest acreage to be managed for wilderness characteristics (which corresponds to VRM Class I). Associated actions to restore wilderness characteristics would return the visual landscape to naturally appearing conditions.

Livestock Grazing

This alternative would remove livestock from the Monument. Livestock would not be present or visible within the area. Removal of unneeded fence, gates, cattle guards, corrals, water pipes, water tanks, and water troughs would have a major impact on the visual landscape qualities. Many areas of the Monument would change in character from their present pastoral/ranching qualities to a more naturally appearing landscape with fewer human intrusions.

Recreation

In the Primitive zone, the development of 5 to 35 miles of trails could have a negligible to minor impact to visual resources, since most of the trails would be located on reclaimed roads. Some trails would be newly constructed, and would improve opportunities for visitors to view the scenic landscapes of the Primitive zone, while causing minor impacts to the characteristic landscape.

In the Backcountry zone, the increased number of overlooks and trailheads could cause a minor to moderate impact, but with proper design and placement there should only be localized impacts to the visual qualities immediately surrounding the developments.

In the Frontcountry zone, the increased number of overlooks and trailheads could cause a minor to moderate impact, but with proper design and placement there should only be a minor impact to the visual resources.

Travel Management

The closure of 80 miles of roads and rehabilitation or natural revegetation of these routes would result in a major long-term enhancement of the natural characteristic landscape by reducing the visual impacts associated with these roads, and allowing them to revert (or in some instances actively restoring them) to a naturally appearing condition.

Minerals

Impacts would be the same as the No Action alternative except that BLM would work with existing leaseholders to mitigate existing visual impacts from structures and other developments, and to accelerate abandonment / restoration of idle wells. This would result in minor improvements to visual resources, as

most of the existing wells are not in major use areas of the Monument. Also, geophysical exploration would be the most limited among the alternatives, but restrictions would still need to enable private mineral estate holders to explore in a reasonable fashion.

Lands and Realty

The acquisition of 16,000 to 32,000 acres of private land would enhance visual resources by ensuring that the lands are not developed. The acquisition of 0 to 40,000 acres of mineral rights would enhance visual values eliminating possible oil and gas exploration and development on the acquired lands. The removal of two communication facilities upon lease expiration would result in negligible to minor enhancement of visual qualities, since numerous communication facilities would remain in place.

4.11.7 Impacts to Visual Resources under Alternative 3

4.11.7.1 Impacts to Visual Resources from Implementing the Visual Resources Program

Under this alternative, 17,984 acres would be managed as VRM Class 1, 200,091 acres as VRM Class II, and 28,741 acres as VRM Class III. This alternative provides for less stringent VRM classifications on certain parts of the Monument than the other alternatives (less acreage in Class I), but still affords a high level of visual resource protection that is in keeping with the goals of the Monument Proclamation. This alternative provides for higher flexibility in completing resource restoration projects and recreational facility development while meeting VRM standards.

4.11.7.2 Impacts to Visual Resources from Implementing Other Programs

Wildlife

Impacts would be the same as the proposed plan (Alternative 2).

Fire and Fuels Management

Impacts would be the same as the proposed plan (Alternative 2) except that additional hand and dozer lines could be constructed for more active suppression of wildfires. Also, up to 1,500 acres of grassland would be burned in alternate years, resulting in higher (but still short-term) impacts than the other alternatives.

Geology/Paleontology

Impacts would be the same as the proposed plan (Alternative 2).

Cultural Resources

Impacts would be the same as the proposed plan (Alternative 2), except that more emphasis would be placed on the preservation and restoration of historic farm machinery and ranch structures. This would enhance the visual qualities of a characteristic farming and ranching “sense of place” within the Monument. However, it would result in less restoration of the natural character and vast-undeveloped “sense of place” landscape.

WSA/Other Lands with Wilderness Characteristics

Impacts would be the same as the proposed plan (Alternative 2), except that only the 17,984-acre Caliente WSA would be managed as VRM Class I.

Livestock Grazing

Impacts would be the same as the proposed plan (Alternative 2), except that some additional livestock improvements would be placed in the Section 15 allotments. This would result in negligible visual impacts as most of these facilities/fences would be away from public use areas.

Recreation

Impacts would be the same as the proposed plan (Alternative 2), except that additional interpretive signing, trails, overlooks, and other public use improvements would be placed in the Frontcountry and Backcountry zones. These would only increase the level of impact by a minor level, as most improvements would be located near existing developments such as roads, campgrounds, or other developments.

Travel Management

The closure of 10 miles of roads and rehabilitation or natural revegetation of these routes would result in a minor enhancement of the natural characteristic landscape by reducing the visual impacts associated with these roads, and allowing them to revert (or in some instances actively restoring) them to a naturally appearing condition

Minerals

Same as Alternative 1 except existing leaseholders and private mineral estate owners would be permitted to use vibroseis for exploration, primarily on existing roads, with some off-road use. This would result in higher impacts to visual resources than the other alternatives, but it would be a short-term impact.

Lands and Realty

Land acquisition impacts would be the same as the proposed plan (Alternative 2). Up to two additional communication sites could be developed under this alternative. This would result in minor to moderate visual impacts depending on the location of the sites (which are typically on a prominent ridgetop). Any sites would need to be developed to meet the class requirements of the respective VRM zone, and therefore could not be developed in a manner that caused major non-conforming impacts.

4.11.8 Impacts to Visual Resources under the No Action Alternative

4.11.8.1 Impacts to Visual Resources from Implementing the Visual Resources Program

Under the No Action Alternative, most of the CPNM would be managed as VRM Class II except for the Caliente Mountain WSA, which would be managed as VRM Class I; a majority of the Temblor Mountain Range, which is classified as VRM Class III; and areas along the border of the Monument area that would be managed as VRM Class IV. No acreage values are available, as existing management plans do not include acreages for VRM classes within the Monument. This would be the least protective of the alternatives for visual resources of the Monument, particularly in the Class IV areas that allow for major modifications to the characteristic landscape. Based on the reasonably foreseeable demands for visually altering activities under the No Action Alternative in the RMP, impacts to the characteristic landscapes would be minor to moderate as discussed below.

4.11.8.2 Impacts to Visual Resources from Implementing Other Programs

Biological Resources

Proposed habitat improvements and vegetation treatments would result in minor impacts to visual resources. The construction of a plant propagation facility could cause impacts to visual resources depending on where it is placed. The operation would likely be placed at an administrative site so that it would cause minimal impacts. Erection of fences to protect vegetation would cause minor to moderate visual resources impacts as the fence lines would break up the natural landscapes line, color, and texture. Reintroduction of native species would enhance the natural landscape of the Monument, especially large ungulates such as the tule elk and pronghorn, which are easily viewed.

Fire and Fuels Management

Use of existing natural and human-made barriers for fire response (ridgetops, roads, and other barriers) will minimize the visual impacts from wildfire suppression. Short-term minor to moderate impacts would continue to occur (blackened landscapes) from prescribed burning and wildfires. Most of these impacts would not be visible after one growing season.

Geology/Paleontology

There would be a minor temporary visual resources impact with excavation for research. There would be temporary surface disturbance at excavation sites, but when the excavation or research was done it would be rehabilitated to its natural state.

Cultural Resources

The removal of four to six ranching and farming facilities within the Monument would increase the naturally appearing characteristic landscapes of the Monument. Although some reduction in structures would occur, historic structures would still contribute to the pastoral landscapes of the valley floor.

Livestock Grazing

Livestock would continue to use the CPNM at present levels, and existing range improvements would be maintained. This would continue maintaining the present visual qualities associated with livestock grazing. The visual landscape on the valley floor would continue to have the pastoral characteristic landscape qualities associated with grazing and support facilities, but those who desire a landscape with natural qualities would be impacted by these same facilities.

Recreation

Existing rustic facilities, including campgrounds, signing, and overlooks, would be maintained with impacts remaining at present levels. Most facilities are located in areas where they are part of historic ranches, or are not visible except to users, so impacts will be minimal.

Travel Management

The existing road system would be maintained at current standards, resulting in no new impacts. Additional safety, directional, and regulatory signing would result in minor visual impacts.

Minerals

Private Mineral Estate.

Exploration and development of private mineral estate would require surface disturbance to the valley floor including up to 18 acres of long-term disturbance for initial wells/tanks, 12 acres of temporary disturbance from unsuccessful wells and associated roads, and 115 acres of short-term disturbance from cross-country seismic lines. Activities would include up to approximately 6 exploration wells, 10 development wells, and 2 tank batteries. The seismic lines would result in minor to moderate temporary impacts to visual resource values and would only be visible until the first growing season after the disturbance (tire tracks and flattened vegetation where cross-country ATV use occurs). The development of wells and associated roads/structures would result in moderate to major visual impacts within foreground and middle ground viewing distances. Careful siting and design (such as paint colors) of these structures would reduce some of the contrast and impacts. However, the location of the developments on the wide expanse of the valley floor, which offers no topographic screening, would still make them highly visible as their forms will strongly contrast with natural landscape elements.

Of these existing oilfields, the majority are contained in one unit, in and adjacent to a local ranch. The area is currently classified as VRM Class III or VRM Class IV, even though most of this development is in areas not readily visible from roads the general public uses. All oilfield operators will be encouraged to apply best management practices (Appendix P) and recommendations in the Surface Operating Standards and Guidelines for Oil and Gas Exploration Development (The Gold Book) as part of ongoing maintenance and repair, including such actions as use of appropriate paint colors when repainting and placing new pipelines within road rights-of-way; therefore, the areas will be moving toward VRM Class II, as shown on Maps 2-2, 2-3, and 2-4. All new development would follow the best management practices and recommendations contained in the Gold Book.

Existing Federal Leases.

The development of up to 2 exploratory wells and 5 development wells and associated roads would result in up to 6.5 acres of new temporary to long-term surface disturbance. This would result in minor to moderate visual impacts to the foreground and middle ground zone as visible from Highway 166. The topography of the existing oil fields is such that it would allow for topographic screening and other mitigating measures to reduce the visibility of the developments to moderate levels of contrast. Up to 25 acres would have transitory disturbance from cross-country seismic exploration. This impact would be minor, localized (ATV tracks), and short-term and would not be visible after the first growing season following exploration.

Lands and Realty

The acquisition of additional lands from private inholders would enhance visual values by precluding construction of structures and other developments on the private land parcels. Additional authorization of rights-of-way for communication sites would result in moderate visual impacts. This is due to the low anticipated demand for such facilities within the Monument. The existing utility corridor would remain in place under this alternative. If developed, an additional transmission line(s) would result in major impacts to the characteristic open-landscape of the Carrizo, as there are no opportunities for mitigating the infrastructure through screening or design. There are currently no proposals for additional transmission lines.

4.11.9 Cumulative Impacts

The assessment area for cumulative impacts is the foreground and middle ground visual zones (3 to 5 miles from public use areas within the Monument). This is the distance that developments normally cause the highest level of visual contrast and impact as they are readily viewed by the observer.

The largest existing visual impacts within the Monument are power lines at north and south ends. It is unknown if any new power lines would be needed in the region, but, if so, they would need to bypass the Monument to the north or south. This could result in moderate to major impacts along the edges of the Monument. The California Valley subdivision is visible from the northern part of the Monument and currently has approximately 100 homes. Over the life of the plan, 50 to 200 more homes could be constructed in the subdivision. This would result in a minor to moderate increase in visual impacts, since the existing homes already alter the landscape north of the Monument. Testing for a possible wind energy development is being initiated within the Temblor Range, and additional communication towers are likely to be placed on private lands in the Temblors to serve the Central Valley and California Valley. These facilities could cause moderate to major visual impacts to the ridgeline of the Temblors which is visible from major use areas within the Monument.

4.12 Impact Analysis for Wilderness Study Area and Other Lands with Wilderness Characteristics

4.12.1 Introduction

As outlined in Chapter 3, there are two types of wilderness-related management allocations discussed in this RMP. The first involves continued interim management of the 17,984-acre Caliente Mountain WSA. This area was analyzed in a previous EIS and must be managed under BLM's Interim Management Policy for Lands under Wilderness Review (BLM 1995) under all RMP alternatives to protect its wilderness values until Congress determines whether it should be designated as part of the National Wilderness Preservation System. Under all of the plan alternatives, no or negligible impacts would occur to the Caliente Mountain WSA based on the interim management policy requirements. The second component of the RMP involves the inventory of lands within the planning area for certain wilderness characteristics, and the associated land use allocations to manage any or all of these inventoried lands to protect wilderness characteristics during the life of the RMP. These lands would be managed under the guidance in Appendix H, Management of Lands with Wilderness Characteristics. Note that the CPNM inventory for wilderness characteristics was updated based on comments on the Draft RMP. As a result of this update, an additional 5,398 acres outside of the original inventory units were found to possess wilderness characteristics. The addition of this acreage is reflected in updated acreage to be managed for wilderness characteristics.

4.12.2 Assumptions Used for the Analysis

All BLM initiated or authorized actions in the Caliente Mountain WSA will follow the requirements and guidelines of BLM's Interim Management Policy for Lands under Wilderness Review (BLM 1995).

Activities outside the WSA and areas identified for management for wilderness characteristics (AWC) will have no or negligible impacts on lands within these respective areas, unless explicitly noted in the discussion.

MIST would be used to manage all prescribed fires within the WSA or AWCs, resulting in negligible impacts to wilderness values. MIST would also be applied in wildfire suppression. Emergency response to wildfire could require the construction of dozer lines or other more impacting tactics, but the

authorization and analysis of these actions is beyond the scope of this plan. Any suppression effort would be followed by a stabilization and rehabilitation program to mitigate impacts to wilderness characteristics.

No BLM discretionary actions are proposed in any of the alternatives that would result in irreversible or irretrievable impacts to any of the lands inventoried and found to have wilderness characteristics. Therefore implementation of any of the alternatives would not preclude consideration of these lands for management as AWCs at a future time.

There is private mineral estate within the WSA and AWCs. The likelihood of oil and gas exploration or development in these areas is low and not considered to be “reasonably foreseeable” under the definition under NEPA at this time, so is not considered in this analysis. However, with changes in oil prices, the exploration of areas otherwise considered to be infeasible for development could change in the future.

4.12.3 Resources or Programs with No or Negligible Impacts to the WSA or AWCs

No or negligible impacts to WSA/AWCs are expected from any alternatives for Fire and Fuels Management, Soils, Water Resources, Air Quality, Wildlife, and Minerals.

4.12.4 Incomplete Information

Global climate change is expected to result in hotter and drier conditions within the WSA/AWCs. To the extent that this change is attributable to human causes, it will impact naturalness. Climate change will also affect opportunities for primitive and unconfined recreation to an unknown degree.

4.12.5 Impacts to WSA/AWCs Common to All Action Alternatives

4.12.5.1 Impacts to WSA/AWCs from Implementing the WSA/AWC Program

No impacts common to all alternatives were identified.

4.12.5.2 Impacts to WSA/AWCs from Implementing Other Programs

No impacts were identified from any action alternatives from the Livestock Grazing, Lands and Realty, or Vegetation programs.

Cultural Resources

Acquisition and restoration of the historic World War II lookout tower on Caliente Peak would result in a minor impact to naturalness within the WSA by retaining/stabilizing the structure.

Recreation

Cache activities could have a minor impact on wilderness qualities if the area(s) become more popular for these types of activities. It is anticipated that minimal activities would take place in the WSA or AWCs as they are more remote and difficult to access.

The placement of low-key directional signs for the safety of visitors would have a minor impact on wilderness characteristics and would also enable visitors to safely enjoy the area.

Travel Management

Limited use roads located within the WSA/AWCs would be available for administrative purposes only when non-motorized access is not feasible for specific projects (repairs that require heavy tools/materials). This action would have a negligible to minor localized impact to the solitude and naturalness of the WSA/AWCs because there could be some motorized vehicle use in these areas. However, because this use would be limited in duration and would only occur on a maximum of three road segments, the impact would be minimal.

4.12.6 Impacts to WSA/AWCs under the Proposed Plan (Alternative 2)

4.12.6.1 Impacts to WSA/AWCs from Implementing the WSA/AWC Program

This alternative would include management of areas surrounding the Caliente Mountain WSA (18,357 acres surrounding the existing 17,984-acre WSA), in the Temblor Range (12,795 acres), and in the Soda Lake units (13,319 acres) for total area managed for wilderness characteristics of 44,417 acres, in addition to the existing WSA acreage. These areas include the lands with the highest level of naturalness within the acreage inventoried for wilderness characteristics.

4.12.6.2 Impacts to WSA/AWCs from Implementing Other Programs

Vegetation

Impacts would be the same as the No Action Alternative (except for additional acreage), as described below:

Impacts under No Action Alternative (for reference):

The removal of nonnative or noxious weeds would have a long-term positive impact by enhancing naturalness.

Cultural Resources

Impacts would be the same as Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

The removal of non-eligible (for National Register) human-made structures would have a localized beneficial impact to wilderness characteristics by improving naturalness.

Livestock Grazing

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Grazing is considered to be a compatible use in wilderness and WSAs as defined by the *Wilderness Act* of 1964 and the *Federal Land Policy and Management Act* of 1976. Operation of grazing leases within the Caliente Mountain WSA would continue at present levels, so impacts would be negligible/minor and mainly associated with reconstruction/maintenance of range improvements.

Recreation

The development of trails within the Primitive RMZ could have a minor to moderate impact on wilderness characteristics. The trails would primarily be made up of closed/rehabilitated roads. An

increase the miles of trails and associated increase in the number of visitors to those areas would have minor impacts to solitude for some visitors, but would encourage others to access the area for those same values. Currently most travel in the WSA is done by cross-country hiking and development of trails it would provide additional opportunities for primitive and unconfined recreation.

Travel Management

This alternative would result in the closure and rehabilitation of the majority of the road network within the 44,471 acres to be managed for wilderness characteristics (see Map 2-3, RMZs and Route Designations, Alternative 2). The roads to be closed are low-standard, mostly “two-track” routes that would revegetate naturally and revert to a natural appearance within several years, enhancing wilderness characteristics.

4.12.7 Impacts to WSA/AWCs under Alternative 1

4.12.7.1 Impacts to WSA/AWCs from Implementing the WSA/AWC Program

This alternative would place the greatest acreage of the planning area under management for wilderness characteristics of all the alternatives. In addition to the existing 17,984-acre WSA, all lands inventoried and identified as having wilderness characteristics (approximately 62,607 acres) would be managed to protect or further restore these qualities. This would result in over 25 percent of the Monument being managed to protect wilderness characteristics either as a WSA or AWC.

4.12.7.2 Impacts to WSA/AWCs from Implementing Other Programs

Vegetation

Impacts would be the same as the No Action Alternative (except for additional acreage).

Cultural Resources

The removal of non-eligible (for National Register) human-made structures would have a localized beneficial impact to wilderness characteristics by improving naturalness.

Livestock Grazing

The removal of grazing from the WSA/AWCs would increase naturalness. Facilities such as fences and water troughs would be removed, reducing the imprint of humans.

Recreation

Note: The Primitive RMZ encompasses the same lands as the WSA and AWC(s) in all alternatives.

The development of 5 to 35 miles of trails within the Primitive zone could have a moderate impact on the wilderness. This action would increase the miles of trails and consequently increase the number of visitors to those areas. Currently most travel in the WSA is done by cross-country hiking, and the development of 5 to 35 miles of trails will make pedestrian travel much easier. Most of the trail segments would be closed vehicle routes rehabilitated and converted into non-mechanized trails. This would improve the naturalness and opportunities for primitive and unconfined recreation within the areas.

Lands and Realty

If the acquisition of lands happened within the Primitive zone, it could cause a minor to moderate impact on the wilderness values. Several inholdings are located in the Temblor Range AWC. If these areas were acquired, it would ensure that they are managed for wilderness characteristics, and also eliminate the need to authorize reasonable access to inholders through other parts of the area.

Travel Management

This alternative would result in the closure and rehabilitation of the majority of the road network within the 62,607 acres to be managed for wilderness characteristics (see Map 2-2, RMZs and Route Designations, Alternative 1). The roads to be closed are low-standard, mostly “two-track” routes that would revegetate on their own and revert to a natural appearance within several years, enhancing wilderness characteristics.

4.12.8 Impacts to WSA/AWCs under Alternative 3

4.12.8.1 Impacts to WSA/AWCs from Implementing the WSA/AWC Program

Impacts would be the same as the No Action Alternative.

4.12.8.2 Impacts to WSA/AWCs from Implementing Other Programs

Impacts would be the same as the No Action Alternative except as discussed below.

Livestock Grazing

Additional minor facilities may be allowed to meet the objectives of this alternative, but they would need to be designed and located to meet VRM Class I criteria. This would result in negligible impacts to naturalness.

Recreation

The development of 5 to 15 miles of trails within the WSA could have a minor to moderate impact on wilderness characteristics. An increase the miles of trails and associated increase in the number of visitors to those areas would have minor impacts to solitude for some visitors, but would encourage others to access the area for those same values. Currently most travel in the WSA is done by cross-country hiking and, if the Monument develops 5 to 15 miles of trails, it will make pedestrian travel much easier.

4.12.9 Impacts to WSA/AWCs under the No Action Alternative

4.12.9.1 Impacts to WSA/AWCs from Implementing the WSA/AWC Program

No impacts have been identified.

The 17,984-acre Caliente Mountain WSA would continue to be managed to so as not to impair the area’s suitability for preservation as wilderness.

4.12.9.2 Impacts to WSA/AWCs from Implementing Other Programs

Under this alternative, no impacts are identified from Cultural Resources or Lands and Realty.

Vegetation

The removal of nonnative or noxious weeds would have a long-term positive impact by enhancing naturalness.

Visual Resources

Continued management of the Caliente Mountain WSA as VRM Class 1 would help ensure that any management activities do not impact the natural landscape qualities of the area.

Recreation

Continued public use of the Caliente Peak Trail would result in negligible impacts to the WSA's naturalness, and would continue to provide opportunities for primitive and unconfined recreation.

Livestock Grazing

Grazing is considered to be a compatible use in wilderness and WSAs as defined by the *Wilderness Act* of 1964 and the *Federal Land Policy and Management Act* of 1976. Operation of grazing leases within the Caliente Mountain WSA would continue at present levels, so impacts would be negligible/minor and mainly associated with reconstruction/maintenance of range improvements.

4.12.10 Cumulative Impacts

4.12.10.1 Assessment Area

The assessment area for visual resources is the south central California Coast Range.

4.12.10.2 Past, Present, and Reasonably Foreseeable Future Actions and Cumulative Impacts

The largest acreage of federal land within the assessment area is the 1.75-million-acre Los Padres National Forest. This Forest also contains all of the designated wilderness within the region, which totals approximately 587,000 acres, or 34 percent of the National Forest acreage. A maximum of 32 percent of the BLM lands within the planning area would be managed for wilderness characteristics (under Alternative 1).

Forest Service Wilderness Area	Acres
Santa Lucia Wilderness	20,412
Garcia Wilderness	14,100
Machesna Mountain Wilderness	19,880
Chumash Wilderness	38,150
Sespe Wilderness	219,700
Matilija	29,600
Dick Smith	67,800
San Rafael Wilderness	197,380
Silver Peak Wilderness	31,555
Ventana Wilderness	240,026

BLM is currently initiating the revision of a land use plan for Bureau-managed public lands within the region. Although the wilderness characteristics inventory has not yet been completed for this plan, it is anticipated that little if any of the land within the assessment area would have wilderness characteristics. No other wilderness inventories are known to be ongoing within the assessment area.

4.13 Impact Analysis for Livestock Grazing

4.13.1 Introduction

Livestock grazing occurs for two purposes within the Monument: it is either managed as an allowable use, such as under a Section 15 grazing lease, which utilizes livestock forage, or it used as a vegetation management tool, such as under a free use grazing permit, which meets objectives other than the production of livestock forage. The impact analysis below describes impacts related to each type of livestock grazing. Although livestock grazing for vegetation management purposes is an action directed by biological programs, it is addressed here for continuity of the topic. Acres of impact for each action were determined by combining acreages listed in Appendix R, Grazing Implementation Table, for the affected pastures or management units.

As described in the affected environment chapter, Section 15 lease holders must own or control private property that acts as the base to their livestock operation, this base property gives the lessee a priority over other grazing applicants, and this priority is attached to their private property, giving it some value above other non-base property lands. Additionally, private base property is usually intermingled with the BLM land in the grazing lease and thus can be impacted with actions on the grazing lease. Conversely, base property is not required to hold a free use grazing permit; thus, free use grazing permittees have no private property value associated with their grazing permit. Unless these permittees also have private lands that are intermingled with the BLM lands in their permit, they would not incur impacts to the use of their private lands from actions on the grazing permit. This analysis describes the separate types of impacts incurred by both types of livestock operations to provide a full disclosure of impacts to all grazing operations in the Monument. Impacts to livestock grazing in the region are described in Section 4.18, Impacts to Social and Economic Conditions.

4.13.2 Assumptions Used for the Analysis

- Livestock operators will have livestock when needed by BLM for vegetation management areas.
- Livestock management facilities will be functional when needed in vegetation management areas.
- Acreage under BLM livestock grazing control within the Monument will remain stable for the life of the plan.
- BLM does not control livestock management in pastures where BLM is a minor landowner. This situation occurs in a few pastures of both Section 15 allotments and vegetation management areas and involves minor acreage of the Monument.
- Funding and staffing will allow implementation of required compliance monitoring and enforcement of terms and conditions on grazing authorizations.

4.13.3 Incomplete Information

Accurate acreages have not been tabulated for non-grazed areas, the amount of private lands within pastures, miles of water pipelines, and other detailed information that is not necessary for the current broad level of analysis.

Estimates of the number of years potentially grazed out of ten, based on past data for rainfall and resultant vegetation response, are not intended to be specific predictions of actual future grazing levels but a method for comparing potential grazing use between alternatives.

4.13.4 Programs That Will Not Impact Livestock Grazing

Actions to implement Air Quality, Water Resources, Geology and Paleontology, Cultural Resources, Visual Resources, Minerals, Recreation, Administrative Facilities, or Lands and Realty programs under all alternatives are expected to have negligible or no impacts to Livestock Grazing operations or opportunities under Section 15 or within vegetation management areas.

4.13.5 Impacts to Livestock Grazing Common to All Action Alternatives

4.13.5.1 Impacts to Livestock Grazing from Implementing the Livestock Grazing Program

BLM will assess all grazing allotments over the life of the plan. It is estimated all allotments will meet rangeland health standards and that none of these authorization will need adjustments to meet rangeland health standards.

BLM will establish monitoring of impacts to specific target objectives over the life of the plan, including within Section 15 allotments. It is anticipated that some adjustments to these grazing authorizations will occur as a result of this monitoring.

BLM will monitor compliance on all grazing authorizations and annual minor adjustments will result.

BLM will adjust the boundary fence in some locations over the life of the plan, modifying allotment boundaries and acreages as needed. Adjustments to grazing authorizations as a result of these adjustments are expected to be minor.

4.13.5.2 Impacts to Livestock Grazing from Implementing Other Programs

Wildlife

Section 15 Allotments. The application of the guidelines to implement objectives for core area threatened and endangered animals within Section 15 allotments (*Applicable guidelines: Biomass 1,000 lbs/acres and 500 lbs/acre minimum for San Joaquin Valley core with blunt-nosed leopard lizard*) would affect 2 pastures within 1 Section 15 allotment. This action will result in as much as 3 more years out of 10 of no grazing being initiated in these areas as compared to the No Action Alternative. Under these guidelines, it is estimated that grazing in these pastures would occur 5 years out of 10 based upon anticipated rainfall and the associated vegetation response. This effect is a major impact to the individual operation affected when one takes into consideration the limited grazing opportunities that exist in this environment and how these actions affect the rest of the livestock operation.

Vegetation Management Areas. The application of the guidelines on 58,275 acres to implement objectives for core area threatened and endangered animals within vegetation management allotments (*Applicable guidelines: Annual mulch of 1,600 lbs/acre and 1,000 lbs/acre with low giant kangaroo rat for San Joaquin Valley core, Biomass of 1,000 lbs/acre and 500 lbs/acre minimum for San Joaquin Valley core with blunt-nosed leopard lizard, summer-fall grazing to 2" vegetation height for mountain plover core*) provides for some level of grazing use of limited pastures within vegetation management areas. This grazing level, however, is less than what would be allowed under the No Action Alternative because livestock would not be applied until later, if at all, and removed earlier based on residual annual plant dry matter thresholds. It is also expected that livestock grazing for these purposes and under these guidelines would occur only 2 years out of 10. This represents a reduction of three more years out of ten when no grazing opportunities would be available for livestock operations in these areas as compared to the No Action Alternative. This is an impact to the individual operations that retain pastures for potential grazing use in vegetation management areas because grazing will be further restricted. The occasional grazing use

that is allowed in combination with the limited number of pastures and multiple restrictions on use, make this source of forage unreliable for livestock operations.

Soils

Actions to implement soils objectives within all grazing areas common to all alternatives are expected to have negligible or no impacts to livestock grazing operations or opportunities.

Vegetation

Actions to implement vegetation objectives within all grazing areas common to all alternatives are expected to have negligible or no impacts to livestock grazing operations or opportunities.

Fire and Fuels Management

Actions to implement fire and fuels management objectives within all grazing areas common to all alternatives are expected to have negligible or no impacts to livestock grazing operations or opportunities.

WSA/Other Lands with Wilderness Characteristics

Impacts from actions to implement WSA/Other Lands with Wilderness Characteristics objectives within all grazing areas common to all alternatives are expected to be the same as described for the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

The current Caliente Mountain WSA covers a portion of two Section 15 grazing allotments. Maintaining this current designation provides low potential for future development of new or modified grazing infrastructure if needed for livestock management within those areas of the allotments. Maintenance of existing facilities can be restricted by minor to moderate amounts, although the Interim Management Policy For Lands Under Wilderness Review (BLM 1995) allows for access as necessary. Opportunities for future changes to livestock grazing management practices are also limited by access and development restrictions. Overall, actions to implement objectives for WSA/Other Lands with Wilderness Characteristics continue to provide a minor impact to livestock grazing operations and opportunities.

Travel Management

Restricting access and/or maintenance on administrative access routes within Primitive RMZs that are also within Section 15 or vegetation management allotments, based on a minimum requirements assessment, would moderately impact these livestock grazing operations. Livestock operators need to access existing facilities and remote locations of the allotments for the periodic supervision of livestock and water supplies. Should it be determined that vehicle access or maintenance for these purposes is not a necessity, or that other access such as by horseback, is a reasonable alternative, these livestock grazing operations would need to be modified accordingly.

4.13.5.3 Conclusion

Overall impacts from actions common to all alternatives are negligible except for much higher impacts to individual livestock operations from the actions to implement core area threatened and endangered species objectives. Some moderate negative effects to operations could also be realized under these actions common to all depending on the level of implementation for access restrictions within Primitive

RMZs. Further impacts to livestock grazing in the region are described in Section 4.18, Impacts to Social and Economic Conditions.

4.13.6 Impacts to Livestock Grazing under the Proposed Plan (Alternative 2)

4.13.6.1 Impacts to Livestock Grazing from Implementing the Livestock Grazing Program

BLM would authorize 6 Section 15 leases on 7 allotments, allowing grazing on 55,862 acres, supporting up to 7,897 AUMs annually. This reflects similar amounts of lands available for Section 15 grazing lease use as the No Action Alternative. However, the levels of permitted use on those lands depend upon the applicable livestock management guidelines and may vary annually from no use up to the levels of permitted use shown above. See the impacts described for livestock grazing within Section 15 areas from other biological resources below for further details.

BLM would authorize 9 free use grazing permits on up to 117,467 acres, supporting up to 61,464 AUMs annually. This reflects similar amounts of lands available for vegetation management as compared to the No Action Alternative; however, the levels of permitted use on those lands are now dependent upon biological needs detailed in the applicable livestock management guidelines and may vary annually from no use up to the levels of permitted use shown above. See the impacts described for livestock grazing within vegetation management areas from other biological resources below for further details.

It is anticipated that few relinquishments of permitted use would occur in Section 15 leases over the life of the plan.

Grazing on 173,329 acres would remain at levels and under conditions to meet rangeland health standards. This would result in a continuance of the good rangeland health conditions found in these areas under the No Action Alternative.

Grazing on 1,839 acres would occur within vegetation management areas in response to incidental needs of livestock operations while grazing for above biological objectives or within pastures where grazing use is not controlled by BLM (for example, horse pastures or areas managed with the surrounding private lands). This minor acreage provides logistical support for livestock operations to continue to provide vegetation management actions that do not impact their overall operation. This is also a continuation of the situation under the No Action Alternative.

As under the No Action Alternative, BLM, in conjunction with cooperators, would expect to maintain the approximately 500 miles of existing fence within and along the boundary, the approximately 90 miles of existing underground water pipelines, the approximately 200 existing water troughs, and the approximately 150 existing water tanks within the Monument. Under this alternative, a small percentage of these structures would be removed or modified. An even smaller percentage of new features would be created under this alternative. Impacts to livestock operations are expected to continue to be minor. BLM requirements as to how, when and at whose cost these facilities are maintained or modified continues to impact the daily logistics, continuity and cost benefit ratio of affected livestock operations.

4.13.6.2 Impacts to Livestock Grazing from Implementing Other Programs

Wildlife

Section 15 Allotments. Actions to implement wildlife objectives on 55,862 acres within Section 15 allotments areas under the proposed plan (Alternative 2) (beyond the actions common to all alternatives) (*Applicable guidelines: possible new pronghorn fawning considerations, No grazing in elk cow ranges,*

continue past grazing for shrimp) are expected to have negligible or no impacts to livestock grazing operations or opportunities.

Vegetation Management Areas. In these areas, grazing would only occur as a tool to manage vegetation for a specific biological resource. No grazing would occur on 84,881 acres under current guidelines to meet wildlife, vegetation, and other objectives identified in Conservation Target Table. This action is an increase of 35,745 acres placed into a currently ungrazed category from conditions under the No Action Alternative. This is a major impact to all livestock operations affected because it removes a large amount of land that could potentially be available for livestock use within vegetation management areas. Two individual operations on three allotments would have all opportunities for livestock grazing entirely removed under this alternative. The remaining operations and allotments would have areas available for some level of grazing severely limited even further by this action.

Actions to implement wildlife objectives within vegetation management allotments areas under the proposed plan (beyond the actions common to all alternatives) (*Applicable guidelines: Non-core areas, fence modification and removals, possible new pronghorn fawning considerations, no grazing in elk cow ranges, continue past grazing for shrimp*) are expected to have minor impacts to livestock grazing operations or opportunities. Should known locations of key resources expand to new areas during the life of the plan, impacts to livestock grazing operations or opportunities could increase, removing more acreage available for grazing.

Vegetation

Section 15 Allotments. The application of the guidelines to implement vegetation objectives on 55,862 acres within Section 15 allotments (*Applicable guidelines: utilization rates for bunchgrasses, Annual mulch of 1,000 lbs/acre or 1,200 lbs/acre with 2 inches green growth and 700 lbs/acre minimum, season of use for target shrubs, potential restrictions for oaks*) is expected to result in loss of grazing opportunities in 3 more years out of 10 as compared to the No Action Alternative. Under these guidelines it is estimated that grazing would occur only 5 years out of 10 based upon anticipated rainfall and the associated vegetation response. Should grazing be initiated in any given year under the guidelines for this alternative, grazing will also occur for a shorter duration than under the No Action Alternative. This effect could result in a major impact to individual operations when considered in the context of the limited grazing opportunities that exist in this environment. It also would affect other portions of operations by causing those other areas to be used more, or upsetting the rotational use of pastures possibly making the entire operation nonviable. The level of the impact on any one operation from this reduction in use will depend on the percentage of the operation's reliance upon the forage source or the source's importance to the operation's logistical or livestock management needs.

Vegetation Management Areas. No grazing would occur on 84,881 acres under current guidelines to meet wildlife, vegetation, and other objectives identified in Conservation Target Table. This action is an increase of 35,745 acres placed into a currently ungrazed category from conditions under the No Action Alternative. This is a major impact to all livestock operations affected because it removes a large amount of land that could potentially be available for livestock use within vegetation management areas. Two individual operations on three allotments would have all opportunities for livestock grazing entirely removed under this alternative. The remaining operations and allotments would have areas available for some level of grazing severely limited even further by this action.

The application of the guidelines to implement vegetation objectives within vegetation management areas (*Applicable guidelines: season for P. secunda and Nacella cernua, No grazing P. secunda and recently cultivated, No spring grazing P. secunda with certain soils, No spring grazing N. cernua with certain soils, utilization rates for bunchgrasses, No grazing in exceptional expression years for annual flora, No*

spring grazing in certain soils for annual flora, season for target shrubs, No grazing valley alkali sink, No grazing Lepidium jaredii, No spring grazing for annual flora) is expected to be a major impact on grazing operations and opportunities within these areas. The new and overlapping restrictions placed on potential grazing use to meet vegetation objectives will reduce the number of pastures available for some level of grazing by 50 percent as compared to the No Action Alternative. This effect is a major impact to individual livestock permittees who may have their entire operations displaced from the Monument.

Fire and Fuels Management

Impacts from actions to implement Fire and Fuels Management objectives within all grazing areas under this Alternative are expected to be the same as described for the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Wildland fire suppression or prescribed burning under this alternative imposes limited impacts to logistics of current livestock operations or opportunities. Certain pastures or portions of the allotments may become unusable for short durations, but usually on a small enough scale so that impacts to livestock management activity would be minor and localized. Over time, as burn areas potentially become more frequent or larger, logistical and operational impacts to livestock management efforts will become greater, although they should remain at moderate levels over the life of the plan.

WSA/Other Lands with Wilderness Characteristics

Section 15 Allotments. This alternative greatly increases the area within 2 Section 15 grazing allotments that would be managed for wilderness characteristics. Impacts to livestock grazing operations and opportunities from actions to implement WSA/Other Lands with Wilderness Characteristics objectives within Section 15 allotments under this alternative are expected to be the same type as described for the No Action Alternative, but over a larger area.

Impacts under No Action Alternative (for reference):

The current Caliente Mountain WSA covers a portion of two Section 15 grazing allotments. Maintaining this current designation provides low potential for future development of new or modified grazing infrastructure if needed for livestock management within those areas of the allotments. Maintenance of existing facilities can be restricted by minor to moderate amounts, although the Interim Management Policy For Lands Under Wilderness Review (BLM 1995) allows for access as necessary. Opportunities for future changes to livestock grazing management practices are also limited by access and development restrictions. Overall, actions to implement objectives for WSA/Other Lands with Wilderness Characteristics continue to provide a minor impact to livestock grazing operations and opportunities.

Vegetation Management Areas. This alternative increases the area managed for wilderness characteristics to include 2 pastures of a vegetation management allotment. Impacts to livestock grazing operations and opportunities from actions to implement WSA/Other Lands with Wilderness Characteristics objectives within the vegetation management allotment under this alternative are expected to be the same type as described for the Section 15 allotments areas under the No Action Alternative (see above), but now experienced in this allotment and by another permittee.

Travel Management

Impacts from actions to implement Travel Management objectives within all grazing areas under this Alternative are expected to be the same as described for the No Action Alternative.

Impacts under No Action Alternative (for reference):

Open and limited access routes should provide adequate access to existing grazing infrastructure so as to cause only minor impacts to livestock grazing operations or opportunities in both Section 15 and vegetation management grazing allotments.

4.13.6.3 Conclusion

Overall, this alternative causes major impacts to livestock grazing operations and opportunities within Section 15 allotments from actions to implement vegetation and animal habitat objectives. It also causes minor impacts to livestock grazing operations and opportunities within vegetation management allotments from actions to implement both wildlife and vegetation objectives when considering the recent expectations of those operations as to the reliability of grazing use in these allotments. Further impacts to livestock grazing in the region are described in Section 4.18, Impacts to Social and Economic Conditions.

4.13.7 Impacts to Livestock Grazing under Alternative 1

4.13.7.1 Impacts to Livestock Grazing from Implementing the Livestock Grazing Program

BLM would cancel 2 Section 15 leases on 3 allotments, removing 51,275 acres and 6,958 AUMs from grazing availability. This reduction in previously reliable forage sources will severely impact the viability of at least 3 livestock operations that utilize public lands within the Monument. The severity of the reduction will depend on the percentage of the operation's reliance upon the forage source or the source's importance to the operation's logistical or livestock management needs.

BLM would not authorize any livestock grazing for vegetation management purposes under this alternative. This would eliminate the possibility of even a limited or inconsistently available forage source for up to 8 livestock operations as compared to the No Action Alternative.

BLM would authorize 4 Section 15 leases on minor portions of 4 allotments, allowing grazing on 4,587 acres, supporting up to 939 AUMs annually. These minor authorizations would be a continuance of portions of authorizations under the No Action Alternative.

Grazing on 4,587 acres would remain at levels and under terms and conditions that meet rangeland health standards. This would result in a continuance of the good rangeland health conditions found in these areas under the No Action Alternative.

Grazing on 4,587 acres under Section 15 leases would remain at current levels and under current terms and conditions that meet objectives for healthy, sustainable, biologically diverse ecosystems that contribute goods, services and other social and cultural needs for local communities, the region, and the nation. This would be a continuance of the situation found under the No Action Alternative.

BLM would remove approximately 300 miles of fences, gates, cattleguards, and corrals under this alternative. BLM and cooperators will still maintain approximately 119 miles of perimeter fences. BLM would have to construct approximately 30 miles of new fence in order to separate BLM lands within pastures under private grazing control to prevent livestock from grazing on those intermingled BLM lands. Impacts to livestock operations are expected to continue to be minor for those bordering the Monument. Livestock operations with pastures that require construction of fences to segregate BLM land from private lands may incur more moderate impacts because the fences could cause the private lands within the pastures to become unusable. BLM requirements as to how, when, and at whose cost these

facilities are maintained or modified would continue to impact the daily logistics, continuity and cost benefit ratio of affected livestock operations.

BLM would also remove or abandon approximately two-thirds of existing water facilities, or approximately 30 miles of water pipelines, 100 water tanks, and 120 water troughs, if it is determined that they were not needed for purposes other than livestock management. Impacts to livestock operations from this action are expected to be negligible.

4.13.7.2 Impacts to Livestock Grazing from Implementing Other Programs

The limited livestock grazing that is authorized under this alternative is controlled by decisions outside the Monument because the acreage within the Monument makes up from 3 to 41 percent of each of 9 pastures and is spread over 15 miles. Other program decisions within the Monument are expected to have negligible or no impacts to livestock grazing operations or opportunities within these Section 15 pastures.

4.13.7.3 Conclusion

Overall, this alternative provides a major impact to all individual livestock operations and opportunities either entirely or partially within the Monument. Further impacts to livestock grazing in the region are described in Section 4.18, Impacts to Social and Economic Conditions.

4.13.8 Impacts to Livestock Grazing under Alternative 3

4.13.8.1 Impacts to Livestock Grazing from Implementing the Livestock Grazing Program

BLM would authorize 6 Section 15 leases on 7 allotments, allowing grazing on 55,862 acres, supporting up to 7,897 AUMs annually. This is a continuation of the current levels of permitted use in Section 15 leases as compared to the No Action Alternative.

BLM would authorize 9 free use grazing permits on up to 117,467 acres, supporting up to 61,464 AUMs annually. This reflects similar amounts of lands available for vegetation management as compared to the No Action Alternative, however, the levels of permitted use on those lands are now dependent upon biological needs detailed in the applicable livestock management guidelines and may vary annually from no use up to the levels of permitted use shown above. See the impacts described for livestock grazing within vegetation management areas from other biological resources below for further details.

Grazing on 173,329 acres would remain at levels and under conditions to meet rangeland health standards. This would result in a continuance of the good rangeland health conditions found in these areas under the No Action Alternative.

Grazing, on 55,862 acres under Section 15 grazing allotments, is expected to occur in 8 out of 10 years as resource conditions allow, under the specific livestock management guidelines identified in Appendix U that meet objectives for healthy, sustainable, biologically diverse ecosystems that contribute goods, services and other social and cultural needs for local communities, the region, and the nation. These are established grazing areas with stable objectives and the amount of grazing out of ten years is expected based upon the natural fluctuations of annual rangelands within the region. These guidelines or terms and conditions would not impact livestock grazing operations or opportunities.

Grazing on 1,839 acres would occur within vegetation management areas in response to the incidental needs of livestock operations while grazing for above biological objectives or within pastures where grazing use is not controlled by BLM. This minor acreage provides logistical support for livestock

operations to continue to provide vegetation management actions that do not impact their overall operation. This is also a continuation of the situation under the No Action Alternative.

As under the No Action Alternative, BLM, in conjunction with cooperators, would expect to maintain the approximately 500 miles of existing fence within and along the boundary, the approximately 90 miles of existing underground water pipelines, the approximately 200 existing water troughs, and the approximately 150 existing water tanks within the Monument. Under this alternative a small percentage of each would be removed or modified. An even smaller percentage of new features would be created under this alternative. Impacts to livestock operations are expected to continue to be minor. BLM requirements as to how, when and at whose cost these facilities are maintained or modified continues to impact the daily logistics, continuity and cost benefit ratio of affected livestock operations.

4.13.8.2 Impacts to Livestock Grazing from Implementing Other Programs

Wildlife

Section 15 Allotments. Impacts from actions to implement wildlife objectives within Section 15 areas under this alternative are expected to be the same as described for the No Action Alternative.

Vegetation Management Areas. Impacts from actions to implement wildlife objectives within vegetation management areas under this alternative are expected to be the same as described for the proposed plan (Alternative 2).

Vegetation

Section 15 Allotments. Impacts from actions to implement vegetation objectives within Section 15 areas under this alternative are expected to be the same as described for the No Action Alternative.

Vegetation Management Areas. Impacts from actions to implement vegetation objectives within vegetation management areas under this alternative are expected to be the same as described for the proposed plan (Alternative 2).

Fire and Fuels Management

Impacts from actions to implement Fire and Fuels Management objectives within all grazing areas under this alternative are expected to be the same as described for the No Action Alternative.

WSA/Other Lands with Wilderness Characteristics

Impacts from actions to implement WSA/Other Lands with Wilderness Characteristics objectives within all grazing areas under this alternative are expected to be the same as described for the No Action Alternative.

Travel Management

Impacts from actions to implement Travel Management objectives within all grazing areas under this alternative are expected to be the same as described for the No Action Alternative.

4.13.8.3 Conclusion

Overall, this alternative continues minor impacts to livestock grazing operations and opportunities within Section 15 allotments. It also causes major impacts to livestock grazing operations and opportunities

within vegetation management allotments from actions to implement both wildlife and vegetation objectives. Further impacts to livestock grazing in the region are described in Section 4.18, Impacts to Social and Economic Conditions.

4.13.9 Impacts to Livestock Grazing under the No Action Alternative

4.13.9.1 Impacts to Livestock Grazing from Implementing the Livestock Grazing Program

BLM would authorize 6 Section 15 leases on 7 allotments, allowing grazing on 55,862 acres, supporting up to 7,897 animal unit months (AUMs) annually. This is a continuation of the current levels of permitted use in Section 15 allotments and has no impact on livestock grazing operations or opportunities.

BLM would authorize up to 9 free use grazing permits for vegetation management purposes on up to 114,190 acres, supporting up to 59,825 AUMs annually. This is a continuation of the potential levels of permitted use in vegetation management areas and has no impact to livestock grazing operations or opportunities.

Grazing on 170,052 acres would remain at levels and under conditions to meet rangeland health standards. This would result in a continuance of the good rangeland health conditions found in these areas and would not impact livestock grazing operations or opportunities.

Grazing, on 55,862 acres under Section 15 grazing allotments is expected to occur in 8 out of 10 years as resource conditions allow, under the specific livestock management guidelines identified in Appendix U that meet objectives for healthy, sustainable, biologically diverse ecosystems that contribute goods, services and other social and cultural needs for local communities and the region. These are established grazing areas with stable objectives and the amount of grazing out of ten years is expected based upon the natural fluctuations of annual rangelands within the region. These guidelines or terms and conditions have minor impacts to livestock grazing operations or opportunities.

Although not all of the facilities described below exist to support livestock grazing, they are mentioned here for ease of summarizing the topic. BLM, in conjunction with cooperators, would expect to maintain the approximately 500 miles of existing fence within and along the boundary, the approximately 90 miles of existing underground water pipelines, the approximately 200 existing water troughs, and the approximately 150 existing water tanks within the Monument. Under this alternative, a small percentage of each would be removed or modified. An even smaller percentage of new features would be created under this alternative. Impacts to livestock operations are expected to continue to be minor. BLM requirements as to how, when, and at whose cost these facilities are maintained or modified continues to impact the daily logistics, continuity and cost benefit ratio of affected livestock operations.

4.13.9.2 Impacts to Livestock Grazing from Implementing Other Programs

Wildlife

Section 15 Allotments. Livestock grazing on Section 15 allotments is expected to continue at levels and under conditions and processes which allow stability of livestock operations over time under the specific livestock management guidelines identified in Appendix U applied to meet wildlife management objectives. (*Applicable guidelines: Dec-May season and utilization limits (20 percent max) or form class applied in saltbush scrub. Annual mulch of 500 lbs/acre or 700 lbs/acre with 2 inches green growth and 500 lbs/acre minimum, applied to meet species standard for rangeland health.*) Under these guidelines it is estimated that grazing would occur 8 years out of 10 based upon anticipated rainfall and the associated vegetation response. Any effects to current livestock operations or opportunities from wildlife management actions under the No Action Alternative are expected to be minor.

Vegetation Management Areas. No grazing would occur on 49,136 acres (all unavailable pastures plus those repeatedly ungrazed) within areas available for vegetation management under the guidelines established in the latest (2005) pasture matrix. Varying levels and locations of livestock grazing on 98,354 acres (all available pastures minus those repeatedly ungrazed) within vegetation management areas are expected to occur approximately 5 years out of 10 under the guidelines established in the latest (2005) pasture matrix (Appendix M) applied to meet wildlife objectives. *(Applicable guidelines: Annual mulch of 500 lbs/acre or 700 lbs/acre with 2 inches green growth and 500 lbs/acre minimum applied to meet wildlife habitat objectives. Pronghorn vegetation limits and season of use in certain pastures. Maintain grazing levels on fairy shrimp locations. Utilization limits (20 percent max.) applied on key perennials or form class.)* The extreme variability in resource conditions and the evolving status of knowledge of wildlife locations and wildlife habitat needs continues to reduce the opportunities for livestock grazing and the stability of livestock operations within vegetation management areas under the No Action Alternative.

Soils

Section 15 Allotments. Livestock grazing on Section 15 allotments is expected to continue at levels and under conditions and processes that allow stability of livestock operations over time under the specific livestock management guidelines identified in Appendix U applied to meet soils management objectives. *(Applicable guidelines: Annual mulch of 500 lbs/acre or 700 lbs/acre with 2 inches green growth and 500 lbs/acre minimum applied to meet soils standard for rangeland health.)* Under these guidelines it is estimated that grazing would occur 8 years out of 10 based upon anticipated rainfall and the associated vegetation response. Any effects to current livestock operations or opportunities from soils management actions under the No Action Alternative are expected to be minor.

Vegetation Management Areas. Actions to implement soils objectives within vegetation management areas under the No Action Alternative are expected to have negligible or no impacts to livestock grazing operations or opportunities.

Vegetation

Section 15 Allotments. Livestock grazing on Section 15 allotments is expected to continue at levels and under conditions and processes which allow stability of livestock operations over time under the specific livestock management guidelines identified in Appendix U applied to meet vegetation objectives. *(Applicable guidelines: Annual mulch of 500 lbs/acre or 700 lbs/acre with 2 inches green growth and 500 lbs/acre minimum applied to meet species standard for rangeland health. Utilization limits (50 percent max) on key perennials).* Under these guidelines, it is estimated that grazing would occur 8 years out of 10 based upon anticipated rainfall and the associated vegetation response. Any effects to current livestock operations or opportunities from vegetation management actions under the No Action Alternative are expected to be minor.

Vegetation Management Areas. No grazing would occur on 49,136 acres (all unavailable pastures plus those repeatedly ungrazed) within areas available for vegetation management under the guidelines established in the latest (2005) pasture matrix. Varying levels and locations of livestock grazing on approximately 98,354 acres (pastures available minus those repeatedly ungrazed) within vegetation management areas are expected to occur approximately 5 years out of 10 under the guidelines established in the latest (2005) pasture matrix (Appendix M) applied to meet vegetation objectives. *(Applicable guidelines: Annual mulch of 1,000 lbs/acre or 1,200lbs/acres with 2 inches green growth and 1,000 lbs/acre minimum applied to meet objectives for Poa, annual flora composition guidelines (no grazing if 60 percent native annuals), bunchgrass season of use (off March 31 for Poa)).* The extreme variability in

resource conditions and the evolving status of our knowledge of plant species locations and population and community needs continues to reduce the opportunities for livestock grazing and the stability of livestock operations within vegetation management areas under the No Action Alternative by placing multiple and overlapping restrictions on pasture use.

Fire and Fuels Management

Wildland fire suppression or prescribed burning under this alternative imposes limited impacts to logistics of current livestock operations or opportunities. Certain pastures or portions of the allotments may become unusable for short durations, but usually on a small enough scale so that impacts to livestock management activity would be minor and localized. Over time, as burn areas potentially become more frequent or larger, logistical and operational impacts to livestock management efforts will become greater, although they should remain at moderate levels over the life of the plan.

WSA/Other Lands with Wilderness Characteristics

The current Caliente Mountain WSA covers a portion of two Section 15 grazing allotments. Maintaining this current designation provides low potential for future development of new or modified grazing infrastructure if needed for livestock management within those areas of the allotments. Maintenance of existing facilities can be restricted by minor to moderate amounts, although the Interim Management Policy For Lands Under Wilderness Review (BLM 1995) allows for access as necessary. Opportunities for future changes to livestock grazing management practices are also limited by access and development restrictions. Overall, actions to implement objectives for WSA/Other Lands with Wilderness Characteristics continue to provide a minor impact to livestock grazing operations and opportunities.

Travel Management

Open and limited access routes should provide adequate access to existing grazing infrastructure so as to cause only minor impacts to livestock grazing operations or opportunities in both Section 15 and vegetation management grazing allotments.

4.13.9.3 Conclusion

Overall, the No Action Alternative continues minor impacts to livestock grazing operations and opportunities within Section 15 allotments. Vegetation management operations continue to see increasing limitations placed upon their grazing use and they incur more moderate impacts to individual operations and overall opportunities under this alternative. Further impacts to livestock grazing in the region are described in Section 4.18, Impacts to Social and Economic Conditions.

4.13.10 Cumulative Impacts

4.13.10.1 Assessment Area

The assessment area for livestock grazing is Kern and San Luis Obispo Counties.

4.13.10.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area

Agricultural Statistics Service data for livestock inventories show that cattle inventories have decreased by 36 percent in San Luis Obispo County over the past two decades, from 121,000 head in 1988 to 77,000 head in 2007. The same indicator in Kern County shows inventories fluctuating over that period, with an average increase of 4.40 percent. Data for sheep inventories were available only through 1992; however, the trend for both counties during the four-year data period (1988 to 1992) was downward, with a 27

percent decrease in San Luis Obispo County and an 18 percent decrease in Kern County (USDA 2007). Based on these data, ranching and grazing operations in the region appear to have decreased overall in the two-decade period. Nonetheless, these operations continue to be an important local economic activity in the region and in the CPNM area and are expected to continue to be into the foreseeable future.

Limits on livestock grazing use of public lands continue to increase, making operations that rely on that source of forage less viable.

The warmer and drier conditions associated with climate change are expected to reduce the availability of forage within the assessment area and impact the viability of regional livestock operations.

4.13.10.3 Cumulative Impacts

Although substantial to the individual livestock operations, the elimination of grazing from the Monument in Alternative 1 would result in a minor but continued reduction in acreage available for grazing, primarily in San Luis Obispo County.

Similarly, the other alternatives would continue to keep similar acreage within the Monument available for grazing, but under guidelines for grazing management that make it very unreliable or restricted so as to be difficult or impossible to be considered a viable part of a ranch operation. And although the situation under these alternatives would be a substantial impact to the operations that utilize the Monument resources or to opportunities for future users, it would result in only minor additive affects to the reduction in livestock levels within the county. Overall, the effects on a county or regional basis are expected to be minor. The primary affects (discussed above) would be on the operations that have traditionally used the Monument. Impacts to grazing operations in the area are also discussed under social and economic affects (Section 4.18).

Cumulative contribution to global climate change: Livestock grazing includes the production of greenhouse gas (methane) and would continue at present or reduced levels from present management under each alternative. Alternative 1 would result in the lowest levels of livestock use within the Monument. However, it is assumed that livestock grazing reductions on the Monument would be offset by increases elsewhere in the region, since production is based primarily on public demand.

4.14 Impact Analysis for Recreation (Including Administrative Facilities)

4.14.1 Assumptions Used in the Analysis

In general, it is assumed that recreational use would not increase at the same rate that it did from 2001 to 2007 because hunting opportunities will not likely expand at the same rate, and the novelty of a “new” Monument will level off. Nature and/or heritage-based recreation activities are likely to increase somewhat, based on national trends, expanded interpretive opportunities, and population increases in the region.

Increased travel costs/gas prices will not affect Monument use levels. The area is close to major population centers, and although some visitors may decrease visits to the Monument, others will choose it as a destination over more distant parks and Monuments.

Whether a management action has an impact on the recreation resource, and to what degree, is considered to be subjective based on the preferences of individual visitors. For consistency, it is assumed that an action could affect the recreation resource to a lesser or greater degree if it changes the amount of recreation use, changes the setting or opportunity, or changes the recreation experience for a recreation

activity. For example, closing roads to motorized and mechanized use within the Primitive zone would change the recreation experience, enhancing opportunities for non-motorized activities and decreasing motorized recreational activities within the zone. Whether or not the impact is beneficial or adverse depends on the experience goals and activity preference of the user – so when words such as “enhance” or “detract” are used, they apply to a specific visitor use segment and not all recreation users.

4.14.2 Incomplete information

Monument use estimates are based primarily on anecdotal information and not formal visitor counts. Sources include field observations and visitor registers at the Goodwin Education Center. Estimates of future visitor use are based on past trends, future growth in the regional population, and demand levels for the types of opportunities offered at the Monument. These are general estimates that are sufficient for broad planning purposes.

4.14.3 Programs with No or Negligible Impacts on Recreation

There would be no or negligible impacts to the recreation under all alternatives through implementation of the soils, water, or air quality actions in the RMP.

Table 4.14-1. Monument Visitor Use Levels Projected under Each Alternative

	No Action	Alternative 1	Proposed Plan (Alternative 2)	Alternative 3
Current	87,040 --	87,040 --	87,040 --	87,040 --
2018	106,000 22 percent	96,000 10 percent	103,000 18 percent	109,000 25 percent
2028	124,000 17 percent	103,000 8 percent	118,000 15 percent	131,000 20 percent

4.14.4 Impacts to Recreation Common to All Action Alternatives

4.14.4.1 Impacts to Recreation from Implementing the Recreation Program

All of the action alternatives involve the establishing of “Primitive”, “Backcountry”, and “Frontcountry” RMZs. Management under the physical, social, and managerial parameters of each of these zones will impact the recreation experience. Within each zone, management is consistent between alternatives, with few exceptions that are described in each Alternative. The degree of impact to the recreation resource would change based on the acreage allocated to each zone in the three alternatives. The following descriptions highlight the recreation experiences / impacts that would occur in each zone. The acreage allocated to each zone varies greatly in the alternatives, especially between the Backcountry and Primitive zones, so this would affect the level of impacts.

Primitive Zone

In the Primitive zone, recreational motorized and mechanized use would not be allowed. Recreation access would occur on foot, or on horseback. Management intent is to attain wilderness characteristics that would include freedom of access, primitive and unconfined recreation, and/or opportunity for solitude, and to attain an undeveloped and natural condition. The recreation experience would be similar to that within a wilderness or wilderness study area. Management actions and facilities would be limited to those that protect resources or provide for visitor safety. Development could include trails and signs. The use of motorized or mechanized administrative use would be limited to administrative roads and only when deemed necessary. Use of hand tools for trail improvements/maintenance and restoration would be encouraged. Signs would be rustic in nature. On the landscape within the Primitive zone, there may be evidence of constructed features, such as power lines, roads, fencing, livestock, and buildings. While

present, these features would be relatively low in number compared to the Backcountry and Frontcountry zones.

Vehicle users would be impacted by the amount of open roads that would be closed to motorized use. This restriction would impact hunters more than the other current recreation users because it would occur in the areas primarily used by hunters, and the roads to be closed are accessible primarily by 4-wheel drive, OHV, or bicycle. Vehicle camping would no longer be allowed in this zone and hunters would have to pack in their camping gear. The prohibition of vehicle or bicycle use is estimated to change the experience for hunting, effectively reducing opportunities based on the current use patterns. Motorized recreation opportunities would also decrease. The Primitive zone would also offer a remote, non-motorized / non-mechanized recreation opportunity, both on trails and cross-country. The opportunity for solitude and self-reliance would be high, enhancing the recreation resource for non-motorized / mechanized users seeking a wilderness experience.

Backcountry Zone

In Backcountry zones, motorized and non-motorized uses would be allowed. Road surface would be primarily natural, or gravel, having a “country-road” character. Rustic interpretive and directional signing, potable water, and other improvements could be constructed at recreation sites, trailheads and trails, and at designated dispersed vehicle camping areas (except in Alternative 1). The setting would be primarily an open rural landscape. Other human developments would be of a rural nature, including the presence of power lines, fencing, water troughs, corrals, and roads. Bicycles and all other non-motorized uses would continue to be allowed in this zone. A recreation enhancement fee may be considered. With the exception of overnight vehicle use, this zone would reflect current use opportunities and is estimated to have a negligible effect on the recreation experience. Overnight vehicle use would vary by alternative.

Frontcountry Zone

The Frontcountry zone would include the bulk of recreation and administrative facilities. This is the zone where most of the recreation and interpretive sites, the Goodwin Visitor Center, campgrounds and trail heads, administrative buildings, parking areas, and other types of support facilities would be located. Interpretive facilities and programs would be improved and/or expanded at existing sites and additional sites constructed. Additional development could include potable water, trails, trailheads, campsites, dispersed vehicle camping areas, parking areas, and other developments. Interpretive stops along roads, accompanied by a brochure and/or audio tour would be implemented. Guided tours to Painted Rock and/or El Saucito Ranch would be offered. The Goodwin Education Center would be expanded to increase capacity to provide educational and interpretive opportunities. All recreation uses would be allowable in the Frontcountry zones in all alternatives with the exception of Alternative 1, which would restrict overnight vehicle use to developed campgrounds. There may be other closures in sensitive sites or develop recreation areas. In all alternatives, the Painted Rock exclusion zone would establish the following prohibitions: horses, livestock, dogs, and the discharge of firearms. Painted Rock would be closed from dusk to dawn. The type of recreation experience within this zone would be the same between all three action alternatives, but the number of recreation/interpretive sites would vary between alternatives. Expanding the Goodwin Center would allow an increased capacity for interpretation, education, and research, potentially having a moderate impact (an increase) on recreation use opportunities. A recreation enhancement fee may be considered. There would likely be a minor impact for recreation users that enjoy Painted Rock because of the inconvenience of having to obtain a visitor use permit. Otherwise, there would be negligible impacts to the recreation resource in this zone in all three action alternatives.

Impacts of other objectives and actions common to all alternatives include those described in the following paragraphs.

Providing information about the Monument and current conditions and recreation opportunities would enhance recreation opportunities by informing visitors about the area and ensuring that they are prepared for the conditions they will encounter. Development of a driving/riding interpretive audio tour of the Monument would add information about Monument resources, thereby enhancing the recreation experience and possibly encourage behavior in a way that would have fewer negative resource impacts on the natural environment and cultural resources. This action could also increase the amount of use in the Backcountry zone, potentially having a minor impact on recreationists seeking a more remote experience. Low-impact commercial and organized group activities and events would be allowed and may include guided tours/hikes, trail rides, events, and other activities. Guided tours could reach out to users that would not otherwise visit a particular site or participate in a recreational activity on their own, thereby increasing the amount of recreational use as well as providing an opportunity to learn more about the natural and heritage resources of the Monument. However, the anticipated amount of annual use is estimated to be about 1,000 to 2,000 new visitors/year, having a minor impact on the current numbers of users. Commercial or organized use could displace current recreational use at some of the primary attractions. Monitoring for visitor satisfaction and scheduling commercial use to off-peak times could mitigate most impacts on general recreation users. Events could also be scheduled during off-peak times, or communicated to general recreation users to minimize impact, having a minor effect on recreation use.

Competitive events would not be permitted within the Primitive zone. The impact from this limit would vary by alternative depending on the size of the Primitive zone; however, there is currently one competitive event permitted, and the anticipation of additional events is fairly low and can be mitigated in location, season, day of the week, and timing to avoid adverse resource impacts and recreation conflicts during peak seasons. This action is anticipated to have a negligible impact on the recreation resources.

Development of an education and outreach program that would target motorized recreational visitors to increase awareness of Monument resources and promote responsible behavior would provide resource information and offer ways to recreate responsibly as a motorized user. This would increase the likelihood that more motorized users would be exposed to appropriate behaviors that would protect or enhance resources. This action would likely have a minor impact on the motorized recreation users since it would not change the opportunity, and would protect their access from additional potential closures from resource damage associated with illegal use.

Retrofitting selected recreation/interpretive sites and facilities to meet universal accessibility standards and construction of new sites and facilities to meet universal accessibility standards would improve the quality of the recreation experience for users with disabilities. This would have a minor to moderate impact since most sites and facilities are already accessible. Development of new and maintenance of existing partnerships with community and recreation organizations and in gateway communities would result in a moderate impact on existing and future recreation users, increasing use, and expanding stewardship, volunteerism, and user ethics within the local communities.

Allowing new recreation uses, such as recreational caching, if determined to be compatible with other recreational uses and not in conflict with resource/heritage objectives, would open the Monument up to new recreational user groups. Burying a cache would not be allowed. Above-ground cache activities would be prohibited in heritage and other sensitive sites to limit foot traffic and risk to these sensitive resources. This activity would not likely conflict with existing recreation uses or settings. Use would be estimated at less than 500 visitors/year and result in a negligible impact on the recreation resource. Providing a natural and cultural resource interpretive plan for visitors and the public would result in several actions that inform and educate the public, possibly deter potentially destructive behavior, and

instill a sense of stewardship and commitment to the protection of the Monument. This would likely enhance recreation use since and would probably not impact the current recreational uses or activities.

4.14.4.2 Impacts to Recreation from Other Programs

Lands and Realty

Establishing a right-of-way along the periphery of the Monument and developing 5 to 30 acres in various locations for scientific monitoring, access to private land, and other actions could have a negligible impact on the recreation resource since it is a small amount of development and similar development already exists.

Wildlife

The implementation of management actions to retain and maintain threatened and endangered and sensitive species to the Monument, as well as other actions to enhance or protect wildlife populations could increase recreation users seeking a learning or educational component to their experience, potentially having a moderate impact on numbers and types of recreational users.

Vegetation

Fencing less than 500 acres to protect rare plant populations from grazing or human activity and/or planting 10 to 100 acres with rare plant seeds would have a negligible impact on the recreation resource with no measurable change.

Geology and Paleontology

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

This impact to the recreation resource would be minor. Additional excavations would increase the information on area paleontological and geological resources resulting in additional interpretive opportunities.

Cultural Resources

It is estimated that one-half to one mile of site avoidance would be employed to protect resources sites from impact and estimating to have a negligible impact on recreation. Emergency closure or access restrictions to preserve National Register properties could occur, especially at sites, such as Painted Rock, El Saucito Ranch, and/or on site C06-1 on the KCL Ranch. This could result in an estimated minor impact on recreational use at these popular sites because it would impact a small number of visitors. Issuing restrictions or permits, however, could mitigate some of the impact on these recreation users.

Travel Management

Temporary closures of roads during wet periods and after washouts could have an effect on all recreationists depending on the road locations. Depending on the scale of the road closures, visitors would be precluded from accessing parts of the Monument. However, these impacts would be short-term. Actions to reduce illegal off-road use would have a positive on recreation users, since it could improve the quality of the recreation experience and enhance/protect opportunities for visitors who follow the requirements for no off-road travel established under the Monument Proclamation.

Visual Resources

Retrofitting existing facilities to reduce visual impacts would enhance the recreation experience by reducing the visibility of human intrusions in the Monument.

4.14.5 Impacts to Recreation under the Proposed Plan (Alternative 2)

4.14.5.1 Impacts to Recreation from Implementing the Recreation Program

Use levels are expected to grow to approximately 118,000 visitor days per year under this alternative – use levels would be higher than Alternative 1 and less than Alternative 3. Some management controls (such as permits for Painted Rock, possible elimination of varmint hunting) could be put into place and effect use levels.

Primitive Zone

This zone would include a total of 62,455 acres. This zone has fewer acres and would include fewer road closures than in Alternative 1 and more than in Alternative 3. It would include the development of approximately 5 to 25 miles of trails, primarily due to road closures. In addition, many existing human constructed features, such as roads, fences, buildings, would be removed and restored to a natural state, as indicated in the wilderness section. The changes in acreages and roads would likely have a localized impact to hunters and motorized users that frequent these two specific areas and likely to result in a minor impact on this use. In contrast, the opportunities for non-motorized/non-mechanized recreational uses would be reduced from Alternative 1, but would remain greater than Alternative 3, potentially having a minor impact on these recreation users, particularly in the activities of horseback riding, hiking, and backpacking, as well as those seeking opportunities for solitude or a primitive and unconfined wilderness experience.

Impacts under Alternative 1 (for reference):

This alternative includes the largest acreage in a non-motorized/mechanized zone and has the largest opportunity for non-motorized recreation. This alternative would result in the greatest change in management of the recreation settings on the Monument, therefore having a major overall impact on recreational use, both in numbers of recreation users and allowable uses within this zone. Roads within this zone would be closed to vehicle use (approximately 5 to 35 miles would be converted to trails). The impacts of these actions would be felt primarily by hunters through the loss of vehicle, OHV, or bicycle access and vehicle camping, resulting in a decline in hunting in this alternative. This alternative also provides the greatest amount of non-motorized acreage available for hiking, horseback riding, and backpacking, as well as those seeking opportunities for solitude or a primitive and unconfined wilderness experience.

Impacts under Alternative 3 (for reference):

The WSA (17,984 acres) would be the only acreage in the Primitive zone under this alternative. This allocation would result in no change from current management. It is, however, the smallest amount of acreage in this zone compared to Alternative 1 and 2. Five to 15 miles of trails could be constructed. This Alternative would have a comparatively reduced opportunity for non-motorized, wilderness experiences and would also have a reduced impact on motorized/mechanized users. The impact to the recreation resource would be estimated to be negligible.

Backcountry Zone

This zone would have 165,180 acres. This alternative would allow dispersed vehicle camping and monitor for resource impacts, which could lead to low-amenity, improvements, restrictions, or closures. All improvements would be rustic in nature. Five to 10 trailheads or recreation staging sites as well as 5 to 10 miles of hiking/interpretive trails could be developed. With more motorized recreation opportunity and particularly with allowing dispersed vehicle camping, this alternative would better reflect the current recreational uses, potentially having a minor impact on motorized recreation users due to loss of the roads and the two additional areas in the Primitive zone. Compared to Alternative 1, however, there would likely be a much higher level of participation in hunting and other motorized recreation activities. Impact on non-motorized recreation activities would likely be negligible due to the availability of primitive areas, expansive roadless acreage within this zone, and the availability of overnight camping. When compared to Alternative 1, however, non-motorized opportunities would be reduced in this alternative.

Low-impact competitive events and activities would be allowed with support facilities. Competitive events could not include the release of nonnative or captive-held native species. This would likely have a negligible impact on the recreation resource due to current and anticipated low demand. However, this action could reduce the quality of the experience for current permittees, or displace them to outside of the Monument.

Impacts under Alternative 1 (for reference):

Only in this alternative would overnight vehicle use (that is, vehicle camping) be prohibited within the Backcountry zone along roads. Site improvements and signage would be rustic in nature. This is the smallest amount of acreage provided in this zone in this alternative (about 30,000 less than in the proposed plan [Alternative 2]). In this alternative there would be fewer miles of road compared with the proposed plan. The greatest impact in this alternative would likely be felt by hunters due to the loss of ability to camp with their vehicles. Existing campgrounds within the Monument are not large enough to accommodate the number of hunters during peak seasons. The elimination of dispersed camping areas would likely result in a displacement of a majority of camping to outside of the Monument and could lead to a major displacement of current hunters. It could also result in increased illegal camping. Opportunities for non-motorized recreation use are the greatest in this alternative.

Construction of about three to five interpretive overlooks or sites, three to eight trailheads or recreation staging sites, and/or three to five miles of hiking or interpretive trails would be implemented. This could have a minor impact on recreational day use resulting in a slight increase in use through enhancement of interpretive opportunities.

Competitive events and activities would not be allowed in this zone. This could have a minor impact on the recreation resource due to the low demand for competitive events. This action, however, would displace current permittees.

Frontcountry Zone

This zone would have 19,181 acres and would extend almost the full length of the Monument along Soda Lake Road. This alternative includes more acres and more road miles than in Alternative 1 and fewer than in Alternative 3. There would be an increased opportunity to develop up to 20 overlooks and/or interpretive sites, up to 10 trail heads or recreation staging areas, and/or up to 8 miles of hiking/interpretive trails. Development would consider areas that already have some ground disturbance, and would likely result in less than 50 acres involving new construction in undisturbed areas. New developments and new opportunities for recreationists could improve the overall experience and offer information about new recreation opportunities.

Low-impact competitive events and activities would be allowed with support facilities. Competitive events could not include the release of nonnative or captive-held native species. This would likely have a minor impact on the recreation resource due to low demand. It could reduce the quality of the experience for current permittees, or displace them to outside of the Monument.

This alternative would prohibit campfires within the Painted Rock exclusion zone and allow for approved Native American ceremonial uses of fire. This would have a negligible impact on current recreational use since it would not impact the quality of existing recreation uses and would not reduce recreation use.

All Zones

If enacted, the recommendation to the California Fish and Game Commission to eliminate non-game hunting (varmint hunting) would have a minor to moderate impact on the hunting experience. This type of hunting is usually a secondary activity to the primary game hunting pursuits of Monument hunters, and should not affect the majority of these users.

4.14.5.2 Impacts to Recreation from Other Programs

Lands and Realty

Impacts to the recreation resource would be similar to Alternative 1, except less private land acreage may be acquired, since acquisitions would be targeted to areas with important wildlife or cultural values. This would be a negligible impact.

Impacts under Alternative 1 (for reference):

Attempt to acquire 16,000 to 32,000 acres of land and/or mineral estate. Prohibit construction of new communication sites and remove two existing sites as authorizations expire. The acquisition of land would have a moderate impact in expanding recreation access opportunities.

Wildlife

The majority of actions proposed in this alternative are geared toward enhancing the populations of native wildlife, wildlife habitat, and native plants and reducing the presence of nonnative animals, plants, and artificial structures. These actions would enhance recreation opportunities for those viewing wildlife, for hunters and visitors, and especially for wildflower enthusiasts, since the burning and grazing activities could continue to enhance these viewing opportunities over Alternative 1.

Impacts under Alternative 1 (for reference):

This alternative would allow for natural fluctuations of species including pronghorn, elk, and other wildlife, although actions would be taken if populations drop below certain levels. Many of these species are of viewing interest to recreation visitors. Impacts could be minor to moderate depending on the level of population fluctuations.

Vegetation

Native plant restoration objectives would be 200 to 500 acres per year with seeding and pretreatment by burning, flaming, and/or herbicides. Up to 100 acres would be disturbed to restore the natural flow patterns of water in order to increase native shrub communities, such as saltbush. Nonnative plant removal would increase significantly over Alternative 1 with up to 100 acres of removal per year. These

actions would improve native species composition and extent and would attract plant and wildflower enthusiasts. The impacts would enhance recreation opportunities for these visitors.

Impacts under Alternative 1 (for reference):

The removal of up to 100 acres of nonnative plant species would enhance opportunities for those who are pursuing nature study of the flora of the Monument. However, compared to the proposed plan (Alternative 2) and Alternative 3, the least amount of native plant restoration is proposed.

Minerals

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Possible short- to long-term surface disturbance on private minerals with federal or private surface would be about 23 acres. Possible surface disturbance within existing oil and gas leases in the Russell Ranch Unit could be 6.5 acres. Both areas have potential to see larger amounts of transitory disturbance from geophysical activities but the presence of equipment would likely be only a few days or weeks, so there would be negligible impact from these activities. Reasonable restrictions would apply to minimize adverse impact on Monument resources. The visual impact of this disturbance is discussed in the Visual Resources section. Overall impact of oil and gas development on private mineral estate to the recreation resource could be moderate or major since it would be located on the valley floor, and this is the main area of Monument visitation, and it would change the remote natural, undeveloped setting that many visitors seek when they access the Monument. Impacts from continued development of the Russell Ranch unit would be minor. This area is away from the main public use areas in the Monument and receives minimal visitation.

The impacts from sounds related to oil and gas activities would be minimal to moderate and would mostly be noticeable during drilling and construction activities on private mineral estate (if developed). Analysis would be conducted during site specific proposals pursuant to NEPA requirements, and potential mitigation measures would be developed if required as a result of that analysis.

Geology and Paleontology

Inventory and public education would continue in this alternative at existing interpretative field locations. In addition, up to three additional interpretive sites would be considered. Expansion of the interpretive program at Wallace Creek would be considered in this alternative. Other aspects of interpretation and management would be the same as in Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

Inventory and public education would continue in this alternative; however, visitation to some sites would not be encouraged. Visits to Wallace Creek, public and self-guided tours and other interpretation would continue. Overall, impacts would be negligible.

The small scale of expansion should have a small impact on the type of recreational use and/or numbers of users.

Cultural Resources

In this alternative, Painted Rock would remain open to the public and would allow about 18 guided tours of 25 people/tour per year (about 450 visitors). A permitting system would also be implemented for self-

guided access for about 8 months/year. Supervised group tours would also be allowed, resulting in an estimated 400 visitors/year. Implementing these protective measures to this significant archaeological site is estimated at reducing total annual visitation to the site by about 30 percent of current use. In this alternative, Rock Art Historic District, from Painted Rock to Selby Rock, would prohibit livestock grazing, horses, dogs, bicycles, and cache activities (excluding the Selby Road and Caliente Mountain Road) and would protect an estimated 22 prehistoric sites in the Painted Rock Exclusion Zone. An estimated 1.5 miles of fencing may be installed to protect archaeological sites in the Rock Art Historic District for protection from human disturbance. Allowing visitation to Painted Rock with restrictions would result in a similar experience to that currently available even with an estimated 30 percent reduction in total numbers of visitors. Better site protection through restrictions may impose and inconvenience to a small number of recreation users; however, the quality of the experience would increase due to increased protection of the resource. These actions should have a negligible impact on the recreation resource.

A permit would be required to access archaeological site C06-1 on Basalt Hill on KCL Ranch. This action would monitor numbers of visitors and serve as an avenue to provide information that would encourage better protective measures during their visit. This may reduce the numbers of current visitors by about 25 percent; however, current use is low, and it would not change the existing experience drastically, thereby estimating a negligible impact on recreation.

Rock art protection measures would be implemented in this alternative. Measures could include dust abatement on roads and trails, installation of physical barriers and improvement of interpretive information to better inform and manage the ways visitors access these resources. These measures would serve to enhance the recreation experience through better protection, better information, and better visitor facilities. Adding up to eight cultural and natural history interpretive sites would be the same as in Alternative 1, and could result in enhancements to recreation opportunities.

On about six locations, historic machinery and equipment would be removed. This is about half of that proposed in Alternative 1. On about six locations, it would remain and would be open for public visitation. In addition, four to six sites would be relocated to existing areas, such as Traver Ranch and the Goodwin Educational Center for interpretation and educational awareness. These actions would likely have a minor impact on recreation since the character of the historic resource would remain in some locations, while naturalness would be increased in other locations.

In this alternative, the proposal to raze buildings and other facilities within the Primitive zone is estimated at one to three instead of four to five as in Alternative 1. Facilities on four to six National Register ranches and farms would be stabilized, rehabilitated, or restored for public education or administrative use, as compared to three or four as in Alternative 1. In this alternative, additional buildings or structures considered to be ineligible for inclusion to the National Register may also be utilized for public education. Also, interpretive programs and facilities may be utilized, such as signs, kiosks, and/or brochures pertinent to the specific ranches. The proposed plan (Alternative 2) is similar to Alternative 1 in the removal of building and facilities in the Primitive zone and in stabilizing National Register farms/ranches having the same impact (negligible) on recreation. Offering an expansion of visitor programs on historic sites through the use of existing and/or re-designed structures and placement of signs would expand existing programming and opportunities.

Travel Management

The number of road miles open for public use in the proposed plan (Alternative 2) would be about 4 percent more than Alternative 1 and about 19 percent less than in Alternative 3. Please see that section for actual road mile descriptions. Unlike Alternative 1, however, this alternative would allow the use of non-

highway licensed vehicles registered through the green or red sticker state OHV program, including off-road motorcycles, four wheelers, and other OHVs. Implementing these two programs would allow near current level recreational motorized use, albeit fewer opportunities than in Alternative 3. The anticipated impact in this alternative to the recreation resource is anticipated to be negligible. The proposal in this alternative to allow only street-licensed vehicles would eliminate the use of all unlicensed OHVs and green and red sticker vehicles. This would impact primarily the hunting community, since use of these types of vehicles is primarily associated with hunting. However, hunters would still be able to use street licensed four-wheel drive vehicles to access the road system. This would partially offset the impacts. The Bakersfield RMP, currently under development, is proposing to provide opportunities for OHV use (including green and red sticker vehicles) immediately north of the CPNM. This will serve to provide riding opportunities in similar terrain adjoining the Monument, additionally offsetting impacts.

WSA/Other Lands with Wilderness Characteristics

In this alternative, the 17,984-acre WSA would be managed as wilderness, as well as an additional 44,369 acres identified in the Primitive zone. The impacts associated with these actions would be similar to that identified under Recreation within the Primitive zone.

Visual Resources

This alternative would result in impacts similar to Alternative 1 (see below), except less acreage would be managed under VRM Class I criteria, allowing for slightly higher impacts to natural recreation settings.

Impacts under Alternative 1 (for reference):

This alternative includes the most restrictive VRM zones. Recreation opportunities would be enhanced for those seeking settings with the highest level of naturalness.

Livestock Grazing

Grazing would continue at reduced levels resulting with a negligible change in impacts. Those visitors who are seeking a natural experience without the presence of livestock and associated developments (such as fences) would continue to be impacted at present levels.

4.14.6 Impacts to Recreation from Alternative 1

4.14.6.1 Impacts to Recreation from Implementing the Recreation Program

Visitor use levels would increase to approximately 103,000 annually, the lowest among the alternatives. This is based on the limitations within this alternative that would affect current use patterns/users (for example, no Painted Rock visitation, no dispersed camping).

Primitive Zone

This zone would include a total of 80,591 acres (the existing WSA (17,984 acres) plus an additional 62,607 acres). This alternative includes the largest acreage in a non-motorized/mechanized zone and has the largest opportunity for non-motorized recreation. This alternative would result in the greatest change in management of the recreation settings on the Monument, therefore having a major overall impact on recreational use, both in numbers of recreation users and allowable uses within this zone. Roads within this zone would be closed to vehicle use (approximately 5 to 35 miles would be converted to trails). The impacts of these actions would be felt primarily by hunters through the loss of vehicle, OHV, or bicycle access and vehicle camping, resulting in a decline in hunting in this alternative. This alternative also

provides the greatest amount of non-motorized acreage available for hiking, horseback riding, and backpacking, as well as those seeking opportunities for solitude or a primitive and unconfined wilderness experience.

Backcountry Zone

The Backcountry zone would include 150,844 acres in this alternative. Only in this alternative would overnight vehicle use (that is, vehicle camping) be prohibited within the Backcountry zone along roads. Site improvements and signage would be rustic in nature. This is the smallest amount of acreage provided in this zone in this alternative (about 30,000 less than in the proposed plan [Alternative 2]). In this alternative there would be fewer miles of road compared with the proposed plan. The greatest impact in this alternative would likely be felt by hunters due to the loss of ability to camp with their vehicles. Existing campgrounds within the Monument are not large enough to accommodate the number of hunters during peak seasons. The elimination of dispersed camping areas would likely result in a displacement of a majority of camping to outside of the Monument and could lead to a major displacement of current hunters. It could also result in increased illegal camping. Opportunities for non-motorized recreation use are the greatest in this alternative.

Construction of about three to five interpretive overlooks or sites, three to eight trailheads or recreation staging sites, and/or three to five miles of hiking or interpretive trails would be implemented. This could have a minor impact on recreational day use resulting in a slight increase in use through enhancement of interpretive opportunities.

Competitive events and activities would not be allowed in this zone. This could have a minor impact on the recreation resource due to the low demand for competitive events. This action, however, would displace current permittees.

Frontcountry Zone

The acreage within this zone would be 15,382 acres, compared with 19,181 in the proposed plan (Alternative 2) and 28,741 in Alternative 3. This is the zone where most of the recreation developments are provided and highest use occurs. However, improvements (such as interpretive overlooks) would be provided at a lesser scale than in the proposed plan or Alternative 3. Development could include three to eight overlooks and interpretive sites, one to three trailheads or recreational staging areas, and/or one to five miles of hiking/interpretive trail. This zone would include the Goodwin Visitor Center, KCL and Selby campgrounds, and the bulk of existing developed recreation opportunities currently available to the general recreation user. Prohibition of camping in the Backcountry zone would likely result in an overflowing campground occupancy during peak times of the year, especially during hunting season. It could also lead to illegal overnight camping within this zone, along the road and/or at day use sites.

The proposed plan and Alternative 3 propose an expansion of the Frontcountry zone and propose to develop more recreation/interpretive sites. In comparison, Alternative 1 would offer the fewest number of developed recreation/interpretive opportunities compared to the proposed plan or Alternative 3, possibly resulting in the fewest number of day users, resulting in a moderate impact on the recreation resource.

Competitive events and activities would not be allowed in this zone. This could have a minor impact on the recreation resource due to the low demand for competitive events.

4.14.6.2 Impacts to Recreation from Other Programs

Lands and Realty

Attempt to acquire 16,000 to 32,000 acres of land and/or mineral estate. Prohibit construction of new communication sites and remove two existing sites as authorizations expire. The acquisition of land would have a moderate impact in expanding recreation access opportunities.

Fire and Fuels Management

Impacts would be the same as the No Action Alternative.

Wildlife

This alternative would allow for natural fluctuations of species including pronghorn, elk, and other wildlife, although actions would be taken if populations drop below certain levels. Many of these species are of viewing interest to recreation visitors. Impacts could be minor to moderate depending on the level of population fluctuations.

Vegetation

The removal of up to 100 acres of nonnative plant species would enhance opportunities for those who are pursuing nature study of the flora of the Monument. However, compared to the proposed plan (Alternative 2) and Alternative 3, the least amount of native plant restoration is proposed.

Minerals

Impacts would be the same as the No Action Alternative.

Geology and Paleontology

Inventory and public education would continue in this alternative; however, visitation to some sites would not be encouraged. Visits to Wallace Creek, public and self-guided tours and other interpretation would continue. Overall, impacts would be negligible.

Cultural Resources

Painted Rock would be closed to general public access. Painted Rock is a primary attraction and closure is anticipated to affect 3,700 visitors annually. This loss of access to a primary attraction on the Monument would have a major impact for visitors interested in cultural resources. Archaeological site C06-1 on Basalt Hill on KCL Ranch would be closed to public visitation and would impact an unknown number of visitors, including college-age students, geologists, and other interested individuals and groups. This is likely to have a minor impact on recreation as it removes this site from available visitation for a small percentage of interested visitors. About 8 to 10 rock art sites would be allowed to naturally deteriorate, likely to result in the loss of the resource and subsequent loss to the public. This is likely to have a negligible impact on recreation use; however, the loss would result in a loss of an irreplaceable resource and reduce the quality of the experience for many interested visitors and stakeholders.

The proposal to interpret up to eight additional cultural and natural history sites would increase the availability of information about the resources on-site and would result in an increase in quality and/or recreation use.

On at least 12 locations, historic machinery and equipment would be removed. On about eight locations, machinery and equipment would be relocation to two or three sites, such as El Saucito Ranch. Approximately four or five locations would be preserved a historic landscape exhibits. These actions would impact recreation visitors depending on the nature of their interests. For those interested in viewing the cultural landscape, there would be a minor to moderate reduction in opportunities, since the character of the historic resource would remain in some locations. For those who are seeking natural landscapes, the reduction of human impacts would enhance their experience. Within the Primitive zone, buildings and other facilities on four or five ranches and farms would be razed and removed on non-National Register eligible sites. Removal of structures within the Primitive recreation zone would enhance the “wilderness” character of this zone and would likely result in an improved wilderness experience. Facilities on three or four National Register ranches and farms would be stabilized, rehabilitated, or restored for public education/interpretation or for administrative uses, increasing the potential opportunity for increased recreation participation and education, and likely to enhance recreation opportunities.

Travel Management

In Alternative 1, 184 miles of roads would be open to recreation motorized vehicle use. Three miles identified in the Road Designation Table under “Limited” would be open to the public recreation motorized use seasonally. About 185 miles identified under “Mon-motorized, non-mechanized” or “Closed” would not be available for public motorized use. Of these, up to 35 miles may be converted to trail, up to 46 that could be rehabilitated to a natural landscape, and the remaining would be available only for administrative use. The number of miles of roads open to public recreation motorized use in this alternative would be about 4 percent less than in the proposed plan (Alternative 2) and about 19 percent less than in Alternative 3. The number of miles of roads closed to public recreation motorized use in Alternative 1 would be about 6 percent and 40 percent greater than in the proposed plan and Alternative 3, respectively. Alternative 1 would have the fewest number of motorized recreational opportunities than any other alternative, with a slight reduction compared with the proposed plan and a large reduction when compared to Alternative 3.

In addition to changes in the numbers of miles of roads is the proposal in this alternative to allow only street-licensed vehicles in this Alternative. This would eliminate the use of all unlicensed OHVs and green and red sticker vehicles. This would impact primarily the hunting community since use of these types of vehicles is primarily associated with hunting. This restriction combined with the number of miles of road closure would likely result is the largest decrease in motorized recreation use, and particularly hunting, potentially having a major impact on this recreation opportunity.

Allowing only street-licensed vehicles and prohibiting most other OHVs, and closing roads, would also offer the greatest amount of opportunity for non-motorized recreational activities, possibly resulting in an increase in non-motorized recreation uses, potentially having a moderate to major impact on this recreational activity.

WSA/Other Lands with Wilderness Characteristics

In Alternative 1, the proposal is to retain the 17,984-acre WSA and manage the 62,455 additional acres identified in the Primitive Zone so as not to impair their natural character and to remove many human developments, such as fences, some roads, and other structures, except for structures associated with private minerals, in which the federal estate has no control. The impacts associated with these actions would be similar to that identified under Recreation within the Primitive zone.

Visual Resources

This alternative includes the most restrictive VRM zones. Recreation opportunities would be enhanced for those seeking settings with the highest level of naturalness.

Livestock Grazing

Grazing would not be permitted under this alternative and the developments associated with livestock grazing removed. This would improve the natural appearance of the area and enhance the setting for visitors who are seeking a natural experience.

4.14.7 Impact to Recreation under Alternative 3

4.14.7.1 Impacts to Recreation from Implementing the Recreation Management Program

Visitor use levels would increase to approximately 131,000 annually, the highest among the alternatives. This is because Alternative 3 includes fewer limitations on visitor use and more facility enhancements (such as interpretive sites) than the other alternatives. The projected use increase is still expected to be moderate, rising from 87,000 presently to 131,000 during a 20-year period.

Primitive Zone

The WSA (17,984 acres) would be the only acreage in the Primitive zone under this alternative. This allocation would result in no change from current management. It is, however, the smallest amount of acreage in this zone compared to Alternative 1 and 2. Five to 15 miles of trails could be constructed. This Alternative would have a comparatively reduced opportunity for non-motorized, wilderness experiences and would also have a reduced impact on motorized/mechanized users. The impact to the recreation resource would be estimated to be negligible.

Backcountry

This zone would have 200,091 acres, the largest amount of acreage when compared to the other two alternatives. As in the proposed plan (Alternative 2), it would allow dispersed camping with monitoring for resource impacts and include possible rustic improvement or restrictions. Five to 15 trailheads or recreation staging site as well as 5 to 20 interpretive sites and/or 8 to 15 miles of hiking/interpretive trails could be developed. This would be about a 30 percent increase when compared to the proposed plan. Of the three action alternatives, this alternative would place the most recreational facilities within this zone and could facilitate a higher quality experience for visitors who prefer basic amenities such as overlooks and trailhead facilities. The amount of change from current use, however, would also be the lowest of the three alternatives and would likely result in a negligible impact to the recreation resource.

Competitive events would not change from the current level, having a negligible impact on recreation.

Frontcountry Zone

This zone would include 28,741 acres (the largest of the action alternatives) and extend the full length of Soda Lake Road and loop around the Elkhorn Road. About 15 to 25 interpretive, 8 to 15 trail head and/or recreation staging sites, and/or 3 to 10 miles of hiking/interpretive trail could be developed (about 30 percent more development than in the proposed plan [Alternative 2]). New developments and new opportunities for recreationists could improve the overall experience and offer information about new recreation opportunities, with an estimated moderate impact on current recreation use.

Competitive events would not change from the current level, having a negligible impact on recreation. Recreation use within the Painted Rock exclusion zone would be the same as currently allowed having a negligible impact on recreation.

4.14.7.2 Impacts on Recreation from Other Programs

Lands and Realty

Impacts would be the same as the proposed plan (Alternative 2).

Fire and Fuels Management

Impacts would be the same as the No Action Alternative.

Wildlife

Impacts would be the same as the proposed plan (Alternative 2).

Vegetation

This alternative is the same as the proposed plan (Alternative 2).

Minerals

Impacts would be the same as the No Action Alternative.

Geology and Paleontology

This alternative is the same as the proposed plan (Alternative 2).

Cultural Resources

This alternative would provide seven more annual tours than the proposed plan (Alternative 2), but self-guided permits would not be issued. This would result in a reduced total visitor estimate of about 700, compared with the proposed plan, and a 30 percent reduction from current visitation. Proposed management for archaeological resources at risk, rock art protection measures, and proposals for ranching and farming machinery are the same as in the proposed plan. Two to four additional locations would be considered for educational purposes, in addition to Painted Rock, Wallace Creek, El Saucito Ranch, and Selby Ranch. Facilities on four to ten National Register ranches and farms would be stabilized in a state of arrested decay rather than rehabilitated and utilized. In addition, El Saucito, Washburn, KCL, and Selby, as well as other historic sites, would be stabilized rather than restored or rehabilitated. Additional buildings or structures would not be saved and possibly used for public education. The stabilization of sites rather than rehabilitation is the largest difference between this alternative and the proposed plan. The actions proposed in this alternative are likely most similar to the existing condition when compared to the other action alternatives and should result in a negligible impact on recreation.

Travel Management

This alternative would include the largest number of miles of roads available for public motorized use with about 25 percent more than in Alternative 1 and 19 percent more than in the proposed plan (Alternative 2). This allocation would have the least impact on recreation when compared with current

use (10 miles of roads closed). The impacts to existing use would be negligible since none of the closed roads access major attractions/recreation opportunities.

WSA/Other Lands with Wilderness Characteristics

There would be no impact.

Visual Resources

This alternative would result in impacts similar to Alternative 1 and the proposed plan (Alternative 2), except less acreage would be managed under VRM Class I criteria, allowing for slightly higher impacts to natural recreation settings.

Livestock Grazing

This is the same as the proposed plan (Alternative 2).

4.14.8 Impacts to Recreation under the No Action Alternative

4.14.8.1 Impacts to Recreation from the Recreation Management Program

There would be no RMZs in this alternative. Recreational opportunities would be similar to those currently offered. Acres and road miles and trails would be managed in a similar manner to that proposed in Alternative 3. Use levels are expected to grow to approximately 124,000 visitor days per year under this alternative – use levels would be higher than Alternative 1 and the proposed plan (Alternative 2) because management controls (such as permits for Painted Rock) would not be put into effect.

4.14.8.2 Impacts to Recreation from Other Programs

Lands and Realty

Lands would continue to be acquired from willing sellers within the Monument boundary. This would increase the acreage available for public recreation access within the Monument.

Fire and Fuels Management

The effects of wildfire in the National Monument would be the same under all alternatives. Impacts of wildfire to the recreation resource during, and immediately after a wildfire could be moderate to major in the short term, depending on the amount of time of public closure of areas. Due to the fuel types in Carrizo, long-term fire events with associated long-term public use closures are not expected. Also, these are emergency actions and are outside the scope of the plan. In the long term, wildfire is estimated to have a negligible impact on recreation since it would not change the recreation use. Prescribed burning in this alternative, as well as the proposed plan (Alternative 2) and Alternative 3 would have negligible impacts to recreation use. Some short-term closures of public use areas would occur, but efforts would be made to mitigate any impacts to the public (such as avoiding weekends, peak use periods)

Climate/Climate Change

Climate change models indicate that the planning area will become warmer and drier over the life of the RMP. This could impact recreation use by reducing the frequency and intensity of spring wildflower blooms and changing the use/populations of wildlife species that are major attractions for recreation

visitors. The peak public use period is already primarily in the winter-spring months, but could be shortened by higher temperatures.

Wildlife

All actions would reflect current management and continue to restore and improve wildlife habitat. This would enhance wildlife viewing opportunities and otherwise have a negligible impact on recreation.

Vegetation

Actions implemented in this alternative would increase the health and nativeness of vegetation, but otherwise have a negligible impact on the recreation resource.

Minerals

Possible short- to long-term surface disturbance on private minerals with federal or private surface would be about 23 acres. Possible surface disturbance within existing oil and gas leases in the Russell Ranch Unit could be 6.5 acres. Both areas have potential to see larger amounts of transitory disturbance from geophysical activities but the presence of equipment would likely be only a few days or weeks, so there would be negligible impact from these activities. Reasonable restrictions would apply to minimize adverse impact on Monument resources. The visual impact of this disturbance is discussed in the Visual Resources section. Overall impact of oil and gas development on private mineral estate to the recreation resource could be moderate or major since it would be located on the valley floor, and this is the main area of Monument visitation, and it would change the remote natural, undeveloped setting that many visitors seek when they access the Monument. Impacts from continued development of the Russell Ranch unit would be minor. This area is away from the main public use areas in the Monument and receives minimal visitation.

The impacts from sounds related to oil and gas activities would be minimal to moderate and would mostly be noticeable during drilling and construction activities on private mineral estate (if developed). Analysis would be conducted during site specific proposals pursuant to NEPA requirements, and potential mitigation measures would be developed if required as a result of that analysis.

Geology and Paleontology

This impact to the recreation resource would be minor. Additional excavations would increase the information on area paleontological and geological resources resulting in additional interpretive opportunities.

Cultural Resources

This alternative would represent current management and continue current levels of use at Painted Rock at approximately 3,700. Guide tours would continue as well as self-guided access and group tours with less than 20 individuals. Unrestricted access would continue at site C06-1. Public education would continue. Allowing increased use at Painted Rock and other cultural resource sites could eventually reduce the quality of the recreation experience, potentially having a minor impact on the recreation resource.

Travel Management

The transportation system road mileage and maintenance levels would remain the same having a negligible impact on the recreation resource.

WSA/Other Lands with Wilderness Characteristics

In this alternative, the 17984-acre Caliente Mountain WSA would be the only area managed for wilderness characteristics. This would have a negligible impact on the recreation resource since it would incur no change in current use/management.

Visual Resources

This alternative includes the least restrictive VRM management zones of the alternatives and would allow for developments that create moderate contrasts with the characteristic landscape. Recreation opportunities could be impacted at moderate levels for those seeking settings with the highest level of naturalness.

Livestock Grazing

Grazing would continue at present levels resulting with no increase in impacts. Those visitors who are seeking a natural experience without the presence of livestock and associated developments (such as fences) would continue to be impacted at present levels.

4.14.9 Cumulative Impacts

4.14.9.1 Assessment Area

The assessment area for cumulative recreation impacts includes inland San Luis Obispo and inland Santa Barbara County, and Western Kern County. Within this region, the 1.75-million-acre Los Padres National Forest is the largest recreation provider. Although the National Forest has different settings than the National Monument, opportunities are available for similar dispersed activities. BLM also manages lands outside the Carrizo within the assessment area. Finally, CDFG manages the Chimineas and American Ranch areas.

4.14.9.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area and Cumulative Impacts

There are no known actions within the assessment area that would have major cumulative impacts to the recreation opportunities within the region. Due to high fire incidence in recent years, the Forest Service has closed parts of the Los Padres National Forest for public safety purposes. These closures have resulted in displacement of visitors, and been temporary in nature. CDFG is completing management plans for the Chimineas and American ranches. Public access to these areas is currently limited, so the plan outcomes will not affect recreation opportunities – although increased opportunities for hunting and wildlife viewing could result from plan implementation. The Bakersfield RMP currently being written will direct the management of recreation on BLM lands outside of the National Monument. This plan will consider the provision of opportunities that are not available within the Monument, such as OHV use. However, due to the presence of sensitive species habitat, this plan could result in some additional areas being limited or closed to access.

The population of the region is expected to increase, resulting in corresponding increases in demand for outdoor recreation opportunities. However, the nature of the Monument and surrounding areas is such that

a corresponding increase in demand for use of the lands is not expected – visitors pursuing many “traditional” recreation activities will continue to access the coast and Sierra Nevada, while a narrower group of visitors will be attracted to the natural and cultural features of the inland coast range.

Cumulative Contributions to Global Climate Change: Each alternative provides for management activities that are anticipated to attract continued visitation to the Monument for motorized and non-motorized recreation activities. This access would result in increased greenhouse gas emissions as Monument visitation increases. Increases would be expected to be the highest under Alternative 3 and lowest under Alternative 1. However, visitor use levels are based on multiple factors, including travel cost, opportunities for substitute activities and locations, demand for specific settings and benefits, and other factors. As an example, increases could be attributable to Southern California visitors accessing the Monument as a substitute for more distant destinations to reduce fuel consumption.

BLM would continue to convert remaining administrative facilities to alternative renewable energy sources, and improving mileage of vehicles based on national fleet management policies (outside the scope of this RMP), resulting in a net reduction of greenhouse gas emissions from facility management activities.

4.15 Impact Analysis for Travel Management

4.15.1 Introduction

The transportation system is managed to support various resource management goals such as access for recreation visitors, permittees, right-of-way holders, and for agency resource management projects. Because of the administrative/support nature of the program, impacts must be considered in relation to the transportation system itself, but also on the various users of the system who can be affected by reduction and changes in the road network, and constraints on the use of the network. The impacts to the various users of the network receive limited discussion in this section and are described in more detail under impacts from transportation on the respective resources/programs (such as recreation, grazing).

4.15.2 Assumptions Used for the Analysis

Any discretionary management actions proposed in the alternatives would involve the use of existing roads (with possible minor re-routes and short spurs) and not involve construction of extensive new routes. New roads would only be constructed to provide for access for valid existing rights (for example, private land inholders, private mineral estate, and existing mineral leases).

Any new rights-of-way would be issued with requirements for maintenance of associated roads, resulting in negligible impacts to the transportation system.

4.15.3 Incomplete Information

A route-specific maintenance level plan has not been completed. Road maintenance levels discussed in the RMP are for general planning purposes.

Traffic volume data is not available for county roads or BLM roads accessing the Monument. However, all of these routes receive relatively low vehicle use and are not expected to have capacity issues over the life of the RMP.

4.15.4 Programs with No Impacts to Travel Management

Geology/paleontology, biological resources, and livestock grazing programs would have no impacts to travel management under any alternatives. Best management practices would be employed in all alternatives to protect water resources, resulting in no or negligible impacts to travel management.

4.15.5 Impacts to Travel Management Common to All Action Alternatives

4.15.5.1 Impacts on Travel Management from Implementing the Travel Management Program

The development of a comprehensive travel information program that includes signing, brochures, and web based information on route conditions and vehicle limitations would reduce impacts to the transportation system. Wet-period closures would reduce route damage from rutting. Painted Rock Road will be closed during the seasonal Painted Rock closure (3/1 to 7/15) as well as several times a year due to rain. Other routes such as Caliente Ridge Road could also be closed due to weather but not as often as Painted Rock Road. These closures could have a negligible to minor impact on use of the travel network depending on the amount of rain the Monument received in a year. In an average year, the road to Painted Rock could be closed from 10 to 20 days and Caliente Ridge Road would only be closed when traveling on it would be extremely dangerous (possibly 1 time a year).

4.15.5.2 Impacts to Travel Management from Implementing Other Programs

Air Quality

The minimization of dust emissions on routes would cause minor to moderate impacts to the travel management program. The nature of the unimproved route network in the Monument is such that dust is generated during much of the year from the majority of the routes.

Recreation

The implementation of a sign plan would benefit the transportation network as the increase of directional signage would focus vehicles on routes that are designed for their use. The development of multiple driving tours within the Monument would increase use of certain routes resulting in a minor to moderate impact to the maintenance or the travel network.

4.15.6 Impacts to Travel Management under the Proposed Plan (Alternative 2)

4.15.6.1 Impacts to Travel Management from Implementing the Travel Management Program

Table 4.15-1. Road and Area Designations, Proposed Plan (Alternative 2)

Road Designations		Area Designations	
Motorized	184 miles	Open	0 acres
Non-motorized	113 miles	Limited	184,361 acres
Non-mechanized	24 miles	Closed	62,455 acres
Closed roads	42 miles		
Pedestrian	2.3 miles		
Authorized use	5 miles		

This alternative includes more miles of motorized routes, more miles of non-motorized routes, and less closed roads as compared to Alternative 1 (see below). The increase in non-motorized mileage could have a minor to moderate impact to the travel network because there would be fewer miles open to motorized

use. Most of the Frontcountry roads would be maintained at a level 3 with BLM working with the county to maintain the paved portion of Soda Lake as a level 4 road.

Impacts under Alternative 1 (for reference):

Alternative 1 includes the least number of motorized routes of the alternatives. The miles of closed roads are primarily due to the allocation very large Primitive RMZ. The mileage reduction of the route network will have minor to moderate impacts on the transportation system. Road maintenance needs would be reduced only slightly, as most of the closed routes already receive minimal maintenance. The reduced travel network would also make vehicle access more difficult in certain areas of the Monument. Impacts of this are discussed in each resource program. Alternative 1 would only allow street legal vehicles on the BLM road network. This would reduce use of the route network and cause less wear and tear on the routes.

4.15.6.2 Impacts to Travel Management from Implementing Other Programs

Fire and Fuels Management

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

Prescribed burning and wildfire suppression would have a minor impact on travel management as control lines and tracks from fire equipment may encourage vehicle users to travel off of the existing route network. Proper signing, enforcement, and rehabilitation would minimize this impact.

Air Quality

The use of aggregate, gravel base, or a chemical binder on high use roads especially around rock art sites would cause a moderate impact to the transportation network. Maintenance costs would increase, but the quality of the travel routes would also be improved for users.

Cultural Resources

See Impacts Common to All Action Alternatives.

WSA/Other Lands with Wilderness Characteristics

Impacts would be the same as Alternative 1, as described below, except that less acreage/road mileage would be affected.

Impacts under Alternative 1 (for reference):

There may be authorized motorized use on routes in areas managed for wilderness characteristics. Access to these routes would be restricted to those users who have a demonstrated need that cannot be accommodated by non-mechanized access (for example, hauling in equipment). This would reduce use of these road corridors.

Recreation

The development of 5 to 25 miles of trails could have a moderate impact on the travel network as it would more than double the number of miles of trails in the Monument. Dispersed camping would continue to be allowed along routes. If modifications are made to the dispersed camping areas, there could be an

increase in use of the more developed dispersed camping areas resulting in a minor impact to the routes that lead to the dispersed camping areas.

Minerals

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

The development of up to 0.5 miles of road on existing leases would cause negligible impacts. The temporary disturbance from up to 50 miles of seismic lines associated with exploration on existing leases could encourage unauthorized off-road travel if OHV users follow tracks from ATVs associated with the activity. The Russell Ranch area receives relatively low public use, so this impact would be minor. The development of three miles of road associated with private mineral estate would have a negligible impact on the transportation system as the right-of-way holder would be required to pay for maintenance. Up to 230 miles of off-road travel for seismic line placement could cause minor to major impacts to the transportation network if the temporary OHV tracks encourage unauthorized users to travel off road. The valley floor is a popular public use area, so the temporary tracks would be visible to the public.

Lands and Realty

Impacts would be the same as Alternative 1, as described below, but with less acreage acquired and fewer miles of routes to reassess.

Impacts under Alternative 1 (for reference):

The acquisition of private inholdings could cause a minor to moderate impact by changing the size of the transportation system from routes associated with the private lands. An assessment regarding the designation of the acquired route would be conducted upon acquisition.

4.15.7 Impacts to Travel Management under Alternative 1

4.15.7.1 Impacts to Travel Management from Implementing the Travel Management Program

Table 4.15-2. Road and Area Designations, Alternative 1

Road Designations		Area Designations	
Motorized	184 miles	Open	0 acres
Non-motorized	91 miles	Limited	166,226 acres
Non-mechanized	9 miles	Closed	80,591 acres
Closed roads	80 miles		
Pedestrian	2.3 miles		
Authorized use	5 miles		

Alternative 1 includes the least number of motorized routes of the alternatives. The miles of closed roads are primarily due to the allocation very large Primitive RMZ. The mileage reduction of the road network will have minor to moderate impacts on the transportation system. Road maintenance needs would be reduced only slightly, as most of the closed routes already receive minimal maintenance. The reduced travel network would also make vehicle access more difficult in certain areas of the Monument. Impacts of this are discussed in each resource program. Alternative 1 would only allow street legal vehicles on the BLM road network. This would reduce use of the route network and cause less wear and tear on the routes.

4.15.7.2 Impacts to Travel Management from Implementing Other Programs

Fire and Fuels Management

See Impacts Common to All Action Alternatives.

Air Quality

The seasonal closure of roads without dust suppression additives could cause a major impact through reduction of the travel network during dry periods. Most routes within the Monument generate some level of localized dust, so depending on how the program would be implemented (focus on routes near residences/developed facilities only, or a broader closure), impacts could be moderate to major.

WSA/Other Lands with Wilderness Characteristics

There may be authorized motorized use on routes in areas managed for wilderness characteristics. Access to these routes would be restricted to those users who have a demonstrated need that cannot be accommodated by non-mechanized access (for example, hauling in equipment). This would reduce use of these road corridors.

Recreation

The development of 5 to 35 miles of trails could have a moderate impact on the travel network as it would more than double the number of miles of trails in the Monument. The elimination of dispersed vehicle camping could cause a reduction in use and maintenance needs to the travel network. Additional recreation /educational opportunities (such as interpretive signs, trail heads, overlooks) sites would increase the number of travelers on certain roads

Minerals

Impacts would be the same as the No Action Alternative.

Lands and Realty

The acquisition of private inholdings could cause a minor to moderate impact by changing the size of the transportation system from routes associated with the private lands. An assessment regarding the designation of the acquired route would be conducted upon acquisition.

4.15.8 Impacts to Travel Management under Alternative 3

4.15.8.1 Impacts to Travel Management from Implementing the Travel Management Program

Table 4.15-3. Road and Area Designations, Alternative 3

Road Designations		Area Designation	
Motorized	240 miles	Open	0 acres
Non-motorized	109 miles	Limited	228,832 acres
Non-mechanized	5 miles	Closed	17,984 acres
Closed roads	10 miles		
Pedestrian	2.3 miles		
Authorized use	5 miles		

Alternative 3 would retain the most miles of motorized routes. This would also have the fewest number of routes that will be closed and rehabilitated. This could cause a moderate impact to the travel network because there would be more roads to manage and maintained for motorized vehicles.

4.15.8.2 Impacts to Travel Management from Implementing Other Programs

Air Quality

Paving major travel routes (both BLM routes and working with the county to pave routes under their jurisdiction) and graveling the key secondary routes would change the character of parts of the travel network. Indirect impacts would include increases in vehicle speeds on paved and graded gravel route segments.

Soils

The seasonal closure of all roads when they develop a 2-inch rut could cause a major impact on the travel network during wet periods as it would result in closure on many routes within the Monument.

Cultural Resources

See Impacts Common to all Action Alternatives.

WSA/Other Lands with Wilderness Characteristics

Impacts would be the same as the No Action Alternative (no impacts).

Recreation

Impacts would be the same as the proposed plan (Alternative 2) except 5 to 15 miles of new trail would be developed, resulting in a slightly smaller expansion of the trail system.

Lands and Realty

Impacts would be the same as the proposed plan (Alternative 2).

4.15.9 Impacts on Travel Management under the No Action Alternative

4.15.9.1 Impacts on Travel Management from Implementing the Travel Management Program

The existing road network would continue to be motorized and maintained at the present level resulting in no impacts.

4.15.9.2 Impacts on Travel Management from Other Programs

Fire and Fuels Management

Prescribed burning and wildfire suppression would have a minor impact on travel management as control lines and tracks from fire equipment may encourage vehicle users to travel off of the existing routes network. Proper signing, enforcement, and rehabilitation would minimize this impact.

Air Quality

The air quality program contains objectives to reduce dust emissions from routes using best available management practices. This could result in minor impacts to the methods/timing of route maintenance activities.

Cultural Resources

The rerouting or capping of routes that traverse cultural sites could cause a negligible impact to the transportation network.

WSA/Other Lands with Wilderness Characteristics

No impacts were identified.

Recreation

The impact to the transportation network from the No Action Alternative would be minor, resulting from increased use of area roads over the life of the plan.

Lands and Realty

Acquisitions could increase the road mileage in the transportation system.

Minerals

The development of up to 0.5 miles of road on existing leases would cause negligible impacts. The temporary disturbance from up to 50 miles of seismic lines associated with exploration on existing leases could encourage unauthorized off-road travel if OHV users follow tracks from ATVs associated with the activity. The Russell Ranch area receives relatively low public use, so this impact would be minor. The development of three miles of road associated with private mineral estate would have a negligible impact on the transportation system as the right-of-way holder would be required to pay for maintenance. Up to 230 miles of off-road travel for seismic line placement could cause minor to major impacts to the transportation network if the temporary OHV tracks encourage unauthorized users to travel off road. The valley floor is a popular public use area, so the temporary tracks would be visible to the public.

4.15.10 Cumulative Impacts

4.15.10.1 Assessment Area

The assessment area includes the planning area and state highway corridors that provide access (State Highways 58 and 166).

4.15.10.2 Past, Present, and Reasonably Foreseeable Future Uses and Cumulative Impacts

California State Highway 58 serves as the primary access route into the northern part of the Monument and is a two-lane paved road with average daily traffic volume of 1,850 cars (CalTrans District 5 Segment Data Sheet). State Highway 166 is a two-lane paved highway with an average daily traffic of an estimated 2,600 cars (CalTrans District 5 Segment Data Sheet), and provides the primary access into the southern part of the Monument.

Neither of these highways is near their peak traffic capacity. Highway 58 has a peak vehicle to capacity ratio of 11 to 17 percent and Highway 166 has a vehicle to capacity ratio of 22 to 42 percent. Neither of these roads is expected to reach their capacity during the life of this plan. The increased uses of the Monument anticipated under the plan alternatives would add minor traffic volume increases to these routes. Also, no off-Monument developments are projected that would result in capacity issues on the BLM or county roads in the assessment area.

Cumulative contributions to global climate change: The contributions to global climate change are expected to be similar among alternatives, as vehicle use in the Monument primarily occurs on county road systems and other main access routes that would remain open under all alternatives. However, carbon emissions would be higher under the no action alternative and lowest under Alternative 1, based on the miles of road accessible to the public.

4.16 Impact Analysis for Minerals

4.16.1 Assumptions Used for the Analysis

- An existing oil and gas lease grants the lessee the “right and privilege to drill for, mine, extract, remove and dispose of all oil and gas deposits” in the leased lands, subject to the terms and conditions incorporated in the lease (BLM Form 3100-11, Lease for Oil and Gas). The Secretary of the Interior has the authority and responsibility to protect the environment within federal oil and gas leases; therefore, restrictions are imposed on the lease terms. Provisions in leases that expressly provide BLM the authority to deny or restrict development, in whole or in part, depend on an opinion provided by the USFWS regarding impacts to endangered or threatened species or to habitats of plants and animals that are listed or proposed for listing. If the USFWS concludes that the development likely would jeopardize the continued existence of any endangered or threatened plant or animal species, then the development may be denied in whole or in part.
- For purposes of this analysis, it is assumed that all of the wells would disturb previously undisturbed habitat.
- The projected minerals impacts are associated with existing federal oil and gas leases, and with privately owned mineral estate underlying federal surface ownership within parts of the Monument. There will be no new federal oil and gas leases within the CPNM (per the Monument Proclamation), and all mineral uses are managed as valid existing rights.
- It is unlikely that there will be any development of private mineral estate other than oil and gas (for example, gypsite, phosphate).
- Existing operations in the Russell Ranch Unit (comprised of multiple federal and private leases) will continue at approximately the same level until the field is eventually depleted and permanently plugged.
- All operations will be conducted in full accordance with all requirements of the Bureau of Land Management and the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources.
- Oil and gas operations on lands where the federal government owns the minerals but not the surface (split estate) will follow strict requirements to ensure that there is no undue harm or degradation to the objects of the Proclamation.
- It is likely that all private oil and gas development will occur on lands where BLM manages the surface (vs. private surface ownership within the Monument). This is based on the premise that most of the lands with potential for oil and gas resources are in areas where BLM owns the surface.

- Although there is a possibility that the private mineral estate will change ownership and be placed in “non-development” status, that scenario was not considered to be a reasonably foreseeable outcome for the purposes of this impact analysis. If acquisition of all or parts of the private mineral estate were to occur, the impacts from private mineral estate exploration and development would be reduced or eliminated accordingly.
- The oil and gas operators within the CPNM will be required to implement and follow best management practices to the maximum extent practicable. For examples of best management practices, see:
http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html.
- The amount of disturbance due to oil and gas development under all of the alternatives is not expected to vary. The existing federal oil and gas operators and private minerals owners have certain “grandfathered” rights that include the right to use as much of the surface land as is reasonably necessary to explore for, develop, and produce the oil and gas from their lease. With private minerals underlying federal surface, the mineral owners have the right to use the federal surface, but BLM maintains the right to specify reasonable restrictions such as timing and location.
- Other minerals: There will not be any non-oil and gas mineral development on federal surface other than a small borrow pit for “emergency / administrative use only” of less than 10 yards per incident (such as road washout).

4.16.2 Incomplete Information

- The total acreage already disturbed due to existing oil and gas operations is unknown. This includes all well pads, roads, and facilities locations. Although a total of 27 miles of existing oil field roads is estimated, the average road widths and state of maintenance are not known. These data are not essential for making a reasonable choice of alternatives, and the cost of obtaining such data would exceed the value of that data.
- The eventual likelihood of private minerals development is unknown. If private minerals are developed, the magnitude of the disturbance and how much would occur on BLM surface vs. private surface is also unknown. To be conservative, the analysis assumes all such development will be on BLM land where BLM would be able to specify surface requirements.
- The potential for developing a borrow pit on federal land for administrative uses such as repairing roads is unknown. If a new pit were to be proposed, it would be subject to *Endangered Species Act*, NEPA, *California Environmental Quality Act*, and/or SHPO requirements, in addition to any local or county ordinances that were applicable.

4.16.3 Impacts on Minerals Common to All Alternatives (Including No Action Alternative)

4.16.3.1 Impacts on Minerals from Implementing the Minerals Program

The following tables show the level of impacts expected under all alternatives. The impacts are broken down into two areas, the valley floor private mineral estate and Russell Ranch Unit (RRU) federal oil and gas unit areas. These potential developments were projected separately based on several differences. The RRU area contains existing producing federal and private oil and gas leases located on the periphery of the Monument. The RRU area is separated topographically from the Carrizo Plain itself. There was already oil field development within this area prior to National Monument designation, and the analysis assumes that this development will continue at a similar level. In contrast, the private mineral estate within the Carrizo Plain itself has not been successfully developed, even though many exploratory wells have been drilled. Also, the existing leases and private mineral estate development are managed under differing legal requirements. However, both areas would be subject to high levels of environmental

analysis, and protective stipulations/conditions of approval would be implemented for any surface disturbing actions.

Valley Floor Area

The valley floor area contains only one small federal oil and gas lease, and that lease is in the process of being relinquished, so any development that occurs would be on private mineral estate. Although the minerals that would be developed are privately owned, BLM owns/manages all or virtually all of the surface in the area. As the surface owner of split estate, BLM is required to recognize the rights of the private mineral owner to “reasonable” access. BLM must allow access, but is also required to protect the objects of the Proclamation. This would be accomplished by requiring compliance with NEPA, the *Endangered Species Act*, and cultural resource protection laws. See Table 4.16-1.

Table 4.16-1. Surface Disturbance – Valley Floor Area

Surface Disturbing Activity	Acres				Total
	Number	Perm	Temp	Transient	
Cross-country seismic lines	230 miles			115	115
Exploration wells, including roads and pipelines	6 wells	6	12		18
Development wells drilled, including roads and pipelines	10 wells	10			10
Tank batteries	2	2			2
<i>Surface Disturbance (acres)</i>		<i>18</i>	<i>12</i>	<i>115</i>	<i>145</i>

There is projected to be a total of up to 18 acres of permanent disturbance (longer than 2 to 3 years), 12 acres of temporary disturbance (less than 2 years), and 115 acres of transient disturbance (such as one or two passes of a vehicle off-road that may be visible until the following season) in the valley floor area. This covers the possibility that there will be a fairly significant amount of geophysical work, several exploratory wells, and a few successful producing wells. This takes into account that there may be a small amount of disturbance from pipelines that cannot be placed within road rights of way. As mentioned previously, if there is a medium to large discovery that requires more than a dozen (approximately) wells for development, it would be beyond the scope of this analysis.

The numbers in Table 4.16-1 were based on the assumptions in Table 4.16-2.

Table 4.16-2. Surface Disturbance – Valley Floor Area Assumptions

Description	Number	Unit Surface Disturbance (acres)	Total Surface Disturbance (acres)
Exploratory wells and pipelines Well pads Roads (1 mile of road per well, 20 feet wide – Assumes no turnouts and cut and fill due to hilly terrain, which would have effectively increased the width)	2-6 wells 2-6 pads 6 roads x 1 mile/road = 6 miles	0.5 acre/well 2.5 acres/road ¹	1-3 (1 perm, 2 temp) 15 (5 perm, 10 temp) (Assumes 4 of the 6 exploratory wells are dry, and therefore disturbance is temporary)
Development wells and pipelines Well pads Roads (20 feet wide, 1,000 feet long) Facilities	5-10 wells 5-10 pads 10 roads x 1,000 feet/road = 2 miles	0.5 acre/well 2.5 acre/mile x 2 miles = 5 acres ¹ (0.5 acre/road) 1 acre/facility	5 (5 perm) 5 (5 perm) 2 (2 perm)
Seismic (2 tracks, each 24" wide) All receiver lines run on foot	230 miles	0.5 acre/mi ²	115 (115 transient)
Total valley floor, private minerals			18 perm, 12 temp, 115 trans

¹ 20 ft wide is approx. 2.5 acres per mile ² 2 x 24 in. wide is approx. 0.5 acres/mile

Russell Ranch Unit Area

The Russell Ranch Unit area straddles the southwestern boundary of the CPNM. Most of the field is outside the CPNM, but a portion is within the CPNM. Most of the field is in the Russell Ranch Unit, a group of federal and non-federal leases that are operated by a single operator. It is an old field, long past its prime production levels, with an average production of less than five barrels of oil per day per well in 2008. See Table 4.16-3.

Table 4.16-3. Surface Disturbance – Russell Ranch Unit Area (Existing Leases)

Surface Disturbing Activity	Number	Acres			
		Perm	Temp	Transient	Total
In-field development wells drilled, including roads and pipelines	5 wells	4			4
Tank batteries	0	0			0
Exploration wells, including roads and pipelines	2 wells	1.25	1.25		1.75
Cross-country seismic lines	50 miles			25	25
Surface Disturbance (acres)		5.25	1.25	25	31.5

This field has been producing oil and gas since the late 1940s. There are approximately 45 wells within the Monument boundary – 15 producing and 30 shut-in. Approximately half of the producing wells are federal. Current federal production within the Monument is approximately 1,200 to 1,500 barrels of oil per month. It is likely that within the next 20 years, many of the wells that are currently shut-in will be plugged and the well pads and other disturbed areas that are no longer needed for production would be

reclaimed. Even though it is quite likely that the amount of area reclaimed will exceed the amount of new disturbance, it was not taken into account when projecting new disturbance.

There is one other producing field within the CPNM, the Morales Canyon field. This field is not expected to undergo any new development within the life of this RMP (20 years). It is possible, but not definite, that the field will be abandoned and reclaimed by then.

Even though there has been no new development in this area for more than a decade, there is still a possibility of minor amounts of infield development, and possibly even a couple of exploratory wells. This new development would be possible because of the sharp increase in oil and gas prices that make geophysical exploration much more economic, and the additional highly refined data can be used to more accurately define likely prospects. There is a projected total of up to 5.25 acres of new permanent disturbance (longer than 2-3 years), 1.25 acres of temporary disturbance (less than 2 years), and 25 acres of transient disturbance (such as one or two passes of a vehicle off-road) in the Russell Ranch Unit area.

The numbers in Table 4.16-3 were based on the assumptions in Table 4.16-4.

Table 4.16-4. Surface Disturbance – Russell Ranch Unit Area (Existing Leases) Assumptions

Description	Number	Unit Surface Disturbance (acres)	Total Surface Disturbance (acres)
Exploratory wells and pipelines Well pads Roads (0.25 miles per well, 25' wide. Assumes turnouts and cut and fill due to hilly terrain, which would effectively increase the width to 25')	1-2 wells 1-2 pads 2 roads x 0.25 mi./road = 0.5 miles	0.5 acre/well 3 acres/mile ¹ x 0.5 miles = 1.5 acres, or 0.75 acre per road	1 (0.5 perm, 0.5 temp) 1.5 (0.75 perm, 0.75 temp) (Assumes 1 of the 2 exploratory wells is dry, and therefore dist. is temporary)
Development wells and pipelines Well pads Roads (25' wide, 500' long) Facilities	2-5 wells 2-5 pads 5 x 500'/road = 0.5 mi. No new facil.	0.5 acre/well 3 acre/mile x 0.5 mile = 1.5 acre, or 0.3 acre/road	2.5 (2.5 perm) 1.5 (1.5 perm)
Seismic (2 tracks, each 24" wide) All receiver lines run on foot	50 miles	0.5 acre/mi	25 (25 transient)
<i>Total Existing Leases RRU Area</i>			<i>5.25 perm, 1.25 temp, 25 trans</i>

¹ 25' wide is approx. 3 acres per mile

² 2 x 24" wide is approx. 0.5 acres per mile

There is projected to be a total of up to 23.25 acres of permanent disturbance (longer than 2 to 3 years), 13.25 acres of temporary disturbance (less than 2 years), and 140 acres of transient disturbance (such as one or two passes of a vehicle off-road) in the entire CPNM. This takes into account that there may be a small amount of disturbance from pipelines that cannot be placed within road rights of way. The vast majority of this disturbance, 140 acres out of a total of 177 acres, is classified as transient. Within several months, or one rainy season, it would be difficult to view the disturbance. See Table 4.16-5.

Table 4.16-5. Overall Reasonably Foreseeable Development for Oil and Gas at CPNM (Combined Total of Federal Leases and Private Mineral Estate)

Surface Disturbing Activity	Number	Acres			Total
		Perm	Temp	Transient	
In-field developmental wells drilled	15 wells	14			14
Tank batteries	2	2			2
Exploration wells, including roads	8 wells	7.25	13.25		20.5
Cross-country seismic lines	280 miles			140	140
Surface Disturbance (acres)		23.25	13.25	140	176.5

Additional protective stipulations and best management practices have been incorporated into the plan to minimize any impacts from exploration and development including:

In order to minimize disturbance, there will be no vibroseis trucks except on existing roads (Alternative 3 allows for off-road use of vibroseis if other means are not feasible. This is expected to be minimal because there are currently no known areas where shot holes would not work). All shot holes will be drilled using small two-track or similar ATVs. If helicopters are used to move the small drilling units, there will be much less transient disturbance, but use of helicopters is not anticipated unless site specific environmental analysis shows that they are necessary to prevent significant impacts.

The wells would potentially be too shallow and too widespread for multiple wells to be drilled from a single pad. However, operators would be encouraged to place multiple wells on single well pads where feasible, and production pipelines would be required to follow existing roads when feasible. All other activities would be required to remain on existing roads and previously disturbed areas to the maximum extent practical. This would minimize the level of additional surface disturbance.

If significant water for steam injection were to be required, it would require either drilling of a water well, numerous trips by water trucks, or construction of a pipeline from sources outside of the Monument. Little is known about the quantity and quality of water that would be available from an onsite well, so it is possible that a well would not be feasible. If a pipeline is needed, it would be required to be laid within the disturbed area of existing roads, thereby creating no additional surface disturbance.

Training for operators regarding CPNM management goals and sensitive resource values would be conducted and best management practices to protect these values would be recommended. This would reduce the potential for inadvertent impacts to CPNM resources from operators who are unfamiliar with the sensitive values of the area.

In conjunction with operators, existing disturbed areas (roads, well pads, and others) would be reviewed and reclamation of those areas determined to be redundant would be required. This would reduce the number of roads and well pads from current levels.

Roads, well pads, and facilities would be designed to impact and fragment the least acreage practicable. New facilities would be designed to maintain natural drainage and runoff patterns, reduce visual impacts, and reduce hazards to wildlife, especially California condors. These design requirements would add additional costs to oil and gas developers, but the overall cost increase would be minor. Fewer roads

would likely result in slightly more travel time in the field for oil and gas operators, but all wells and facilities would still have adequate access.

Best management practices would be followed to the maximum extent practicable. Examples include: (1) place pipelines along roads and consolidate facilities when feasible; (2) select appropriate paint colors to minimize visual impacts and otherwise meet visual resource management goals; and (3) timely interim reclamation - reduction of footprint of operations after initial drilling. Each of these best management practices would likely result in increased cost to the operators, but the overall cost increase would be minor.

Other Minerals (Solids)

A potential site for emergency/administrative sand/gravel extraction (minor amounts, less than 10 yards per incident) for road maintenance or other uses would be identified in all alternatives except Alternative 1. This site is expected to be very small, less than ¼ acre. It would be selected only in an area where there were no objects of the Proclamation that would be negatively affected, in an area where visual and other issues would be minimal. The difference under the various alternatives would be minimal, and whether or not a site is identified, it would have minimal impact for the reasons stated above.

4.16.3.2 Impacts on Minerals from Implementing Other Programs

In general, impacts from other programs on the Minerals program would be minor. There would be no or negligible impacts from fire and fuels management, vegetation management, geology and paleontology, WSA/other lands with wilderness characteristics, recreation, or travel management. The rights granted to the oil and gas operators, whether on federal leases or private mineral estate, are largely non-discretionary. The restrictions imposed by BLM and other regulatory authorities are also largely non-discretionary, and compliance with all applicable laws and regulations is mandatory. The only program area that would have more than minor impacts on mineral development would be the management of biological resources.

The following paragraphs describe the impacts that would be expected under all alternatives.

Wildlife

Compliance with the *Endangered Species Act* and other wildlife related laws and regulations would frequently cause delays, often substantial (more than a year) and could add significant costs to exploration and development (as much as tens or hundreds of thousands of dollars, or even more). Operators could be restricted in where they would be allowed to conduct surface disturbing activities, and potentially could be prohibited altogether if a proposed action resulted in a jeopardy opinion from USFWS. Prohibitions against using vibroseis trucks off-road in geophysical exploration could also result in significant additional cost to the operators.

Air Quality

Operators are highly regulated by the local APCDs, and strict compliance with those regulations is costly, and frequently operations must be delayed or even cancelled if the APCD regulations cannot be followed. However, these regulations are required for all developments by the state, and the RMP management requirements would not add to them (so there would be no RMP impacts).

Soils

Operations must be conducted in a way that minimizes erosion and other types of damage from rain or other running water. This is SOP and the RMP requirements would not impact operations.

Water

The Monument Proclamation requires that BLM protect the surface and groundwater resources within the Monument, subject to valid existing rights. Therefore, surface and groundwater must be protected from new operations. Standard oilfield procedures require that all groundwater is protected by cemented casing, and all surface facility settings (such as tanks, pumps, heater-treaters) are required to have a sufficiently impermeable berm that would contain the fluids in the largest tanks in the event of a catastrophic failure, therefore the requirements of the RMP would not add to the costs of operations. If development of private mineral estate required the drilling of new wells for water extraction, a site specific environmental analysis would need to be conducted to determine if this could be done without impacting Monument water resources. As discussed above, if impacts are anticipated, trucking or piping of water may be required, causing additional cost to operators.

Cultural Resources

All activities must comply with laws to protect cultural and Native American interests. This includes a site specific review at the time the activity is proposed. If an object with cultural value may be affected by a proposed action, the operator must comply with BLM requirements that may include moving or delaying the activity.

Visual Resources

In all alternatives, operators would be required to comply with VRM objectives to the extent possible while still allowing for reasonable development. This may include, but is not limited to, siting, color choice, landscape screening, following natural contours, and other best management practices. Oil developments could occur in VRM Class II zones, and this could require operators to implement substantial mitigating measures to developments to meet VRM classifications.

Livestock Grazing

In general, oil and gas is compatible with livestock grazing. However, oil or gas operators may be required to install fencing around pumping units or other equipment, install cattle guards, or take other protective measures. The cost would be borne either by the operator or the grazing lessee, depending on various factors such as who was authorized to use the land first.

Lands and Realty

Operators frequently have to obtain rights-of-way for certain proposed operations. This may result in a delay in authorization to proceed. Other impacts such as land tenure adjustment may affect operations, but the specifics (such as exchanging or purchasing private mineral estate within the Valley floor) are unknown and highly speculative at this time. Also, any acquisition would include reimbursement at appraised values.

4.16.4 Impacts on Minerals under the Proposed Plan (Alternative 2)

4.16.4.1 Impacts on Minerals from Implementing the Minerals Program

Under this alternative, most of the impacts would be the same as under Alternative 1, as described below:

Impacts under Alternative 1 (for reference):

This alternative results in the quickest reclamation, but also is the most expensive for both operators and BLM, compared to the other alternatives. More BLM inspections would mean that problems would potentially be caught earlier, lessening the chance that they become more substantial. With more BLM (or outside) funding (for example, with matching funds), operators could be encouraged to reclaim or visually improve unsightly facilities sooner than required. For example, uneconomic wells would be plugged sooner, facilities could be upgraded/modified to be less visually obtrusive, and other disturbances would be reclaimed earlier by placing them higher on a company's priority list. If portions of the private mineral estate are acquired, that land would be off limits to any new oilfield disturbance. Whether or not acquiring a portion of the private mineral estate would cause a reduction to the reasonably foreseeable development (RFD), and if so, how much that would be, is difficult to determine. If most or all of the private mineral estate in the valley floor were acquired, the amount of development would be significantly less than projected in the RFD. In addition, if most or all of the private mineral estate is acquired, then any oil and gas reserves within that area will never be developed, resulting in an equivalent amount of additional oil and gas having to be imported from other areas to offset the loss. Ultimately, any oil and gas reserves in the United States that are not produced will result in an equivalent amount being imported from foreign sources. The actual sources of the oil and the ultimate area of end use could not be determined since oil is a world commodity and the amount of reserves being placed "off limits to development" at the CPNM would be relatively insignificant when compared to national and world use.

Onsite inspections by petroleum engineering technicians would potentially be less frequent than under Alternative 1, but would still be more frequent than required under BLM's national guidelines. This would result in more rapid discovery of operations that are out of compliance. Reclamation would be accelerated, but not to the same extent as under Alternative 1. This alternative would be less expensive for operators than Alternative 1, and therefore could result in more voluntary compliance and assistance from operators. This alternative would also be less expensive for BLM to implement. For solid minerals, a potential site for emergency / administrative sand/gravel extraction (minor amounts, less than 10 yards per incident) for road maintenance or other uses would be identified. This site would be a very small open pit, less than ¼ acre. This would result in less cost to BLM than Alternative 1 which requires all materials to come from off site.

4.16.4.2 Impacts on Minerals from Other Programs

Impacts would be the same as under all alternatives; see Section 4.16.3 above.

4.16.5 Impacts on Minerals under Alternative 1

4.16.5.1 Impacts on Minerals from Implementing the Minerals Program

This alternative results in the quickest reclamation, but also is the most expensive for both operators and BLM, compared to the other alternatives. More BLM inspections would mean that problems would potentially be caught earlier, lessening the chance that they become more substantial. With more BLM (or outside) funding (for example, with matching funds), operators could be encouraged to reclaim or visually improve unsightly facilities sooner than required. For example, uneconomic wells would be plugged sooner, facilities could be upgraded/modified to be less visually obtrusive, and other disturbances would be reclaimed earlier by placing them higher on a company's priority list. If portions of the private mineral

estate are acquired, that land would be off limits to any new oilfield disturbance. Whether or not acquiring a portion of the private mineral estate would cause a reduction to the reasonably foreseeable development (RFD), and if so, how much that would be, is difficult to determine. If most or all of the private mineral estate in the valley floor were acquired, the amount of development would be significantly less than projected in the RFD. In addition, if most or all of the private mineral estate is acquired, then any oil and gas reserves within that area will never be developed, resulting in an equivalent amount of additional oil and gas having to be imported from other areas to offset the loss. Ultimately, any oil and gas reserves in the United States that are not produced will result in an equivalent amount being imported from foreign sources. The actual sources of the oil and the ultimate area of end use could not be determined since oil is a world commodity and the amount of reserves being placed “off limits to development” at the CPNM would be relatively insignificant when compared to national and world use.

4.16.5.2 Impacts on Minerals from Other Programs

The impacts would be the same as those under all alternatives; see Section 4.16.3 above.

4.16.6 Impacts on Minerals under Alternative 3

4.16.6.1 Impacts on Minerals from Implementing the Minerals Program

Under Alternative 3, the impacts from existing and new developments would be the greatest, but they would still be subject to standard restrictions and mitigation requirements. Geophysical impacts could be slightly greater because vibroseis trucks would potentially be allowed off-road in some areas (visible tracks, crushing of plants and soil) if the data could not be gathered otherwise. There is a minimal chance of an appreciable impact. This alternative would have the longest timeframe for restoration of disturbed sites of existing operations.

4.16.6.2 Impacts on Minerals from Other Programs

Impacts would be the same as under all alternatives; see Section 4.16.3 above.

4.16.7 Cumulative Impacts

4.16.7.1 Assessment Area

The assessment area is the CPNM and eastern San Luis Obispo/western Kern Counties.

4.16.7.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area

There have been hundreds of wells drilled in the CPNM in the past few decades, along with construction of more than a hundred miles of roads. All of the dry holes have been plugged and reclaimed, and most are no longer visible. Many of the roads have also been reclaimed and are no longer visible. The remaining 27 miles of oilfield roads are in various states of maintenance. The level of present and RFD within the National Monument is a fraction of a percentage point of overall development in the assessment area. Immediately outside the CPNM, lies the largest oilfield in the lower 48 states. It contains tens of thousands of producing wells, with 2,000 or more wells being drilled each year. It is unknown whether the level of drilling will increase or decrease in the region over the life of the RMP. In any event, the level of activity outside of the CPNM will be several orders of magnitude greater than within the CPNM.

4.16.7.3 Cumulative Impacts

Production of oil within the National Monument would add negligible levels to overall production within the region, even if new reserves are developed within the Monument based on the increased value of oil.

Cumulative contribution to global climate change: Oil and gas development and exploration would continue to occur under all alternatives, both on existing leases and potentially on private mineral estate. Continued production would result in additional greenhouse gas emissions, both from lease/private mineral estate management/development activities, and from the use of the oil and gas produced from the wells. This information is provided for background purposes to acknowledge contributions of these activities/uses of planning area lands. However, control of production levels is outside of the discretionary authority of BLM and is not considered to be an impact of this action. BLM's discretion is limited to imposing reasonable restrictions on the use of federal surface and existing lease authorities to ensure that the "objects of the Proclamation" are protected from unnecessary harm or degradation. Therefore, oil and gas management actions proposed under all alternatives are considered to have no cumulative contribution to global climate change.

4.17 Impact Analysis for Lands and Realty

4.17.1 Introduction

Lands and realty actions are implemented to support various resource management goals such as land acquisitions to protect habitat. They also authorize public uses such as rights-of-ways across BLM lands. Because of the administrative/support nature of the program, impacts are not discussed in relation to the realty program itself, but instead to the outcomes of the program including land tenure (ownership) changes, and the opportunities and constraints on those seeking land use authorizations within the Monument. For example, areas defined in the RMP as having restrictions for issuing land use authorizations would limit opportunities for facilities such as utilities and communication sites. In addition, various management prescriptions from other programs could place constraints on BLM's ability to authorize land uses. For example, areas managed for wilderness characteristics would likely have more restrictive stipulations regarding rights-of-ways.

4.17.2 Assumptions Used for the Analysis

The Lands and Realty program would continue to be a support function of other resource programs. Consequently, effects to the program would be based on the goals and objectives of other resource programs.

Land acquisitions will depend upon having willing sellers and available funding.

Population increases in the region will result in related increases in public demand for rights-of-way, communication sites and other land use authorizations on public and private lands in the area.

BLM has limited discretion in restricting certain right-of-way authorizations. For example, the agency must provide reasonable access to private mineral estate, and to private landowners whose lands are surrounded by BLM managed lands.

BLM would manage all land use authorizations, such as rights-of-way, in a way that minimizes impacts on the natural and cultural resources of the Monument, and other public uses.

Site-specific impacts caused by development of facilities in designated corridors or development of communication sites would be assessed in accordance with NEPA using an environmental assessment or

EIS process prior to approval by BLM, and mitigation measures would be required as part of the authorization process.

4.17.3 Incomplete Information

Land use authorizations will depend upon future demand and have been estimated based on past requests and expected trends. The actual number in any given year may vary considerably from the averages presented here.

4.17.4 Programs with No or Negligible Impacts

The following programs will not impact implementation of Lands and Realty actions: Fire and Fuels Management and Livestock Grazing. Rights-of-way authorizations would include standard stipulations to protect cultural resources, biological resources (including threatened and endangered species), livestock grazing improvements, and other public land resource values.

4.17.5 Impacts to Lands and Realty Common to All Action Alternatives

4.17.5.1 Impacts on Lands and Realty from Implementing the Lands and Realty Program

Lands

Under actions common to all alternatives, no lands would be transferred out of federal ownership, per the Monument Proclamation, unless an exchange would further the protective purposes of the Monument. This would protect the existing public resources of the Monument, so there would be no impacts.

Many of the remaining small private parcels within the Monument have title defects. BLM is prohibited from acquiring property with title problems such as unprobated estates, unlocatable partial owners, or community property questions. The use of “friendly condemnation” on parcels with willing sellers but with title problems would eliminate such title problems while still providing the known landowners with a market value payment for their land. The cost for the landowner to cure such title defects through court action is usually greater than the value of the property. Using friendly condemnation would further the purposes of the Monument, while benefiting known landowners who are willing sellers by clearing title and allowing them to be compensated for their property.

Rights-of-Way and Permits

The Monument would be a right-of-way avoidance area, so new right-of-way proponents would have to demonstrate a need for use of Monument lands and in most cases would likely be rejected and need to find alternate off-Monument locations. This may increase the expenses for the project proponents.

Up to five minor right-of-way reservations to BLM may occur for administrative purposes. Less than ten rights-of-way are anticipated for scientific monitoring instruments, weather stations, and similar uses, and for accessing private or state lands. These rights-of-way are expected to result in from 5 to 30 acres to total new disturbance. Approximately ten rights-of-way are expected to be relinquished over the life of the plan. The facilities/surface disturbance (approximately 5 to 30 acres) associated with these rights-of-way would be reclaimed.

Excluding any new utilities in the existing corridor may increase utility or power lines to be authorized along the periphery of the Monument, this may increase expenses to the proponents.

Land use permits, such as filming permits, are expected to range from zero to five per year. Not exceeding forty permits over the life of the plan. All permits would include stipulations that require the permittees to follow terms and conditions so no or negligible impacts would occur on the Monument.

Surveying and monumenting exterior boundary and other boundaries within the Monument may result in less than one acre of disturbance, and would reduce the potential for trespass and associated impacts to Monument resources.

4.17.5.2 Impacts to Lands and Realty from Implementing Other Programs

Land use authorizations would likely be approved with SOPs that maintain values consistent with Monument objectives. In this manner, the authorizations could be constructed, but would be designed or implemented with minimal or moderate impact to the applicant. There may be instances when BLM would not authorize or renew rights-of-way or permits that are not consistent with Monument objectives.

4.17.6 Impacts to Lands and Realty under the Proposed Plan (Alternative 2)

4.17.6.1 Impacts to Lands and Realty from Implementing the Lands and Realty Program

Lands

This alternative would result in the acquisition of less acreage than Alternative 1, but acquired lands would be targeted towards meeting priority habitat protection needs.

Rights-of-Way Permits

No new communication sites would be authorized. Approximately two sites could be modified to allow for additional facilities in accordance with VRM classifications. This would allow for limited expansion/improvement of service to on-Monument locations, and reduced impacts over Alternative 1. There may still be minor impacts since new sites would not be made available.

4.17.6.2 Impacts to Lands and Realty from Implementing Other Programs

Visual Resources

BLM would manage 62,455 acres as VRM Class I, 165,180 as VRM Class II, and 19,181 as VRM Class III. Most rights-of-way and permits for inholder access would be in the VRM Class II areas. This could require modifications/limitations on development, increasing costs to the applicants. New communication facilities would need to meet Class II criteria which could limit location, height, and require other modifications to reduce visual impact.

WSA/Other Lands with Wilderness Characteristics

There are 62,455 acres of land managed as WSA and for wilderness characteristics. BLM would still allow reasonable access, but applicants would need to demonstrate the need for motorized access and additional stipulations for right-of-way or permit issuance may be required. Additional stipulations may include reroute or relocating the access area, this may have minimal to moderate impact to the applicant.

Minerals

Impacts would be the same as the No Action Alternative, as described below:

Impacts under No Action Alternative (for reference):

BLM is required by law to recognize the “valid existing rights” of the private mineral owners that existed prior to the Monument Proclamation. This includes the right to access, explore for, and develop the private mineral estate. BLM also has the right to impose reasonable restrictions on the use of federal surface to ensure that the objects of the Proclamation are protected from unnecessary harm or degradation.

BLM would require that diligent efforts be made to use existing roads, rights-of-way, and to minimize disturbance to Monument resources wherever possible. All pipelines, whether production or for water supply, would be required to be run in road rights-of-way, thereby creating no additional disturbance. Refer to Minerals section for more information on minerals development. These requirements would impact the owners of mineral resources, but would be considered reasonable to prevent unnecessary and undue degradation to the objects of the Monument Proclamation.

4.17.7 Impacts to Lands and Realty under Alternative 1

4.17.7.1 Impacts to Lands and Realty from Implementing the Lands and Realty Program

Lands

Over the life of the plan, BLM would acquire approximately 16,000 to 32,000 acres of land through purchase, exchange, donation, or friendly condemnation. Zero to 40,000 acres of privately owned mineral estate may be acquired from willing sellers. More land within the Monument boundaries would be managed by BLM in the future, reducing the potential and scale for incompatible land uses.

Rights-of-Way and Permits

No new communication sites would be authorized. Approximately two sites would be removed as authorizations expire. Applications for new communication sites would be accommodated where possible on alternative off-Monument public land. However, these alternative locations may not serve the site-specific needs of the proponents to offer service to areas such as California Valley, so could cause moderate to major impacts to services to the local community if alternate sites do not provide adequate coverage.

4.17.7.2 Impacts to Lands and Realty from Implementing Other Programs

SOPs to protect Monument values would be employed. This would result in impacts similar to the No Action Alternative.

Visual Resources

80,591 acres would be managed as VRM Class I, 150,844 as VRM Class II and 17,984 as VRM Class III. Most rights-of-way and permits for inholder access would be in Class II areas. This may require modifications/limitations on development, therefore increasing the costs to the applicant.

WSA/Other Lands with Wilderness Characteristics

There are 80,591 acres in the lands with wilderness characteristics and the Primitive recreation zone. Issuance of rights-of-way or permits for inholder access in this zone would require additional stipulations, but does not preclude issuance. Impacts could include added cost, additional mitigation measures, or denial of the right-of-way if alternatives exist that would not impact the wilderness characteristics area.

Minerals

Impacts would be the same as the No Action Alternative.

4.17.8 Impacts to Lands and Realty under Alternative 3

4.17.8.1 Impacts to Lands and Realty from Implementing the Lands and Realty Program

Lands

This alternative would have the same results as the proposed plan (Alternative 2).

Rights-of-Way and Permits

Up to two new communication sites could be authorized. The existing two sites could be modified for expansion in accordance with VRM classifications. This is the least restrictive of the alternatives and would have negligible impacts on applicants' ability to construct, expand, or modify communication facilities.

4.17.8.2 Impacts to Lands and Realty from Implementing Other Programs

Visual Resources

BLM would manage 17,984 acres as VRM Class I, 200,091 as VRM Class II, and 28,714 as VRM Class III. The impacts are similar to the proposed plan (Alternative 2). Most rights-of-way and permits for inholder access would be in the Class II Zone. This could require modifications/limitations on development, increasing costs to the applicants. New communication sites would need to meet Class II criteria which could limit location, height, and require other modifications to reduce visual impact, therefore increasing the costs to the applicant.

WSA/Other Lands with Wilderness Characteristics

Impacts would be the same as the No Action Alternative.

Minerals

Impacts would be the same as the No Action Alternative.

4.17.9 Impacts on Lands and Realty under the No Action Alternative

4.17.9.1 Impacts on Lands and Realty from Implementation of the Lands and Realty Program

Lands

Under the No Action Alternative, BLM would continue to acquire lands and interests in lands to increase the amount of protected land for objects identified under the Monument Proclamation. Over the life of the plan, BLM could acquire approximately 16,000 to 32,000 acres of land through purchase, exchange, donation, or friendly condemnation. Zero to 40,000 acres of privately owned mineral estate may be acquired from willing sellers.

Land tenure adjustments would focus on acquisition non-federal lands within the Monument and generally would generally be driven by availability of lands. High priority would be given to acquisition of lands with important biological and cultural resources, especially for those resources that currently have limited acreage in public ownership.

In addition, BLM may pursue acquisition of non-federal mineral estate underlying federal surface holdings, which would reduce the need for land use authorizations for surface uses in areas that are not federal minerals. As a result of acquiring the mineral estate, BLM would have management jurisdiction over both surface and subsurface uses, and better meet overall Monument objectives.

Realty (Rights-of-Way and Permits)

BLM would authorize actions that are consistent with the Monument objectives. Up to two new communication sites could be authorized. The existing two sites could be expanded. This would occur based on increased demand for services in California Valley that may require a larger building or addition to a tower.

New applications that are inconsistent with the Monument Proclamation would not be authorized. *Recreation and Public Purposes Act* patent applications, Desert Land Entry, and Indian Allotment applications are considered inconsistent with the objectives and would be rejected. The demand for these authorizations is minimal, so impacts would be negligible.

Land use authorizations for major utility rights-of-way, such as high-voltage transmission lines, would be restricted to current corridors. Other rights-of-way, such as distribution lines to in-holdings, could be granted in the corridors as well; however, BLM would maintain the ability to authorize uses such as these outside the designated corridors.

4.17.9.2 Impacts on Lands and Realty from Implementing Other Programs

Lands

No or negligible impacts to land tenure adjustments would be anticipated under Alternative 1 from any of the other resources or resource uses. The acquisition program would continue to support the goals of these programs

Realty (Rights-of-Way and Permits)

Land use authorizations would likely be approved with best management practices that maintain values consistent with Monument objectives. In this manner, the authorizations could be constructed, but would be designed or implemented with minimal or moderate impact to the applicant. There may be instances when BLM would not authorize or renew rights-of-way or permits that are not consistent with Monument objectives. Based on the demand for these authorizations, impacts are expected to be minimal.

Minerals

BLM is required by law to recognize the “valid existing rights” of the private mineral owners that existed prior to the Monument Proclamation. This includes the right to access, explore for, and develop the private mineral estate. BLM also has the right to impose reasonable restrictions on the use of federal surface to ensure that the objects of the Proclamation are protected from unnecessary harm or degradation.

BLM would require that diligent efforts be made to use existing roads, rights-of-way, and to minimize disturbance to Monument resources wherever possible. All pipelines, whether production or for water supply, would be required to be run in road rights-of-way, thereby creating no additional disturbance. Refer to Minerals section for more information on minerals development. These requirements would

impact the owners of mineral resources, but would be considered reasonable to prevent unnecessary and undue degradation to the objects of the Monument Proclamation.

Visual Resources

Much of the Monument would be managed under VRM Class II, with areas of Class III in the Temblors and Class IV along the CPNM boundary. This would require some design modifications on right-of-way authorizations to minimize visual impacts, but would not preclude any authorizations.

Wilderness Study Area

The Caliente WSA would continue to be managed under BLM's Interim Management Policy for Lands under Wilderness Review (BLM 1995), resulting in no impacts over present conditions.

4.17.10 Cumulative Impacts

4.17.10.1 Assessment Area

The assessment area is Kern and San Luis Obispo Counties.

4.17.10.2 Past, Present, and Reasonably Foreseeable Future Actions within the Assessment Area and Cumulative Impacts

Land Acquisition

Kern County contains 5,229,490 acres, of which 1,078,180 acres or approximately 20 percent are publicly owned. San Luis Obispo County contains 2,122,454 acres, of which 463,433 acres or 22 percent are publicly owned. The vast majority of this land is made up of federal public domain lands, and not acquired from private owners. It is anticipated that up to 32,000 acres of surface estate and 40,000 acres of mineral estate could be acquired and transferred into public ownership within the Monument over the life of this plan. Additional acquisitions of properties for conservation purposes by other agencies and non-profit organizations will occur in the region over the life of the plan. Although acreages of these potential acquisitions are unknown, the cumulative impacts to such factors as county tax revenues, and private land development opportunities is expected to be negligible based on the large proportion of private land within each county. Beneficial cumulative impacts will occur based on the protection of additional open space-wildlife corridors.

Land Use Authorizations

The designation of Carrizo a right-of-way avoidance area and the extinguishing of the utility corridor designation within the Monument will require utilities, communication sites and other developments to seek alternate sites outside the CPNM. Therefore, although the RMP will not affect the number of sites, it would affect their location.

Wind and solar companies have shown a great interest in BLM and private lands in Western Kern County/San Luis Obispo Counties. Specific proposed developments in area include a solar plant in California Valley north of the Monument, and wind energy interest in the Temblor range on private lands within the Monument. Several applications are currently pending with the State of California's Energy Commission. If approved, ancillary facilities may be needed across BLM lands. Even if rights-of-way do not cross the National Monument, it could become increasingly "ringed" by such facilities.

4.18 Impacts to Social and Economic Conditions

4.18.1 Introduction

The overall character of the Monument is greatly influenced by the quality of its resources, and as discussed in Chapter 3, there is a correlation between the management of these resources and their value within the social and economic environment in which the Monument exists. The regional, local, and cultural community uses and benefits from the substantial “resource capital” represented by the Monument.

4.18.2 Assessment Area and Social and Economic Context

The assessment area analyzed in this chapter focuses on the CPNM and the several cities and communities in the surrounding 10-mile radius, discussed in Chapter 3 as the Carrizo Trade Area. It also includes San Luis Obispo and Kern counties, within which the CPNM is located, and Santa Barbara, Ventura counties, which border the CPNM.

The social and economic context of the CPNM includes not only the communities of place listed above, but also the communities of interest, those with the greatest potential to be impacted by management of the Monument and its resources. Communities of interest and primary stakeholders considered herein are Native American peoples, leaseholders, Monument visitors, private land and mineral estates owners, ranchers and farmers, and Monument residents. The social and economic condition of minorities and minority populations, low-income populations and Native American populations in the region and local community were also considered in Chapter 3. Potential social and economic impacts to these groups are considered in this analysis, and are discussed herein where applicable.

As discussed in Chapter 3, potential economic activity in the four counties and trade area surrounding the CPNM encompass non-market values, as well as market and commodity values. Non-market values associated with the CPNM directly and indirectly benefit and positively influence the local and regional economy. Those values considered in Chapter 3 were land and income enhancement values, Monument visitor use patterns, biological, cultural and physical resources, recreational resources, and hunting. Impacts to these sources of economic activity are considered where applicable herein.

Market and commodity values are those that yield direct economic benefits. Chapter 3 discussed the following market and commodity values: land use and development, mineral estates, agriculture (including grazing fees and contributions), and local government revenues, including payments in lieu of taxes (PILT) paid by federal agencies to local governments, and possessory interest tax paid to California counties in which public lands are located; these taxes are based on the value of livestock grazing, mining and other permits and leases.

The impacts discussions that follow recognize the inter-relationships between the resource management and resource use categories, as well as those between the affected region, communities of interest, and economic and social values relevant to the CPNM. Many of the social and economic impacts will overlap with discussions of resources and resource uses considered in detail within their respective discussions (for example, Recreation, Livestock Grazing, Cultural Resources, Minerals) elsewhere in this chapter. Therefore, discussions are limited to the applicable resource category to the greatest extent possible to avoid repetition while still acknowledging the potential for overlapping interests and impacts. Where applicable, this analysis will refer the reader to the appropriate categorical discussions for more information.

The analysis has identified no disproportionate impacts from implementation of any of the plan alternatives on minority or low income populations. Therefore, environmental justice impacts to these populations are not discussed in this analysis.

4.18.3 Assumptions and Incomplete Information

4.18.3.1 Scope of Analysis and Measures of Assessment Area Economic Activity

The scope of this analysis is limited to the social and economic impacts of the respective management resource and use goals, objectives and actions. It is based on a variety of sources, cited and described in Chapter 3, which included existing and, where available, projected, demographic data for population, age, race/ethnicity, household size and income, labor and employment, education levels, and economic conditions within the assessment area. It is also based on Monument-specific data and documentation, as well as resource-specific documentation. These are also cited in Chapter 3. Finally, research conducted for Chapter 3 also referenced social and economic trends nationally, statewide, and regionally.

4.18.3.2 Assumptions

Social and Economic Conditions in the Assessment Area

Based on information established in Chapter 3, the following assumptions are made regarding social and economic trends in the assessment area:

- Based on existing conditions and trends, population will increase steadily over the life of the plan. Individual communities within the assessment area may experience short-term population decreases but are expected to trend upwards over the life of the plan and beyond, based on existing conditions.
- Based on current estimated age of population, the median age within the assessment area is expected to increase over the life of the plan.
- The proportion of the population that is comprised of persons identifying themselves as “white” will continue to predominate. The percentage of persons identifying themselves as “Hispanic or Latino” will continue to grow and will maintain a strong representation in the regional demographic.
- Median household income and per capita incomes will continue to increase steadily, with the most affluent households in Ventura County, followed by Santa Barbara County. Since 2000, the percentage of families below poverty level has remained largely stable, a trend that is expected to continue based on existing conditions. The trend for Kern County has been to exceed the national average based on the years surveyed in Chapter 3, while other counties have remained at or below national averages.

Monument Visitor and Use Patterns

- 1) The RFD for Recreation indicates that of the 87,040 visitors to the CPNM in 2007, about 50 percent are nature or heritage based, approximately 30 to 40 percent are hunters, 5 percent are equestrian and 5 percent are mountain bikers. Data regarding visitors’ place of residence are limited to those who visit the Goodwin Educational Center and signed the visitor’s register. Based on available information, approximately 35 percent were from the Central Coast region of California, and about 18 percent were from Bakersfield and the Central Valley. Therefore, it is conservatively assumed in this analysis that approximately 60 percent of visitors are from either the Central Coast or the Central Valley, and are therefore considered residents of the assessment area.
- 2) For purposes of this analysis, it is assumed that most hunters are primarily interested in big game, and varmint hunting is a secondary activity. It is further assumed that approximately 60 percent of those

who come to the Monument to hunt are from the assessment area, and 40 percent visit the region from elsewhere.

- 3) It is assumed that visitors to the Monument for the purpose of scientific research will steadily increase over the life of the plan. (Also see Incomplete Information.)

Other

The distribution of BLM expenditures in surrounding communities has been estimated at approximately 50 percent to San Luis Obispo County and 50 percent to Kern County, and their associated cities and communities. These expenditures are modest and are expected to continue in future years.

4.18.3.3 Incomplete Information

No formal data are available regarding recreation and research use levels in the CPNM. Visitation levels, visitor place of residence, and use patterns described under Assumptions were estimated from visitor center registers and observation by field personnel.

4.18.4 Impacts to Social and Economic Conditions Common to All Action Alternatives

Impacts to social and economic conditions in the assessment area could result from a wide range of management decisions. The following discussion analyzes those potential impacts from management goals, objectives, and actions for each resource and resource use category that are common to each of the action alternatives.

4.18.4.1 Wildlife

As discussed in Chapter 3, the CPNM is integral to the local and regional social and economic context. The preservation and enhancement of the quality of the natural resources, including wildlife and associated habitat, that are found within the Monument are therefore important contributing factors to the social and economic wellbeing of the region. All of the alternatives continue to provide for management practices that implement mandated protection of threatened and endangered species and habitat, support biodiversity and focus on increasing native and indigenous species. Protection of these resources enhances the region's quality of life in a variety of ways. Secondary benefits may include the enhancement of regional and local land use and income values, two factors that have been shown to benefit from proximity to publicly managed lands, as well as attracting tourists to the region, thereby generating revenues to local jurisdictions (also please see Section 4.18.4.12, which discusses social and economic impacts associated with Recreation).

The various alternatives also contribute to the regional coordination of land use and wildlife conservation efforts, and provide confidence regarding how these relationships are managed. Furthermore, the preservation of the Monument's biological resources and their value to regional conservation efforts provide greater certainty and clarity to resource managers and the local economies in terms of land use planning and other economic activity within their communities.

The communities of interest with greatest potential to be directly benefited by the management of wildlife resources include Native American peoples, which have a stated concern with an interest in the preservation of Monument resources, as well as Monument visitors and research guests. As shown in Chapter 3, estimated Monument visitorship increased by about 44.4 percent between 2003 and year 2007. Based on public scoping feedback, management actions that protect and enhance wildlife within the CPNM are likely to result in a continuation of this pattern since they preserve these valued natural assets

and the overall character of the Monument. While changes in the *level* of visitorship may not be directly attributable to wildlife management actions, nonetheless, inasmuch as the Monument continues to foster important and increasingly valued opportunities to view wildlife in natural surroundings, visitor interest is expected to increase steadily. In the overall, impacts to visitor use patterns from wildlife management actions are expected to be beneficial.

Recreation users within the CPNM may experience seasonally or otherwise restricted access as deemed necessary by changing conditions and AM protocol, in certain areas where human disturbance has the potential to adversely impact wildlife or bird populations, or to damage habitat. These restrictions are not expected to result in more than minor impacts to recreational users as they experience the CPNM. Based on the growing popularity of wildlife-watching as a recreational activity in the U.S. and in California, and given the relatively minor nature of the access restrictions, in-common management actions for these alternatives are likely to result in negligible impacts, if any, to economic activity generated by recreation users in the Monument.

All alternatives contain actions intended to manage nonnative wildlife populations, and include hunting as a viable management tool to implement these actions. It is expected that this activity will continue to result in beneficial economic impacts in the region, which may include trip and other hunting-related expenditures.

4.18.4.2 Vegetation

Impacts to the local and regional community from management actions for all alternatives associated with vegetation management would be similar to those for wildlife management such that impacts would be positively impact quality of life in the region, and would maintain and enhance the character of the Monument. The overall focus on vegetation management policies common to all alternatives to ensure the maintenance of habitat quality for San Joaquin Valley and other native species is expected to continue to result in beneficial impacts to the region.

All alternatives provide for the removal of invasive nonnative plants so as to protect historic and pre-historic sites, and to replace them with appropriate native plants. These actions benefit Native American groups, as well as visitors to the Monument, by ensuring that impacts to sensitive cultural resources and their influence on the social context of the Monument are protected from potential adverse impacts from vegetation management policies.

The in-common vegetation management actions are likely to result in beneficial impacts to non-market values such as land values and income enhancement, as well as most directly to the biological resources that are the focus of these actions. Projected Monument visitor use patterns are assumed based on a variety of factors. Vegetation management policies may contribute to these factors, to the extent that these policies improve overall habitat value and enhance opportunities for such recreation activities such as wildlife and wildflower viewing and bird watching.

4.18.4.3 Fire and Fuels Management

Fire and fuels management of the CPNM is an important means of protecting and preserving Monument resources, as well as directly and indirectly protecting the economic well being of the region. While wildfires can be destructive and costly and their spread poses a threat to human life and property, fuel load conditions within the CPNM are such that the threat of an extreme (long-term and/or intense) fire event is considered unlikely. Similar to the current management protocol, the action alternatives place preservation of human life as the primary and overarching fire and fuels management objective, followed by fuel and wildfire management and stabilization efforts to protect resources. Management practices are

also designed to continue to manage fuel loads and decrease the magnitude of wildfires should they occur. Such practices also reduce potential economic outlay on the part of local communities as a result of demand on local and regional fire protection personnel and equipment.

Wildfires may impact air quality in the region, which may result in indirect social and economic impacts to quality of life. Management policies and practices designed to manage the spread of wildfires are intended to reduce these impacts.

Impacts associated with the proposed management objectives and actions are expected to be minor to moderate over the short-term, and to result in an overall benefit to the communities of place surrounding the CPNM.

All alternatives recognize the importance of educating firefighters regarding the locations of sensitive cultural resources in order to protect them from wildfires. All alternatives provide for establishment of fire lines within the CPNM, each to a varying extent, as well as for hand or mechanized removal of vegetation adjacent to buildings and within recreation sites. All alternatives advocate for an increased understanding of historic fire management techniques used by Native peoples to inform current practice.

To a very limited extent, fire management activities may impact access to recreational uses by Monument visitors. Any such restrictions would be short-lived and generally minor, except in extreme cases. In the overall, however, management activities associated with fire management are expected to result in positive impacts to the social and economic conditions of the region, communities of interest, and non-market values, and no adverse impacts to commodity and market values.

4.18.4.4 Air Quality

The maintenance and improvement of air quality to meet federal and state standards, minimize dust emissions, and minimize exposure to spores that can result in Valley Fever are common to all alternatives. Impacts are expected to be minor in the short-term, that is to say, small or no measurable change from impacts that occur under current management, but may provide for cumulatively considerable beneficial impacts over the long-term. The maintenance and improvement of air quality improves conditions that may affect sensitive cultural, biological, and physical resources. The in-common management goals and objectives for all action alternatives would benefit the social and economic context of the locality and region in which the CPNM is located directly and indirectly by enhancing quality of life, including the protection of valued visual resources such as clear night skies and scenic vistas.

4.18.4.5 Soils

Potential impacts from soils management common to all alternatives are similar in nature to those for air quality. In general they provide indirect benefit by serving to protect Monument resources, especially biological and cultural, and thereby enhance social and economic benefits tied to quality of life. Soils management practices common to all alternatives directly benefit non-market values associated with biological and physical resources by contributing to the stability of the soil base and protecting hydrological values of watersheds as well as preventing erosion throughout the Monument. Soils management practices may also indirectly protect cultural resources. Potential change from impacts associated with current management practices is expected to be minor in the short-term, but may yield cumulatively considerable beneficial impacts in the long-term with the stabilization and improvement in soil health and associated indirect benefits to the social and economic context.

4.18.4.6 Water Resources

Maintenance and protection of water quality and the continued availability of water to fulfill the Monument Proclamation are at the heart of the goals and objectives established in the RMP, along with compliance with the *Clean Water Act* and protection of hydrologic values in upland areas and preservation of riparian zone and floodplain functions. These policies benefit the social and economic fabric of the region in that they provide for a greater likelihood that the Monument's resources and surrounding region quality of life will be preserved and enhanced.

Biological and physical resources receive direct benefit and these impacts may be moderate in the short-term to major over the long-term given the proposed removal of invasive nonnatives and use of native plants in wetland areas. Measures that ensure adequate water supplies, as well as those that are intended to protect the hydrologic functions of Soda Lake and other Monument watersheds, may be seen as protecting and preserving the overall character and resources of the Monument and localized and regional social and economic context they benefit.

The actions under Alternatives 1, 2, and 3 are the same for water resources; therefore all goals and objectives are alike for proposed management of these resources, this topic is fully addressed in this section, and no alternative-specific discussions of social and economic impacts associated with water resources are required.

4.18.4.7 Geology and Paleontology

As with the management of other unique and valuable Monument resources, goals, objectives, and actions in common to all alternatives for the management of paleontological and geological resources are expected to benefit the region. These resources are tied to the regional quality of life and the preservation of the CPNM's character. The in-common measures focus on inventorying and otherwise studying the unique paleontological and geological resources, which may result in increased visitorship to the Monument, and thus to the region. Researchers as well as students and laypersons with these interests stand to benefit from increased information and understanding of these valuable resources that will become available over the mid- and long-term.

The subject paleontological and geological resources constitute non-market values, which would be beneficially impacted by the policies common to all alternatives for these resources. Other non-market values, such as land value and income enhancement, have potential to experience indirect short and long-term benefit from measures that identify, study and protect Monument resources, and which focus attention on the value of the information they yield. Monument visitorship is expected to increase over the life of the Plan, and visitors may be attracted based on a variety of resource management practices, of which the management of paleontological and geological resources is a part.

4.18.4.8 Cultural Resources

The in-common goals, objectives and actions of all action alternatives are extensive and are intended to protect and preserve known cultural sites in the Monument, as well as to ensure that management practices continue to support and provide a context for traditional Native American cultural practices. As with other such resource-enhancement policies, these are expected to result in beneficial quality-of-life impacts to communities of place surrounding the Monument. Such practices would also directly benefit local and regional Native American residents as well as Native groups that are directly involved in coordinating with BLM regarding the long-term management of the Monument. Management policies speak directly to Native American interests in terms of cultural and traditional use practices, as well as to the preservation of sites that are of great significance to the Native peoples who are historically and

culturally associated with the Monument. Other practices, such as those intended to enhance dialogue and engender increased Native American participation in planning and consultation, and to encourage research and interpretive collaborations with the scientific and educational community are expected to result in beneficial social and perhaps even economic impacts to these groups.

Practices that provide for the preservation of existing sites and the potential for acquisition of new sites should private lands become available within the CPNM stand to benefit not only Native American groups but also academic and recreational visitors.

The protection and preservation of cultural resources is of direct benefit to the resources themselves. Recreational uses may be impacted through increased access restrictions to sites such as Painted Rock and others, and OHV and other recreational uses will be closely monitored to prevent unauthorized entry into the Rock Art Historic District and to prevent impacts to sensitive sites from direct and indirect impacts associated with these uses.

4.18.4.9 Visual Resources

The existing visual resources of the CPNM, including panoramic vistas of open lands and mountains, as well as the characteristic dark, starry night skies, have been acknowledged as valuable and unique Monument resources. In-common management practices for all alternatives provide for their continued protection and enhancement. Proposed actions include coordinating with surrounding communities to limit impacts of light sources that may impact the Monument. In the overall, protection of these resources, which are highly valued as part of the local and regional visual character, is expected to continue to be a positive impact.

The various alternatives establish VRM class designations that correspond with RMZ boundaries. On a scale of I to IV, with IV providing for major modifications to the natural landscape, none of the alternatives designate lands at higher than VRM Class III. The acreage of each zone is discussed under Visual Resources for each of the alternatives. Changes from existing conditions are likely to be minor to moderate in the short-term, and are expected to provide for long-term, potentially major benefit by ensuring that existing facilities and proposed projects that may impact visual resources meet VRM class objectives, by planning for improvements to existing and inclusion of new scenic vista points, and by minimizing outdoor lighting to the greatest extent feasible.

In general, the proposed VRM zone designations would result in a predominance of lands within the CPNM designated as VRM Class II. This zone designation is intended to ensure that the existing character of the landscape is retained, with a low level of change. VRM Class I lands are proposed for the second highest percentage, on average for all alternatives. Class I lands are intended to “preserve the existing character of the landscape” and allow for “natural ecological changes and only limited types of management activities and uses.” The Class III designation limits the level of change to the characteristic landscape to no more than moderate. Alternatives’ designations for Class III lands range between 4 percent under Alternative 1 to 11 percent in Alternative 3.

Preservation of these resources is expected to enhance revenue streams to local and regional economies by attracting recreational visitors, including hikers, bikers, amateur photographers, hunters, and those interested in wildlife and wildflower viewing.

4.18.4.10 WSA/Other Lands with Wilderness Characteristics

Management of the Caliente Mountain WSA to preserve its wilderness qualities would continue to enhance quality of life in the region by protecting the wild and pristine character of the Monument. New

impacts to communities of place are expected to be negligible, and no adverse impacts are expected. Local and regional communities would likely continue to benefit from the resource value associated with the wilderness characteristics of the WSA and other areas of the CPNM with wilderness characteristics, and the attraction these hold to visitors to the region. Potential beneficial impacts to the regional land use and development-planning context include additional clarity regarding the management of regional resources.

4.18.4.11 Livestock Grazing

While livestock grazing has historically been an important factor in the region's economic framework, as discussed in Chapter 3, based on livestock inventories as a marker, these operations appear to have diminished in the region over recent decades. Nonetheless, they continue to constitute an important economic activity in the region as well as within the CPNM.

As discussed below, the livestock grazing goals, objectives, and actions common to all project alternatives are expected to result in negligible adverse changes or impacts to non-market values. The impacts associated with the implementation of the grazing management programs are generally beneficial especially for the management of biological resources important to conservation efforts and the character of the Monument. Livestock grazing goals are intended to protect habitat for threatened and endangered species, as well as species iconic to the character of the Monument. While the management provisions will result in lower potential revenue streams to the public from this use, they will significantly enhance one of the key and characteristic landscapes of the Monument. Although it is difficult to accurately anticipate future societal values, continued urbanization in the assessment area, the southern California region and even statewide will make the Monument resources more valuable for both thoughtful use and resource protection.

As regional land use planning progresses in the area of influence surrounding the Monument, coherent urban development in the surrounding communities will be better coordinated with agriculture and wildlife needs. With the exception of Alternative 1, the reductions in commercial grazing expected from the various alternatives represent a generally minor impact in available livestock grazing in the assessment area. Therefore, while management goals modestly reduce available livestock grazing area in the region, they are also expected to enhance the health of the resources through a program of AM that includes livestock grazing.

The livestock grazing provisions for the proposed plan (Alternative 2) and Alternative 3 are expected to have a net beneficial impact on Monument visitorship. Greater diversity in the quality and character of habitat in the Monument will also increase wildlife diversity, which is a major draw to the Monument. The alternatives also call for the use of adaptive management, which will include the increased integration of the iconic pronghorn antelope into the Monument grasslands. Through these alternatives, the Monument continues to foster expanded and increasingly important and valued opportunities to view wildlife in natural surroundings, and visitor interest is expected to increase steadily.

4.18.4.12 Recreation

Recreational goals and objectives common to all action alternatives are expected to attract additional recreational visitors to the Monument who may also spend tourism dollars in surrounding communities, thereby potentially benefiting local and regional economies. Proposed target marketing may enhance these opportunities, as well as providing gateway communities an opportunity to benefit from a coordinated marketing effort with BLM.

As established in Chapter 3, tourism is a significant revenue generator. Total direct travel accounted for over \$1.1 billion in spending in Kern County and over \$1 billion in San Luis Obispo County in 2006. In Santa Barbara County these expenditures topped \$1.4 billion, and were over \$1.2 billion in Ventura County. In all four counties, these figures represented a consistently upward trend since 1992, with receipts increasing over 50 percent per county during this period. These expenditures included accommodations, food and beverage services, and recreation and travel costs.

As noted under the No Action Alternative, it is estimated that, currently, CPNM visitors from outside the region generate approximately \$2.9 million in the assessment area annually, based on a per-capita average daily expenditure derived from California Tourism data. As noted in Section 4.14, Recreation, it is assumed that recreational use and Monument visitorship will generally increase for each alternative over the period of the Plan. Over the range of action alternatives, these increases are projected at between 10 and 25 percent by year 2018, and at between an additional 8 and 20 percent by year 2028. Based on these projects, under the various alternatives, annual expenditures by CPNM-visitors to the region figures would range from an estimated \$3.2 to \$3.6 million by year 2018, and from \$3.5 to \$4.4 million in year 2028. Local governments would receive a portion of these revenues as sales and transient occupancy tax revenues.

Approximately one-half of visitors to the CPNM are estimated to be nature or heritage-based users who come to bird watch, hike, or view wildflowers. It is estimated that hunting accounts for approximately 30 to 40 percent of recreational uses in the Monument, and is a use most appropriately suited to the Backcountry zone, although hunting may also occur in the Primitive and to some extent, in the Frontcountry zone. No differentiation is currently available with respect to whether varmint or big game hunting is predominant; however, this analysis assumes that more hunters pursue big game species with varmint hunting being a secondary activity. The enhancement of recreational facilities common to all alternatives is expected to benefit all recreational users in the Monument. Impacts are expected to be range from minor to moderate for this group. The potential implementation of fee programs for camping and selected other activities may provide additional opportunities for BLM cooperation with gateway communities in the form of fee management agreements to off-set the costs of provision of public safety (police and fire) and emergency medical services, as well as for visitor and recreation services.

Organized user groups, such as mountain biking, hiking, and hunting clubs have proven to be valuable partnerships that promote responsible use, volunteerism, and self-policing, and educate users about the Monument's valuable natural and cultural resources. The maintenance of existing and formation of new user groups, providing an additional link between the surrounding community and the Monument, is common to all alternatives. Other in-common actions seek to maintain existing and develop new partnerships with communities that serve as "gateways" to the CPNM to explore the establishment of Monument-related visitor services or facilities in those communities (also see Section 3.12 for a discussion of the regional context and relationship between the CPNM and these gateway communities). As shown above, these initiatives have potential to result in social and economic benefits to the communities of place as well as providing identification to residents and visitors between these communities and the CPNM and its resources.

The in-common management practices provide for baseline improvements to recreational facilities, which each alternative differentiates based on the relative amount of acreage allotted to each RMZ (Primitive, Backcountry, and Frontcountry) for trail mileages, availability of dispersed camping, trailheads and staging areas, and number of new interpretive facilities. The alternatives consider the physical, social, and managerial setting of each RMZ. Monument visitors will benefit from enhanced opportunities to experience the level of involvement and personal responsibility appropriate to each zone.

Potential impacts in the Primitive zone are expected to be beneficial and minor, limited to a few additional signs. In the Backcountry, impacts include the development of a potable water system in high use areas, where feasible, which is expected to be beneficial, and to result in minor to moderate impacts to visitors. A fee may be considered for overnight camping, as authorized by the *Federal Lands Recreation Enhancement Act*; whether and at what rate fees will be charged would be based results of a fee study program involving public feedback. As part of the Act, fees would be primarily reinvested back to the CPNM, thereby positively impacting visitors and other communities of interest over the long-term. Backcountry visitors may also have access to improved mapping to all for self-guided driving/riding tours in this zone.

In the Frontcountry zone, where most of the CPNM's facilities are located, a variety of improvements are proposed under all alternatives. These include potable water systems at high use areas where feasible, including at the Goodwin Education Center and at two campgrounds, development of self-guided riding/driving tours, retrofitting to universal accessibility where feasible, expansion of the visitor center by 50 to 200 percent, and implementation of a fee program at KCL and Selby campgrounds. In the overall these changes are expected to result in beneficial impacts to Monument visitors, the extent of which would range from moderate to major over the short and long term.

Communities of interest, including private land and mineral estates owners, ranchers and farmers are expected to be impacted to a negligible or minor degree. No changes would occur on private lands, and the in common goals do not explicitly change or restrict access to such uses as grazing or mineral extraction.

The common goals, objectives, and actions hold the continued protection of the Monument's resources as primary, while providing for the varied recreational uses appropriate to each management zone. Impacts to biological, cultural, and physical resources from recreation will continue to be managed with a view to their preservation. To the extent that enhanced recreational opportunities provide Monument visitors with a greater awareness, knowledge, and appreciation of these resources, while preserving the quality of Monument's value within the local and regional ecosystem and cultural context, impacts are expected to be positive. Such impacts are not quantifiable but have potential to be major over the long-term.

4.18.4.13 Administrative Facilities

These goals, objectives, and actions may have an indirect positive benefit on the locality and region to the extent that they support that provision and enhancement of administrative facilities supports the overall protection of Monument resources and character. To some extent these facilities may arguably be considered a localized community resource. Should additional short-term housing be provided for future employees or visiting researchers, this may reduce potential revenues that local communities might otherwise receive, although changes in this regard over existing conditions are expected to be negligible.

Local contractors may also benefit from construction of new and retrofitting of existing structures and facilities. Currently, BLM estimates that it expends approximately \$150,000 to \$200,000 annually in local communities for supplies, fuel, and local contractors' work. Under the various alternatives, these expenditures are expected to increase annually. Local and county governments will also realize sales tax revenues from purchases made within their jurisdictions (J. Hurl and R. Wick, BLM, Bakersfield, CA, personal communication, 2008).

Monument residents comprise a relatively small number of people, and BLM employees and out of area project participants would be the main users of these facilities. In particular, visiting researchers would benefit from enhanced facilities and the possibility of additional accommodations provided on-site.

The use of sustainable building techniques and materials and alternative energy sources in future construction or retrofitting, which would eliminate the need for existing transmission lines, would be expected to enhance scenic vistas and serve to overall benefit biological and cultural resources within the Monument.

In the overall the management of these facilities is expected to have a minor impact on the regional social and/or economic context. Impacts are the same under all the action alternatives, therefore, no further discussion of these impacts are included herein.

4.18.4.14 Travel Management

The proposed travel management practices common to all alternatives are intended to ensure the protection of valuable Monument resources, to provide adequate travelways for visitors, administrative use, and private landowners without redundant use. Benefits would primarily be those associated with protection of Monument resources, and access to visitors and local contractors, ranchers and others with business on Monument lands. Impacts to local and regional communities of place are expected to be negligible.

Monument visitors may experience impacts related to road closures/conversion to trails, particularly for recreational users in Primitive zone lands. These impacts may prove beneficial by reducing the potential for human/vehicle interaction and enhancing the experience of these lands in their natural state. Visitors may also experience seasonal road closures, specifically between the visitor's center and Painted Rock. All alternatives provide for adequate access routes into and through the Monument and any inconvenience or other potentially adverse impacts to visitors are expected to be offset by the potential for decreased impacts to sensitive biological and cultural resources, air quality, and the overall quality of the Monument experience.

Native American groups would be allowed access to sacred and sensitive sites and would benefit from travel management policies that are intended to limit impacts to natural and cultural resources. Adequate travel routes would be provided to allow private land and mineral estates owners to access their holdings within the Monument, as would those needing access for authorized agricultural uses, including grazing permit and leaseholders. Impacts to these groups are therefore expected to be minor in the short-term and long-term.

All alternatives provide for enhanced signage, brochures, and other educational outreach to assist recreational visitors, including hunters, in acclimating to new or modified access routes and the underlying reasons for road closures.

4.18.4.15 Minerals

As noted in Chapter 3, based on production figures, local economies have historically been tied to varying extents to mineral extraction, predominated by oil and gas. Kern County is home to the 5 largest oil fields in California and 4 of the 6 largest fields in the 48 contiguous states. Oil production has played a lesser but still important role in the economic history of San Luis Obispo County. Total oil production (federal + private) within CPNM accounts for approximately 2,000 barrels per month, as compared with approximately 3 million barrels per month from wells in the Midway-Sunset Oilfield (approximately 3 miles to the north of the CPNM) (J. Prude, BLM, Bakersfield, CA, personal communication, 2008).

The proposed in-common management practices of oil and gas leases on the Monument are focused on protecting Monument resources and ensuring that the "valid existing rights" of private land and mineral estates owners are upheld. Current management requires the use of existing roads and rights-of-way

where practical to minimize disturbance, and requires that such activities obtain authorized take permits where development has potential to disturb previously undisturbed habitat. Management of existing oil and gas leases on Monument lands will not adversely impact existing operations. Impacts to local economies are therefore expected to be negligible to minor in this regard.

Mineral estates leaseholders and owners of sub-surface mineral estates may be subject to increased expenses to the extent that management practices have the potential to require additional regulatory requirements and associated technical studies, and/or costs where aligning new pipeline routes within road rights-of-way may require additional infrastructure. Costs of such requirements would be dependent on the nature and scope of such studies or sizing of infrastructure, as well as the scope of the proposed development. Under current policy, and as proposed under those proposed for all alternatives, BLM can impose reasonable restrictions on the use of federal surface lands to protect objects of the Monument Proclamation. These potential impacts are further considered under Section 4.16, Minerals.

In the overall, proposed management of these resources is expected to result in minor to moderate impacts to mineral estates lessees and owners over the short term.

Biological, cultural, and physical resources may be impacted to the extent that the in-common management practices associated with all alternatives focus not only on maintaining existing valid rights of mineral estates holders but also on a variety of actions aimed at protecting Monument resources, including site inspections and operations staff education regarding best management practices, and ensuring timely and adequate site restoration when resource retrieval is complete. Potential impacts to these resources may range from minor to moderate in the short term, as compared with existing management, and may range from moderate to major in the long term as management over the life of the plan serves to ensure the protection of these resources in the future, including the restoration and possible enhancement of resource recovery sites.

4.18.4.16 Lands and Realty

The proposed land tenure common to all alternatives include policies aimed towards the retention of existing Monument lands, and acquisition from willing sellers of privately held lands and/or mineral estates, are intended to facilitate and enhance the overall protection of Monument resources. Acquisition of private lands by BLM is expected to result in generally neutral impacts to local government revenues by converting private property to public lands and from property tax revenues to PILT.

Realty actions and utility corridor policies are intended to protect Monument resources, and are also likely to benefit surrounding communities. Limitations placed on CPNM lands that would otherwise have potential for consideration for utility and communications corridors may in future place additional pressure on local communities to provide lands and or rights-of-way easements for these uses to serve existing and future development within their jurisdictions. However, currently (2008) BLM is not aware of any reasonably foreseeable new needs for such corridors.

Owners of private lands and/or mineral estates in the Monument who choose to transfer ownership to BLM will reap direct economic benefits through revenues from the sale of those lands. The level of these benefits is dependent of the amount and value/sales price of acreage transferred and other terms of those transactions.

The continued acquisition of private lands for public use has the potential to directly benefit Monument visitors by providing increased opportunities for the use and enjoyment of Monument resources. Further, such acquisitions, which are for the stated purpose of protection or enhancement of values identified within the Monument Proclamation, would benefit Native American groups, which have a particular

interest in the preservation of those values. Impacts to these groups are expected to range from minor to moderate in the short-term, depending on the alternative that is implemented.

Land and income values, as noted above, would be expected to be positively impacted by an overall increase in publicly managed lands in the region that could result from the proposed land tenure management policies. The proposed land tenure alternatives hold in common goals that are intended to further protection of the CPNM's natural assets, including threatened, endangered, and rare animal and plant species, cultural resources, and geological features. Therefore, impacts to these resources are expected to be positive along a continuum from minor to moderate in the short term, ranging to major over the long term as the positive cumulative effects to the ecosystem within the CPNM and the regional context (such as the Recovery Plan) are felt.

Private mineral estates and privately owned agricultural lands in the Monument will be impacted to the extent that their owners wish to entertain selling sub-surface holdings to BLM. Such sales would be on a "willing-seller" basis only. Although a sale would result in immediate income to the seller, the potential future income from production of minerals would be eliminated. The net effect to the mineral owner would probably be neutral, since the sales price of the mineral estate would be based on an appraisal of the value of the potential minerals production. The use of "friendly condemnation" authority, if secured by BLM, would enable willing-seller landowners with clouded property titles to sell properties to BLM without expensive title-clearing legal fees. This would benefit these specific owners.

4.18.5 Impacts to Social and Economic Conditions from the Proposed Plan (Alternative 2)

4.18.5.1 Wildlife

The Wildlife program actions proposed under the proposed plan (Alternative 2) provide for a range of activities to monitor, maintain, restore, and enhance wildlife habitat and protect at-risk animal populations. This alternative has potential to result in primarily if not exclusively beneficial impacts to the quality of life and associated non-market values such as land values and income enhancement, benefits generally associated with active and adaptive management practices such as those prescribed under the proposed plan. The region, communities of interest, and non-market values that are most directly associated with or interested in the health of the CPNM and its biological resources, such as Native Americans, Monument visitors, and recreational resources, including tourism, would be primarily and largely positively impacted. Impacts to grazing and associated private and public revenues would be expected to be benefited to a greater extent than under Alternative 1, as discussed below.

4.18.5.2 Vegetation

Impacts to social and economic conditions for vegetation management are expected to be similar to those for wildlife management in terms of enhancing regional and local quality of life and associated non-market and market values, as well as the interests of stakeholders affected by the health of CPNM natural resources. Impacts are therefore expected to be largely beneficial, and would be the same under Alternative 3.

4.18.5.3 Fire and Fuels Management

Of the action alternatives, the proposed plan (Alternative 2) provides for the most varied range of wildland fire management practices, combining natural fire management with a menu of options to actively suppress fires that threaten sensitive resources. It includes prescribed burns for vegetation management (as does Alternative 3), applies confine strategies (as does Alternative 1), and is the only alternative that provides for confine strategies for fires on the valley floor that are burning away from

sensitive cultural sites and fire-intolerant shrub area (this represents no change from current fire management practices). As with all alternatives, active suppression is called for where fires threaten life or private property; however, the proposed plan includes active suppression to ensure the safety of facilities on the CPNM. It therefore stands to indirectly benefit communities of place to a greater degree than Alternative 1 to the extent that active protection of sensitive resources enhances quality of life in the region, and therefore provides a positive impact to local economies. Potential for economic loss due to fire is also lessened, as compared with Alternative 1. Air quality impacts, which also affect quality of life, although generally for limited periods associated with an actual fire event), may be lower since this alternative provides for prescribed burns which would be conducted during periods when air quality impacts would be minimal.

As compared with Alternative 1, Native Americans and others with a particular interest in the active protection of sensitive Monument resources would see a greater degree of positive impact from the management practices set forth in the proposed plan. The same may be said for Monument visitors. However, more active practices may also mean slightly more disruption to visitors, wherein prescribed burns could result in reduced access for limited periods of time. Monument residents may be the most impacted in terms of active fire management activities that have potential to disrupt travel or access, although all alternatives provide for some level of activity and the proposed plan is expected to result in a greater level of overall safety, as well as health, of the Monument resources over the life of the Plan and in the long term. Those with private lands or mineral estates holdings, or those using the Monument for authorized purposes, such as ranchers or others with grazing permits, have potential to be impacted due to restricted access during periods of fire management activity, although it is assumed that access to private lands would be allowed providing that human and livestock safety could be assured. Livestock grazing would likely be enhanced over the life of the plan wherein fire is used to manage invasive nonnative species and provide for a restored grassland habitat environment.

4.18.5.4 Air Quality

As with other alternatives, the maintenance and improvement of regional air quality is an important component of quality of life for the communities surrounding the CPNM. The proposed plan (Alternative 2) provides for a relatively wide range of actions to ensure the overall improvement of air quality which surpass those of Alternative 1 by using alternative energy sources where feasible and implementing best management practices on construction of BLM projects. It is comparable to Alternative 3 in terms of the use of alternative energy sources. It appears to provide the most potentially beneficial management actions for air quality within the region, although improvements would be negligible on a regional basis, since the Monument currently generates very minor and localized air quality impacts primarily associated with dust from unpaved roads.

Local economies would benefit in the event that BLM hires local contractors to install solar panels or install new/rehab existing windmills, and if components for these uses are purchased locally or regionally. Such impacts would be minor but beneficial. Under the proposed plan, BLM expenditures for *all* purchases and contracts in surrounding communities for Monument management are estimated at between approximately \$300,000 and \$400,000 annually.

The proposed plan is explicit in its focus on minimizing fugitive dust impacts from main BLM-owned/maintained roadways in the CPNM to high recreation and public use areas and sensitive cultural sites containing rock art. These measures are expected to benefit the experience of communities of interest such as Monument visitors and residents, private land and mineral estates holders, and those using Monument lands to access lease areas (grazing).

The use of alternative energy sources and implementation of best management practices for BLM projects on the Monument would result in additional minor cumulative benefits to the region's air quality, which would be expected to support and enhance land values and income. Impacts to biological, cultural, and physical resources are also expected to be generally beneficial; these are further discussed in their respective impacts assessments elsewhere in Chapter 4. Road closures and their impacts on visitors and recreational uses are discussed in Section 4.18.5.12, Impacts on Social and Economic Conditions from Travel Management. Overall, visitors and recreational uses are expected to benefit from this alternative's management of air quality impacts, in the short term and beyond the life of this plan, as such impacts would be cumulative. The proposed plan is expected to provide a moderately greater level of benefit to non-market values than Alternative 1, due to the inclusion of best management practices in the proposed plan.

4.18.5.5 Soils

As with the other action alternatives, impacts to communities of place would be limited to positive effects on the biological functions and values of the Monument's natural resources, and the indirect quality-of-life enhancement associated with those effects. Impacts to Native Americans, Monument visitors, and residents associated with this alternative would be beneficial in terms of the potential to understand and enhance the biological functions and values of the Monument's resources. Monument visitors and residents may be inconvenienced by the potential for temporary road closures. Visitors to recreational use areas may experience restrictions to the extent that such areas are underlain by sensitive soils or biological soil crusts and are determined to be subject to closures or other measures to minimize impacts.

The proposed plan (Alternative 2) is explicitly more aggressive in its approach to soil restoration and user education than is Alternative 1, but incorporates less intensive management than Alternative 3. Potential direct economic impacts of this alternative to ranchers and farmers, should they occur, would likely be greater than Alternative 1, and similar to or slightly less than Alternative 3.

4.18.5.6 Geology and Paleontology

The proposed plan (Alternative 2) takes a more pro-active approach to the study, documentation, and preservation for public education of paleontological resources. The provisions for this alternative may be argued to contribute to the maintenance and improvement of the region's quality of life. The value and character of the surrounding region will also be enhanced by the added social and scientific value and character of the Monument and its resources. Monument visitors would also benefit from the opportunity to view significant paleontological finds that may be recovered based on the actions included in this alternative. Potential impacts to lease and permit holders would be at a level similar to Alternative 1.

The protection of paleontological and geological resources in the CPNM is expected to have an indirect but overall positive influence on the land values and income enhancement in the region, as has been discussed in the context of other such unique and highly-valued resources as the San Andreas Fault zone, which is a major visitor attraction. The objectives and actions set forth in Alternative 1 will have a direct beneficial impact on the non-market values that are under discussion (for example, paleontological and geological resources). Benefits will accrue through increasing the protection of sites containing those resources and the potential for increased knowledge and greater understanding of their significance.

The enhancement of educational and interpretive displays and facilities should serve to enhance the experience of recreational and tourist visitors to the CPNM. Access restrictions within sensitive areas are expected to be relatively minor and to be offset by the benefits of resource protection and provision of the aforementioned enhanced displays and facilities. No adverse impacts to revenue streams from recreational

users to the region or the Monument are expected, nor are adverse impacts to hunting as a recreational activity, or economic activity generated by this activity.

4.18.5.7 Cultural Resources

The proposed plan (Alternative 2) provides for the greatest range of measures to balance public access and education with preservation and where feasible, restoration of archaeological and historic sites and artifacts. Painted Rock would continue to be accessible on a seasonal basis for guided tours, with self-guided permits during off-season or for larger groups, based on ongoing assessment of visitor impacts to the site's integrity. Rock art sites would be actively preserved, and restored where feasible. Historic ranching and farming machinery, equipment, and structures would be retained throughout the landscape. Overall, this alternative would be expected to provide the greatest level of access to visitors while protecting sensitive archaeological sites and artifacts. It offers opportunities for a more direct experience with and understanding of Native American heritage and culture to a wider audience than does Alternative 1. It has a greater likelihood than does Alternative 1 of ensuring the long-term protection of resources that would both enhance the region's quality of life and attract visitors to the region, thereby providing positive economic benefit to surrounding communities.

4.18.5.8 Visual Resources

Impacts associated with this alternative would be similar to those under Alternative 1, varying primarily in terms of relative percentages of overall land designated as VRM Class I and II.

Impacts under Alternative 1 (for reference):

As discussed under the in-common goals, objectives, and actions for Visual Resources, the locale and region surrounding the CPNM derive considerable benefit from the existing visual character of the Monument. Alternative 1 provides for 62.5 percent of lands within the CPNM to be designated VRM Class II, which limits to "low" the degree to which management practices can result in changes to that character. Approximately one-third of lands in the CPNM would be designated VRM Class II, wherein changes to the existing character must be minimal. This alternative would benefit the region by protecting those resources. Local and regional economies are also expected to benefit from the potential for this alternative to attract recreational and other visitors to the CPNM and surrounding localities.

The protection of visual resources within the CPNM also benefits communities of interest whose primary relationship to the Monument is closely tied to retention of its existing natural and visual character and protection of natural resources. These include Native Americans, Monument visitors, and Monument residents.

This alternative would encourage leaseholders and others with existing rights-of-way to perform retrofits (including repainting existing facilities) to comply with Class II objectives. These communities of interest would also be encouraged to consider the location and design of new facilities to minimize contrast with the existing landscape. It should be noted that existing facility retrofits are not mandated improvements; cost would be based on the extent that lessees' chose to make such improvements, and it is anticipated that such impacts would be limited to no more than moderate in terms of costs to lessees. The potential costs of such design would be considered as part of the required environmental analysis for any new development on lessee's lands.

The protection of the unique and valued scenic vistas of the CPNM and its regional context, in which the open space and undeveloped character of the CPNM plays an integral role, has been shown to be important in the enhancement of land and income values within the region. Alternative 1 allocates approximately 95 percent of lands towards the two least intensive VRM class designations, and thereby

limits impacts to these viewsheds. The preservation of open space and less intense changes to the characteristic landscape of the Monument also correlate with a level of management activities that advocate for the protection of biological, cultural, and physical resources. The combined effect of these actions is expected to attract recreational users and enhance their experience of the CPNM, thus further benefiting local and regional economies.

Lands classified as VRM Class I occupy slightly less acreage than Alternative 1 (21.2 percent as compared with 32.9 percent), while Class II lands occupy slightly more (72.8 percent as compared with 62.5 percent). Overall, impacts are expected to be positive with regard to land and income value enhancement potential, along with the beneficial impacts to local economies of revenue streams generated by visitors attracted to the region and the CPNM.

The proposed plan (Alternative 2) also encourages lessees to retrofit or consider design of new structures to meet both Class II and Class III objectives. The potential economic impact of this objective would be spread over a greater number of lessees rather than increasing the potential financial burden on any one lessee. There would be no adverse social or economic impacts to other communities of interest.

Impacts to non-market values are expected to be similar to those associated with Alternative 1 (see above). All the action alternatives are generally less intense than existing conditions from the standpoint of management activities in that they designate all lands at no more than a VRM Class III level.

4.18.5.9 WSA/Other Lands with Wilderness Characteristics

As compared with Alternative 1, the proposed plan (Alternative 2) proposes the management of 44,471 acres in the Caliente Mountain Additions and the Temblor unit and Soda Lake units to maintain their natural character. Impacts associated with this alternative would otherwise be similar to those under Alternative 1.

Impacts under Alternative 1 (for reference):

Alternative 1 provides for management of additional lands having wilderness characteristics beyond those in the Caliente Mountain WSA, as well as the restoration activities and conversion of limited use roads for administrative use or non-mechanized trails. The regional social and economic context would be expected to benefit based on the resource value of the wilderness characteristics associated with the CPNM, in terms of the region's attraction for visitors, potential to generate tourism and recreational dollars, and land values and income enhancement associated with publicly managed lands.

The proposed management of an additional 62,607 acres with the goal of maintaining their natural character, as well as restoration and conversion of roads, as described above, would be expected to provide recreational users and other Monument visitors with additional opportunities to experience the remote character of the Monument and its resources. Some visitors who pursue motorized recreation activities would be impacted negatively, as discussed in Recreation, Section 4.14.

The preservation of these lands also directly benefits the biological, cultural, and physical resources they contain and the regional ecosystem of which they are a part. No adverse impacts are anticipated to non-market values such as hunting, which is considered an allowable use within the lands to be managed for wilderness characteristics.

No adverse impacts to communities of place, communities of interest, non-market values, or market and commodity values are anticipated. Positive benefits would also result from the management of these lands for wilderness characteristics, which are also similar to those discussed for Alternative 1.

4.18.5.10 Livestock Grazing

Under the proposed plan (Alternative 2), Section 15 grazing allotments use levels would be reduced by approximately 6.7 percent from existing conditions, and would result in allocation of approximately 7,897 Section 15 AUMs in the CPNM. Further, these allotments are assumed to be available 5 out of 10 years, as compared with 8 out of 10 years under the No Action Alternative and Alternative 3. Approximately 117,467 acres, or 61,464 AUMs, would be authorized for vegetation management livestock grazing under the proposed plan. While the implementation of this alternative would therefore have a minor impact on the availability of public lands in the CPNM for livestock grazing, as well as to regionally available grazing lands, these impacts would exceed, albeit slightly, those of the No Action Alternative and Alternative 3. The proposed plan would also be expected to result in minor reductions in public and private revenue streams associated with Section 15 grazing allotments over the short and longer term.

The following summarizes the estimated economic impacts to Section 15 livestock grazing fees and contributions from free use grazing permits under the proposed plan.

Section 15 Grazing Fees

Based on 7,897 Section 15 AUMs in the CPNM, grazing fees are estimated at \$10,661 as compared with \$11,656 under existing conditions. Over a 10-year period, this would yield approximately \$53,305 in grazing fees, as compared to \$85,288 under Alternative 3 and the No Action Alternative. Grazing fee receipts to Kern and/or San Luis Obispo counties over the long-term would also be expected to decrease from existing conditions and to be less than those anticipated from Alternative 3, based on the location of the grazing allotments.

Grazing Permit and Real Estate Value

Based on the 2006 California assessment rate, the value of Section 15 leases in the CPNM under the proposed plan (Alternative 2) would be \$121,614. This compares with \$132,964 under current management.

Free Use Grazing Permit Contributions

The proposed plan (Alternative 2) allocates approximately 117,467 acres in the CPNM to vegetation management grazing allotments. This is an approximately 2.1 percent increase over existing conditions. However, grazing of these areas is expected to be less than in the past, and only occur in certain years as needed for vegetation management. Contributions would vary widely based on range and other conditions within a year; in any event, the impact of these contribution changes is likely to be minor over the life of the plan.

4.18.5.11 Recreation

The proposed plan (Alternative 2) allocates 62,455 acres to the Primitive zone, 165,180 acres to the Backcountry zone, and 19,181 acres to the Frontcountry zone. It provides for between 12 and 43 miles of new trails over all zones. Dispersed camping is allowed only in the Backcountry.

BLM estimates that Monument visitorship would increase under the proposed plan approximately 18 percent by year 2018, and another 15 percent by year 2028. Based on assumptions for average daily expenditures in the region for leisure travel discussed previously, these increases would result in approximately \$3.4 million in annual CPNM-visitor-related expenditures in the region by year 2018, and

\$3.9 million by year 2028. Monument visitors will have access to an expanded range of recreational activities and facilities, including those focused on interpretation and education.

The proposed plan recommends the elimination of varmint hunting. It should be noted that this is a recommended action and the actual decision is within the jurisdiction of the California Fish and Game Commission. The basis for the recommended action is to reduce the risk of listed species from accidental shootings. Elimination of varmint hunting would impact those individuals for whom this recreational activity is their primary reason for visiting the Monument. As has been noted, it is assumed that most of those who hunt in the Monument are primarily interested in big game hunting and that varmint hunting is a secondary pursuit. Approximately 60 percent of those who hunt are local or regional residents. This accounts for a relatively small proportion of total Monument visitors and is not expected to result in more than minor economic impacts regionally; nonetheless, it constitutes a social impact to this group. These impacts may be considered to be offset when weighed alongside the long-term protection of these species and the overall value of these resources within the CPNM and to the region.

The proposed plan provides for dispersed camping in currently designated areas based on monitoring, as well as a hierarchy of corrective actions (from least to most restrictive) that are designed to ensure the protection of cultural and paleontological sites and special status species. It also provides for adaptive management techniques to ensure that recreational activities such as camping do not interfere with the protection of these resources and preserves the approved Native American ceremonial use of fire within the Painted Rock Exclusion Zone.

The proposed plan allows for low-impact, non-motorized competitive activities such as are consistent with the Monument Proclamation. Such activities may provide a minor but positive economic effect on local concessionaires or other vendors, and associated local government tax revenues.

4.18.5.12 Travel Management

Impacts under this alternative would be midway between those under Alternatives 1 and 3. The most notable differences are acreages allotted to closed areas: about 34.5 percent less than under Alternative 1, and about 67.0 percent greater than those under Alternative 3. Overall, none of the alternatives is expected to result in more than minor impacts to access to Monument resources, and all are expected to provide a greater level of protection for those resources while enhancing the experience of the Monument as a relatively undisturbed wilderness environment. The exception would be to those recreation visitors who use parts of the travel network that would be closed. The impacts are expected to be minor and are discussed in Section 4.14.

4.18.5.13 Minerals

The proposed plan places additional inspection and restoration provisions on existing mineral leases to protect Monument resources. The cost to meet these requirements would be minor. This alternative is expected to minimize adverse impacts to Monument resources and to communities of interest such as Monument visitors and residents, to the greatest extent feasible while providing for the valid existing rights of lessees and private mineral estates holders. Economic impacts to the region are expected to be minimal, since as previously discussed oil and gas production on the CPNM accounts for a very small percentage of the region's production.

4.18.5.14 Lands and Realty

Conversion of lands from private to public ownership would be slightly less under the proposed plan than under Alternative 1, but would focus on meeting priority habitat protection needs, thereby increasing

high-value habitat lands in the region. The potential benefit to sensitive cultural and biological resources would be enhanced, since acquisition efforts would be targeted toward areas harboring such resources that currently have limited public ownership acreage. This alternative would be expected to result in beneficial impacts to the Monument's value as part of the San Joaquin Valley recovery plan and to enhance linkages between the Carrizo Plan and the San Joaquin Valley. Native American groups and Monument visitors would be beneficially impacted to the extent that land acquisitions facilitate greater protection of sensitive cultural and biological resources and allow for expanded educational and cultural opportunities. Regional quality of life and land use and development planning processes would also be beneficially impacted. As with Alternative 1, local government revenues would not be impacted (impacts would be neutral).

4.18.6 Impacts to Social and Economic Conditions from Alternative 1

4.18.6.1 Wildlife

In general, the management practices unique to Alternative 1 provide for the least active level of human intervention into the natural processes affecting wildlife species in the CPNM of all the action alternatives. This alternative depends to the greatest extent of all alternatives on natural conditions to determine outcomes to affected species. In general, this alternative has the greatest potential to result in conditions that may adversely impact the region's quality of life, and other social and economic conditions that are associated with the quality of Monument resources as discussed in Chapter 3. These impacts would be minor to moderate, as the alternative has mechanisms built in to provide a safety net if populations decline below certain levels.

4.18.6.2 Vegetation

Impacts from the Vegetation program under Alternative 1 are closely associated with those for Wildlife management since vegetative resources largely determine the quality of habitat. Alternative 1 relies largely on natural conditions and other than those for riparian habitat that it shares with the other alternatives, includes no active restoration objectives or actions. Impacts to social and economic conditions for this alternative are expected to be similar to those discussed under Wildlife management, above.

4.18.6.3 Fire and Fuels Management

Alternative 1 utilizes a "natural processes" approach to fire management; therefore, it does not provide for prescribed burning and minimizes mechanized fire line construction to the greatest extent feasible. Removal of vegetation from recreational areas and around buildings is minimal as compared with either of the other two action alternatives (25 acres as compared with 350 acres under the proposed plan [Alternative 2] and Alternative 3).

Potential impacts associated with this alternative include diminished air quality for longer periods during which a wildfire is allowed to burn, based on individual wildland fire targets: 1,000 acres/90 percent of the time for Alternative 1 as compared with 100 acres/80 percent and 100 acres/90 percent in the proposed plan and Alternative 3 respectively). However, as discussed previously, current conditions on the CPNM are such that a long-burning, intense wildfire is unlikely

Impacts to biological, cultural, and physical resources will vary depending on fire conditions within the CPNM. Fire is a natural tool to maintain ecological balance, which is supported and utilized by Alternative 1. Monument visitor use patterns may also be impacted to some extent. Routine fire management techniques under this alternative are less likely to impact visitors than the more active and extensive activities prescribed under the proposed plan and Alternative 3, such as periodic prescribed

burns. In the event of a wildfire under this alternative, less active fire suppression techniques and larger target burn areas may result in greater impacts to recreation areas, including but not limited to the Caliente WSA, that would require area closures or restricted visitor access. In the aftermath of fire events, the quality of a visitor experience would vary based on the state of restoration of the natural environment. Impacts to all visitors, including recreational tourists and hunters, would be similar.

In the overall, impacts to the social and economic conditions as a result of fire management practices under Alternative 1 are expected to be minor.

4.18.6.4 Air Quality

As discussed above, the proposed in-common management practices for all alternatives are expected to result in overall beneficial social and economic impacts (direct and indirect) to surrounding communities by implementing measures to maintain and improve air quality. Alternative 1 also provides for reducing fugitive dust on roads throughout the Monument. This action will result in additional cumulative benefits to the region.

Impacts to communities of interest would include positive incremental improvements to air quality on the Monument. Monument visitors, residents, land and mineral estates owners and others using Monument resources, such as ranchers, may be required to find alternate access routes due to the potential for seasonal road closures. Longer term road closures would require provision of alternative access routes for frequent travelers within the CPNM, as discussed in Section 4.15, Travel Management, but would not be expected to result in economic impacts to such activities as resource recovery or grazing.

Should local contractors be hired to haul aggregate or perform road maintenance, this would generate some economic activity, albeit limited. Overall impacts are expected to be negligible to minor.

Reduction of fugitive dust has potential to provide for additional protection from degradation of sensitive resources, especially cultural sites, by use of dust suppressants on main roads within the Monument. Unlike the proposed plan, however, this alternative does not explicitly focus on dust suppression on roads that access or pass high use recreation areas, high public use areas, or near rock art sites.

4.18.6.5 Soils

Alternative 1 proposes an assessment/inventory of soils within the CPNM to assure proper functioning condition. Non-market values such as biological and physical resources would be positively impacted to the extent that the assessment/inventory contributes to an understanding of what is necessary to maintain rangeland health standards to continue to support biological functions and values on the CPNM. Recreational resources and facilities, tourism, and hunting activities may be impacted to a limited extent if access restrictions are necessary during survey periods; such impacts are expected to be negligible to minor and short-lived.

Potential indirect benefits to land values and incomes in the region include those that accrue from a greater understanding of the condition of soils on the CPNM and their ability to support biological functions and values. Monument visitor use patterns are unlikely to be impacted, except temporarily where access restrictions during survey periods may be required.

Impacts to public mineral estates would depend on inventory results and actions needed to protect/restore soils. Based on determinations provided by the inventory, there is potential for grazing fees and contributions to be impacted should grazing lease lands be removed from grazing availability based on rangeland health standards; this is further discussed in Section 4.13, Livestock Grazing.

4.18.6.6 Paleontology/Geology

Under Alternative 1, the CPNM would continue to be managed as a resource area benefiting the public and scientific community through access and education about the Monument's unique paleontological and geological features. Alternative 1 is somewhat more limiting in this regard than the other two action alternatives. However, groups that have a particular focus on preservation of the Monument's paleontological and geological resources would receive beneficial impacts from the objectives and actions set forth under this alternative. Visitors may be restricted or discouraged from entering sensitive areas; however, it is expected that such limitations would be offset by the provision of enhanced information made available through the Goodwin Education Center as well as other facilities within the Monument. Further, the protection afforded sensitive resources within access-restricted/discouraged areas may arguably be seen as of benefit to all communities of interest. Scientific research would be expected to yield additional information and lead to a better understanding of the CPNM's valuable paleontological and geological resources.

No adverse impacts are expected to occur to lessees, or to ranchers and farmers; however, the expanded level of research and study over the CPNM may yield information that could conceivably impact the availability of grazing lands. Overall, such impacts, should they occur, are expected to be minor.

Paleontological and geological resources are non-market values that will receive beneficial impacts both through the increase in protection of sites containing these resources and the potential for expanded knowledge and greater understanding of their significance. The enhancement of educational and interpretive displays and facilities should serve to enhance the experience of recreational and tourist visitors to the CPNM.

4.18.6.7 Cultural Resources

Alternative 1 would impact the social condition of the CPNM by prohibiting visitor access to Painted Rock, one of the most well-known of the archaeological sites and a major visitor destination within the Monument. As with all alternatives, however, Native American access would continue. This alternative would stabilize rock art sites where feasible, but would not intervene in the natural deterioration of rock art sites, focusing rather on recordation to preserve site information. These practices could result in the eventual loss of these resources, which are of particular import to Native Americans as well as to the educational community, Monument visitors, and the region. In general this alternative is more restrictive in terms of public access to a variety of archaeological and historical resources than is the proposed plan (Alternative 2). While Monument visitorship is expected to increase steadily over the life of the plan, nonetheless the practices set forth in Alternative 1 have potential to impact visitor interest, thereby impacting benefits to local economies.

4.18.6.8 Visual Resources

As discussed under the in-common goals, objectives, and actions for Visual Resources, the locale and region surrounding the CPNM derive considerable benefit from the existing visual character of the Monument. Alternative 1 provides for 62.5 percent of lands within the CPNM to be designated VRM Class II, which limits to "low" the degree to which management practices can result in changes to that character. Approximately one-third of lands in the CPNM would be designated VRM Class II, wherein changes to the existing character must be minimal. This alternative would benefit the region by protecting those resources. Local and regional economies are also expected to benefit from the potential for this alternative to attract recreational and other visitors to the CPNM and surrounding localities.

The protection of visual resources within the CPNM also benefits communities of interest whose primary relationship to the Monument is closely tied to retention of its existing natural and visual character and protection of natural resources. These include Native Americans, Monument visitors, and Monument residents.

This alternative would encourage leaseholders and others with existing rights-of-way to perform retrofits (including repainting existing facilities) to comply with Class II objectives. These communities of interest would also be encouraged to consider the location and design of new facilities to minimize contrast with the existing landscape. It should be noted that existing facility retrofits are not mandated improvements; cost would be based on the extent that lessees' chose to make such improvements, and it is anticipated that such impacts would be limited to no more than moderate in terms of costs to lessees. The potential costs of such design would be considered as part of the required environmental analysis for any new development on lessee's lands.

The protection of the unique and valued scenic vistas of the CPNM and its regional context, in which the open space and undeveloped character of the CPNM plays an integral role, has been shown to be important in the enhancement of land and income values within the region. Alternative 1 allocates approximately 95 percent of lands towards the two least intensive VRM class designations, and thereby limits impacts to these viewsheds. The preservation of open space and less intense changes to the characteristic landscape of the Monument also correlate with a level of management activities that advocate for the protection of biological, cultural, and physical resources. The combined effect of these actions is expected to attract recreational users and enhance their experience of the CPNM, thus further benefiting local and regional economies.

4.18.6.9 WSA/Other Lands with Wilderness Characteristics

Alternative 1 provides for management of additional lands having wilderness characteristics beyond those in the Caliente Mountain WSA, as well as the restoration activities and conversion of limited use roads for administrative use or non-mechanized trails. The regional social and economic context would be expected to benefit based on the resource value of the wilderness characteristics associated with the CPNM, in terms of the region's attraction for visitors, potential to generate tourism and recreational dollars, and land values and income enhancement associated with publicly managed lands.

The proposed management of an additional 62,607 acres with the goal of maintaining their natural character, as well as restoration and conversion of roads, as described above, would be expected to provide recreational users and other Monument visitors with additional opportunities to experience the remote character of the Monument and its resources. Some visitors who pursue motorized recreation activities would be impacted negatively, as discussed in Recreation, Section 4.14.

The preservation of these lands also directly benefits the biological, cultural, and physical resources they contain and the regional ecosystem of which they are a part. No adverse impacts are anticipated to non-market values such as hunting, which is considered an allowable use within the lands to be managed for wilderness characteristics.

4.18.6.10 Livestock Grazing

Alternative 1 reduces Section 15 grazing allotments from existing levels by about 88.9 percent, with a corresponding reduction in the number of authorized AUMs (8,466 to 939). No livestock grazing for vegetation management is authorized under Alternative 1. The implementation of this alternative would therefore have a major impact on the availability of public lands in the CPNM for livestock grazing, and would reduce public and private revenue streams associated with this use. This alternative would also

result in a net loss in available grazing lands on a regional basis, although the majority of grazing occurs on private lands so this impact is expected to be minimal. A moderate to major impact would occur to the permittees who use the allotments to support their livestock operations.

The following estimates the economic impacts to Section 15 livestock grazing fees and contributions based on Alternative 1.

Section 15 Grazing Fees

As noted in Chapter 3, BLM calculates federal grazing fees in March of each year; fees are adjusted annually based on a variety of factors. Based on the 2007 grazing fee rate of \$1.35 per AUM, fees for 939 Section 15 AUMs in the CPNM would be approximately \$1,268, as compared with \$11,656 under existing conditions.

BLM shares grazing receipts from Section 15 grazing leases equally with local governments where they are collected. Data showing grazing receipts collected in Kern and San Luis Obispo counties in recent years are discussed in Chapter 3. It should be noted that fees are for all BLM Section 15 grazing leases within the respective counties, including lands in the CPNM. Therefore, while it is difficult to determine the potential impacts associated with Alternative 1 to each county on a separate basis, nonetheless, the reduction in grazing fees under Alternative 1 would translate to a net decrease in grazing fees to the county in which the allotments are reduced.

Grazing Permit and Real Estate Value

The 2006 rate assessed on private lands in the state of California, which was used in Chapter 3 to estimate the current value of Section 15 grazing leases in the CPNM, is \$15.40 per AUM. Based on this rate, the value of Section 15 leases in the CPNM would be \$14,451 under Alternative 1. This compares with \$132,964 under current management.

By comparison, the value of Section 15 leases under the proposed plan (Alternative 2) and Alternative 3 would be \$121,614, or 6.7 percent less than those authorized under existing management.

Free Use Grazing Permit Contributions

As discussed in Chapter 3, there are no direct fees for free use grazing permits within the CPNM; permittees voluntarily contribute to the Carrizo Grazing Facility fund. Fund contributions vary annually, based on actual available pastureland and regional conditions, and since FY 2004 have ranged between \$0 and \$5,585. No livestock grazing for vegetation management is authorized under Alternative 1.

4.18.6.11 Recreation

Alternative 1 provides for management of 80,591 acres as Primitive, 150,844 acres as Backcountry, and 15,382 acres as Frontcountry. It provides for between 9 and 45 miles of new trails over the three RMZs. In the Primitive zone, new trails would be primarily the result of road closures resulting from the increased Primitive zone acreage. Alternative 1 provides for camping within developed campgrounds only but does not allow for dispersed camping except for backpacking where visitors travel over one-half mile from their vehicle.

In addition to the in-common goals, objectives and alternatives discussed in Section 4.18.4.12, Alternative 1 provides for additional management objectives and actions both Monument-wide and within each discrete RMZ. These are intended to enhance recreational opportunities in the CPNM while

balancing the need to protect sensitive Monument resources, and would be expected to attract visitors to the region, generating public and private revenue streams. BLM estimates indicate that Monument visitorship is expected to increase from current levels by approximately 10 percent by year 2018, and another 8 percent by year 2028. Based on average daily expenditures by leisure guests for San Luis Obispo, Kern, and Santa Barbara counties, and assuming that about 40 percent of these guests come from outside the region, visitorship to the CPNM has potential to generate expenditures in the region estimated at approximately \$3.2 million in 2018 and approximately \$3.4 million in 2028.

Alternative 1 differs from the other action alternatives by focusing camping within developed areas rather than allowing for dispersed camping. As discussed in Section 4.18.4.12, each of the alternatives varies in terms of the respective RMZ acreages and provision of trail miles and other facilities. Even with its explicit camping restrictions, this alternative provides Monument visitors with a variety of opportunities to experience the CPNM's character and resources while providing for the protection of those resources. This alternative would impact those visitors who prefer to camp away from developed sites, especially hunters. These impacts are discussed in Recreation, Section 4.14.

4.18.6.12 Travel Management

As discussed in Section 4.18.4, the action alternatives differ primarily in terms of acreages allotted to the various road and use area designations. Alternative 1 allocates slightly fewer road miles to open roads, and approximately 44 percent more closed roads than does the proposed plan (Alternative 2). It would result in approximately 35 percent more acres of closed areas than would the proposed plan. Overall, these differences are negligible to minor, and are not expected to affect visitor interest in the Monument. Access to private lands would not be impacted.

4.18.6.13 Minerals

Alternative 1 would result in slightly to moderately higher costs for existing oil and gas operators compared to the other action alternatives, due to requirements for more rapid restoration/abandonment of wells and increased expenditures to modify or eliminate "non-conforming" operations, many of which are old, unsightly, and have little or no economic value. Private mineral estate owners could incur somewhat higher costs than the other alternatives in exploration and development. Otherwise, impacts would be the same as those discussed in common to all alternatives.

4.18.6.14 Lands and Realty

Under this alternative, BLM would seek to increase holdings for the protection of Monument resources, converting privately owned lands from willing sellers to public lands. These actions would generate revenues to the particular communities of interest from whom lands were acquired, such as private land and/or mineral estates owners. Impacts to communities of interest such as Native American groups, Monument visitors, and residents would be expected to be positive through the increased protection of resources and availability/potential access to public lands. These actions would also provide beneficial impacts to the region's quality of life and thereby for potential land and income value enhancement. Impacts to local government revenues are expected to be neutral, since they receive revenues from lands within their jurisdictions, whether privately or publicly owned, through property taxes or payments in lieu of taxes.

4.18.7 Impacts to Social and Economic Conditions from Alternative 3

4.18.7.1 Wildlife

As noted under 4.18.7.1, impacts under this alternative would be generally similar to those under the proposed plan (Alternative 2). To the extent that management practices associated with this alternative provide for more aggressive protection and enhancement of habitat quality and certain animal populations, impacts to the region's quality of life, and benefits to communities of interest and non-market values may also be enhanced.

4.18.7.2 Vegetation

These impacts would be the same as those expected under the proposed plan (Alternative 2).

4.18.7.3 Fire and Fuels Management

Alternative 3 is focused on the active suppression end of the continuum in terms of wildfire management, calling for suppression of all fires on the CPNM. As with the proposed plan (Alternative 2), it utilizes prescribed burns to return fire to the ecosystem, manage invasive vegetation species, and reduce fuel loads. This alternative calls for a target of less wildfire acres burned per decade than either of the other alternatives (5,000 acres as compared with 40,000 acres under Alternative 1, and 10,000 under the proposed plan [Alternative 2]). It provides a similar level of assurance to the social and economic wellbeing of the regional and local communities of place as does the proposed plan.

This alternative also actively protects sensitive cultural and biological resources, as well as private property within the Monument (same as Alternative 1 and the proposed plan). It does not explicitly provide for protection of Monument facilities, as does the proposed plan, but such protection is implicit in by means of the total wildfire suppression actions it sets forth.

Alternative 3 would have a similar or slightly greater impact (as compared with the proposed plan [Alternative 2]) to non-market values in terms of protection of resources and the effect of such protection on land values and income enhancement potential. It may have a slightly greater potential to disrupt visitorship and recreational activities for short periods of time in favor of actively managing fire and fuels. Impacts to air quality are also likely to be reduced under this alternative. It provides for protection of all resources, as does the proposed plan, but does so with a smaller range of tools.

As discussed under Communities of Interest, this alternative may provide the greatest level of assurance to market and commodity values in terms of fire protection through its policy of more aggressive wildfire suppression. It is expected to provide for potentially the greatest assurance of protection for private property, including livestock, of all alternatives.

4.18.7.4 Air Quality

Impacts to regional communities would be similar to those of the proposed plan (Alternative 2) in terms of enhanced quality of life through measures set forth in Alternative 3 to improve and maintain air quality. Local economies would benefit if aggregate materials and other supplies are purchased there, and if local contractors are hired. BLM would coordinate with the respective counties to secure funding for paving those roads administratively controlled by the county.

As a basis of comparison, expenditures associated with *all* purchases and contracted services for Alternative 3 (including but not limited to air quality) are expected to range from \$375,000 to \$500,000 per year, not accounting for inflation over the life of the plan, and based on current practice would be an

approximately 50 percent/50 percent split between San Luis Obispo and Kern Counties. This is an approximately 50 percent increase over Alternative 1 and 25 percent more than the proposed plan in terms of overall expenditures.

In the longer term, the overall character of the Monument could conceivably be altered by the presence of paved roads, although these would consist of main roads only. Such roadways would be expected to improve access to Monument resources for these communities of interest.

4.18.7.5 Soils

Impacts to communities of place and communities of interest under Alternative 3 would be similar to those under the proposed plan (Alternative 2), and would be generally beneficial. Additional actions under Alternative 3, such as eliminating causes of erosion and complete restoration, may require seasonal or more long-term closures of or access restrictions to recreational use areas, and more extensive seasonal road closures. While all of these would depend on a variety of factors including rainfall, temperature, and wind conditions, and human-caused conditions such as traffic, recreational and research visitation, and grazing, they may also affect those activities and the communities of interest represented by them. The impacts associated with the implementation of the soils management program are generally beneficial for the management of biological resources that are considered important to conservation efforts and the character of the Monument. From an economic standpoint, the objectives and actions associated with Alternative 3 are expected to result in negligible to minor adverse changes or impacts to communities of interest, especially in light of the aforementioned beneficial impacts to biological and other sensitive Monument resources.

There is a clear correlation between the health of biological resources such as native vegetation and the habitat it provides for wildlife species within the Monument, and the health of the underlying soils. Paleontological resources and hydrologic functions and values, which may be impacted by erosion and other natural processes that deplete or transport soils, are also affected. These non-market values will be beneficially impacted from the objectives and actions set forth in Alternative 3.

4.18.7.6 Geology and Paleontology

Objectives and actions for Alternative 3 are the same those for the proposed plan (Alternative 2). Potential impacts are therefore expected to be the same for both alternatives.

4.18.7.7 Cultural Resources

Alternative 3 is the same as the proposed plan (Alternative 2) in many respects, and similar in most others. It provides guided tours to Painted Rock on a year-round basis but does not allow self-guided tours. It would stabilize but not attempt restoration of historic ranching and farming buildings and structures. Alternative 3 would be expected to result in impacts to social and economic conditions in the region and to communities of interest and non-market values that are comparable to those under the proposed plan.

4.18.7.8 Visual Resources

Impacts to social and economic conditions associated with the Visual Resources program actions under Alternative 3 will generally be similar to those of the proposed plan (Alternative 2), in that these alternatives set forth the same objectives and actions. The only differences are those related to acreages of the respective VRM classes. By way of comparison, Alternative 3 allocates approximately 9.5 percent

more lands to VRM Class II lands (this is a 20 percent increase over Alternative 1), and 5.0 percent more to VRM Class III lands (a 6.4 percent increase over Alternative 1).

Alternative 3 allocates substantially less acreage than either of the other alternatives to the Class I VRM (6.6 percent as compared with 21.2 percent under the proposed plan, and 32.9 percent under Alternative 1). Class I lands are those that allow for the least perceptible level of change to the existing landscape. However, the predominance of Class II lands, which provide for no more than minor impacts to the character of the existing landscape either by modifications or management activities, is expected to have a generally positive or neutral impact on communities of place, communities of interest, non-market values and market and commodity values. Potential impacts to leaseholders would be most similar to those under the proposed plan.

4.18.7.9 WSA/Other Lands with Wilderness Characteristics

This alternative incorporates the goals, objectives, and actions common to all alternatives by managing the 17,984-acre Caliente Mountain WSA to maintain the area's suitability for preservation as wilderness. Therefore, social and economic impacts associated with this alternative would be those common to all alternatives.

4.18.7.10 Livestock Grazing

It is assumed that Section 15 grazing allotments would occur 8 out of 10 years, as compared with 5 out of 10 years under the proposed plan (Alternative 2). Therefore, impacts to Section 15 livestock grazing and associated fees and contributions would be the same on an annual basis as the proposed plan and the No Action Alternative. However, this alternative would generate more Section 15 grazing revenues over a 10-year period, and over the long term, than would the proposed plan, and the same as under the No Action Alternative. Impacts associated with free use grazing would be the same as those of the proposed plan.

4.18.7.11 Recreation

Alternative 3 has the potential to generate the highest increases in Monument visitorship over the life of the plan. By year 2018, it is expected to generate a 25 percent increase, and another 20 percent by year 2028. Based on these increases and average daily visitor expenditures (combined) for Kern, San Luis Obispo, and Santa Barbara Counties, under this alternative Monument visitors may be expected to generate approximately \$3.6 million in annual revenues within the assessment area, and approximately \$4.4 million in year 2028.

Alternative 3 allocates only 17,984 acres to the Primitive zone, limiting new facilities within this zone to new trails and directional signage. It allocates 200,091 acres to the Backcountry zone, and 28,741 acres to the Frontcountry zone. It provides between 15 and 40 miles of new trails, and as does the proposed plan (Alternative 2), allows dispersed camping in the Backcountry zone. Unlike the proposed plan, this alternative does not allow competitive activities or recommend the elimination of varmint hunting or the potential impacts associated with each of these activities.

4.18.7.12 Travel Management

Alternative 3 would result in the least road-miles of closed roads of any of the action alternatives (10 as compared with 81 and 45 under Alternative 1 and the proposed plan (Alternative 2), respectively) and the fewest acres of closed areas. Alternative 3 would be expected to provide the greatest level of vehicle access within the Monument, but is not expected to result in more than minor impacts to the visitor

experience within the CPNM and no adverse impacts to other communities of interest or non-market values.

4.18.7.13 Minerals

Impacts to existing oil and gas lessees from cost of development for this alternative would be the least impacting, either positively or adversely, of all the action alternatives. Alternative 3 neither provides additional resources at BLM expense, nor does it require compliance beyond existing federal legislative standards. Impacts to Monument resources and other communities of interest, such as visitors and residents, are expected to be negligible to minor.

4.18.7.14 Lands and Realty

Impacts under Alternative 3 are the same as under the proposed plan (Alternative 2).

4.18.8 Impacts to Social and Economic Conditions from the No Action Alternative

4.18.8.1 Wildlife

The No Action Alternative would generally be expected to result in similar impacts to social and economic conditions in the region and to communities of interest as those occurring under current conditions, which are generally based on protection of Monument resources as set forth in the Monument Proclamation and the existing Carrizo Plain National Area (CPNA) Plan. The No Action Alternative sets forth a variety of measures to protect Monument resources, which combine active management actions along with others that rely primarily on natural processes, the outcomes of which may vary based on future conditions. Therefore, the potential social and economic conditions resulting from the No Action Alternative are generally expected to be similar to existing conditions in the short-term.

4.18.8.2 Vegetation

Potential social and economic impacts associated with vegetation management under the No Action Alternative are expected to be similar to those of wildlife management, or generally similar to those that currently exist or would be expected to occur in the short-term.

4.18.8.3 Fire and Fuels Management

The No Action Alternative uses existing fire management protocol as prescribed in the CPNA. It is similar to the three action alternatives in terms of its focus on protecting Monument resources, human life, and private property. It also provides for increasing the availability and dependability of water sources for wildfire suppression. In terms of the level of assurance to surrounding communities, it is most similar to Alternative 1. In terms of potential for disruption of activities within the Monument for shorter periods due to fire management activities, it is similar to the proposed plan (Alternative 2) and Alternative 3 and would be expected to have similar impacts to social and economic conditions in the region and to the communities of interest, and non-market and market/commodity values discussed herein. In the overall, impacts associated with fire management on the CPNM are expected to be minor and generally beneficial with regard to social and economic conditions.

4.18.8.4 Air Quality

The No Action Alternative requires conformance with existing local, state, and federal air quality and visibility requirements and PM₁₀ dust control rules. This alternative is generally expected to result in

impacts similar to those under existing conditions and to result in no adverse impacts to social and economic conditions in the region.

4.18.8.5 Soils

As with air quality, potential impacts to social and economic conditions from the No Action Alternative are expected to be negligible, with no adverse impacts but with no measurable improvement.

4.18.8.6 Water

The No Action Alternative for water resources is intended primarily to maintain and enhance natural hydrologic processes. It does not explicitly provide for replacement of water sources for use by livestock, wildlife, or administrative use. The potential under the No Action Alternative for natural water sources to continue to provide for the needs of these users is considered in Section 4.7, Water Resources. There would be no new impacts to the social and economic conditions of the region, communities of interest, non-market values, or market and commodity values beyond those already occurring or which would be expected to occur in future based on existing management. Given increasing concerns over the availability of water, it is likely that a more active approach to water management, such as is set forth in the action alternatives, will be of greater overall benefit to the social and economic context within which the CPNM exists.

4.18.8.7 Geology and Paleontology

The No Action Alternative would continue current management practices, which involve limited field monitoring and patrol, would authorize continuation of current formal field research in selected areas, and would maintain public interpretation and education resources at the Goodwin Educational Center and at other sites where such resources are currently available. These practices would not result in either adverse or beneficial impacts to social and economic conditions other than those already occurring. However, the protection of the values represented by these resources, and the expansion of educational opportunities to the scientific community as well as the public by means of the more active management practices proposed under the various action alternatives, especially the proposed plan (Alternative 2) and Alternative 3, may be expected to result in a greater level of positive impacts.

4.18.8.8 Cultural Resources

The No Action Alternative would continue current management practices; therefore, no additional adverse or beneficial impacts to social and economic conditions are therefore expected to result from their continued implementation other than those already occurring or expected in future as a result of current management. As with other sensitive and unique Monument resources, cultural resources and Native American interests are expected to derive greater benefit from the enhancements and augmented provisions for their protection and public and academic access and education, such as those set forth in the action alternatives, primarily the proposed plan (Alternative 2) and Alternative 3. Social and economic conditions in the region, for communities of interest such as Native American groups and Monument visitors, and for the non-market values that these resources represent are also expected to receive positive benefits from implementation of an action alternative that allows for an expanded range of management practices.

4.18.8.9 Visual Resources

Although most of the Monument would continue to be managed as VRM Classes II and III, the No Action Alternative provides for management of some areas along the border of the Monument as VRM

Class IV, which allows for the highest level of impact to the natural landscape of all the VRM class designations. Class IV provides for “management activities and uses requiring major modifications to the natural landscape.” All of the action alternatives limit VRM class designations to III or lower, varying primarily in terms of the amount of acreage allocated to each VRM class.

The visual resources of the CPNM may arguably be considered a regional asset and their protection, along with that of other unique and highly valued Monument resources, has been established as a factor in the region’s quality of life and associated economic indicators such as land and income values. Open lands and scenic vistas characteristic of the Monument were cited during the public scoping process and are considered an integral component of the non-market values cited in Chapter 3. Therefore, reducing the level of impacts to the existing landscape below Class IV and by other means as described in the action alternatives would be expected to have a beneficial effect on the social and economic conditions of the aforementioned communities of place, communities of interest, and non-market values.

4.18.8.10 WSA/Lands with Wilderness Characteristics

The No Action alternative is identical to Alternative 3; therefore, potential impacts would be the same for both alternatives (see Section 4.18.7.9).

4.18.8.11 Livestock Grazing

Existing social and economic conditions associated with livestock grazing in the CPNM are described in Chapter 3. Detailed impacts to livestock operations and opportunities within the Monument are described in Section 4.13, Livestock Grazing. Potential future impacts based on continuing existing management practices would be expected to be similar, although as with the proposed plan (Alternative 2) and Alternative 3 actual revenues may vary based on fluctuations in AUM fees and future increases in local government assessment rates, and conversion of grazing lands to other uses or removal from availability based on range conditions.

The No Action Alternative is most similar to Alternative 3 in terms of provision of Section 15 grazing lands and projected revenues to BLM and local governments; it is also likely to be most similar in terms of impacts to ranchers who lease or access public lands in the CPNM for livestock grazing. It exceeds the proposed plan in terms in that it provides for Section 15 grazing allotments to occur at greater frequency over 10 years, and is therefore expected to result in higher projected revenues than would the proposed plan. The No Action Alternative would support approximately 2.6% fewer AUMs from free use grazing permits than would the proposed plan and Alternative 3.

4.18.8.12 Recreation

Potential social and economic impacts from the recreational goals, objectives, and actions under current management would be expected to continue under the No Action Alternative. Based on California Tourism figures (California Tourism, 2006), in Kern County leisure guests average daily expenditures of \$68.50. This figure is higher in San Luis Obispo and Santa Barbara counties, at \$86.70 and \$95.20 per day, respectively. No data were available for Ventura County. To conservatively estimate the potential regional economic impacts of CPNM visitorship, an average of the three-county expenditure figures, or \$83.47 per day, has been used. Based on the assumption that approximately 40 percent of visitors to the CPNM come from outside the region and would require travel-related services, such as food and lodging, at current levels (87,040 annual visitors), it is estimated that CPNM visitors from outside the region generate average daily expenditures approximately \$2.9 million in the assessment area on annual basis (based on a one-day stay per visitor in the region). Based on BLM estimates of future use, under the No Action Alternative these revenues would be expected to increase to approximately \$3.35 million by year

2018, and \$4.1 million by year 2028. Local governments would collect a portion of these revenues in the form of sales and transient occupancy taxes.

Based on the factors shown above and projected recreation use levels under each alternative, the No Action Alternative has potential to generate higher recreation-related revenues than either Alternative 1 or 2. However, it does not provide for targeted marketing to potential Monument users, as do the action alternatives, which could generate additional revenues for local jurisdictions, nor does it actively provide for the enhancement of recreational facilities to the extent that the action alternatives do so.

4.18.8.13 Administrative Facilities

No explicit objectives or actions are included in existing management plans regarding administrative facilities. Based on continued management of these facilities in their existing state, no new adverse or beneficial impacts are anticipated. None of the action alternatives are expected to result in more than minor impacts to social and economic conditions.

4.18.8.14 Travel Management

Road miles per route designation category are the same as those for Alternative 3. No other designations are established for this alternative. Each of the action alternatives provides for a progressively greater level of management involvement; potential impacts associated with this management category are not expected to result in more than minor impacts to social and economic conditions under any of the action alternatives.

4.18.8.15 Minerals

There would be no adverse or beneficial impacts beyond those already occurring.

4.18.8.16 Lands and Realty

The No Action Alternative is the same as Alternative 1 in terms of land acquisitions and the same as Alternative 3 in terms of rights-of-way and permits. Impacts are therefore expected to be same.

4.18.9 Cumulative Impacts

4.18.9.1 Assessment Area

The assessment area for this discussion is set forth in the introduction to Section 4.7 and is the same as that which has been considered for the No Action and each of the action alternatives.

4.18.9.2 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and reasonably foreseeable future actions within the assessment area are those discussed in affected environment (existing conditions) discussions in Chapter 3 for each of the resource management and resource use categories. They also include the RFDs for each of these categories discussed throughout this chapter. In general, continued development of lands within the San Joaquin Valley and southern California are expected to increase the scarcity and value of large undeveloped open spaces and intact habitat of the Monument.

4.18.9.3 Cumulative Impacts

The proposed management of the CPNM will result in cumulative social and economic impacts to the assessment area from implementation of any of the action alternatives. Commodity values such as livestock grazing and oil and gas production are important economic activities within the region. However, while management of these activities on lands within the Monument will impact individual lessees and operators over the life of the plan and in the long term, these activities represent a very small proportion of those that occur elsewhere in the region. These cumulative impacts are expected to be minor.

The primary social and economic impacts of Monument management over the life of the plan and beyond will be those associated with the unique and irreplaceable non-market values of the CPNM and their contribution to the region and state-wide. The level at which each alternative protects these resources has been analyzed within this section and elsewhere within Chapter 4. Cumulative effects associated with resource management decisions also include preservation of open space and scenic vistas, which, along with the aforementioned biological, cultural, and physical resources, will affect the overall character of the Monument over the life of the plan and in the long term. The value of the Monument as a wild and relatively undeveloped expanse of lands proximate to the highly urbanized Central Coast and set within the Central Valley region, and within easy driving distance of major urban centers in southern and north-central California, cannot be understated. The cumulative and beneficial impacts associated with the protection of these resources are expected to be major over the long term, in contrast to ever-increasing development pressures in the surrounding region and statewide.

Based on state and national trends, tourism, including eco and cultural tourism and active recreation such as hiking, biking, and camping, is expected to continue to grow and generate increased revenues nationally and in the state. Management practices set forth in the action alternatives will exert influence over the potential for the Monument to maintain and enhance its status as an important regional and state tourist attraction. The preservation and protection of the aforementioned non-market values has been cited throughout this document as crucial to the Monument's attractiveness to tourists.

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Chapter 5. Consultation and Coordination

5.1 Introduction

This document has been prepared with input from and coordination with interested agencies, organizations, tribal governments, and individuals. Planning is inherently a public process. The Bakersfield Field Office used a number of methods to work with the members of the public, interest groups, and governmental entities. Public involvement is a vital component of the *Federal Land Policy and Management Act* (FLPMA) and the *National Environmental Policy Act* (NEPA) for vesting concerned citizens in the planning process and allowing for full environmental disclosure. Guidance for implementing public involvement is contained in 43 Code of Federal Regulation (CFR) 1601-1610, FLPMA Section 103(d), and the Council on Environmental Quality's (CEQ's) NEPA regulations at 40 CFR 1506.6, and is intended to ensure that federal agencies make a diligent effort to involve the public in preparing planning and NEPA documents.

A summary of the earlier public scoping process is available in Chapter 5 of the draft resource management plan and environmental impact statement (RMP/EIS) and is not reproduced here. This chapter summarizes and responds to public comments submitted on the Draft RMP/EIS.

Formal public involvement opportunities for the Carrizo Plain National Monument (CPNM) Proposed RMP and Final EIS (PRMP/FEIS) are being conducted in several ways including:

- Public scoping period prior to Draft RMP EIS development to obtain public input on issues that need to be addressed in developing the plan alternatives.
- Cooperating, coordinating, and collaborating with our cooperating partners the Department of Fish and Game (CDFG) and The Nature Conservancy (TNC) includes progress report briefings and the formal effort of obtaining the advice or opinion of these organizations, although not considered consultation under 50 CFR 402.14
- Monument Advisory Committee progress report briefings and opportunities for public feedback during formulation of the Draft RMP EIS.
- Public review and comment on the Draft RMP EIS to recommend changes in the alternatives, identify gaps or errors in impact analysis, or provide input on other aspects of the draft for incorporation into development of the Proposed RMP / Final EIS.

Public involvement and other aspects of consultation and coordination are discussed in more detail in the following sections.

5.2 Distribution and Availability of the Draft RMP/EIS

5.2.1 Notice of Availability

The public comment period for the CPNM Draft RMP/EIS opened with publication of the notice of availability (NOA) in the *Federal Register* on January 23, 2009 (Volume 74, Number 14). This NOA notified the public of BLM's publication of the Draft RMP and associated Draft EIS for those lands within the CPNM planning area boundary. The NOA also solicited public comments and participation.

Press releases were sent to local and major central California news media and posted on BLM's California and Bakersfield websites and California Newsbytes, an on-line BLM newsletter. Articles were published announcing the meetings in newspapers in the region including San Luis Obispo and Bakersfield.

An informational website was made available to the public on April 12, 2007. It provided background information on the CPNM, the Draft RMP/EIS, an outline of the planning process, a schedule of upcoming public meetings, and an opportunity for people to email comments directly to the BLM office. This site received approximately 600 hits during the Draft RMP EIS comment period (January 23, 2009 through April 23, 2009).

A phone number, (661) 391-6034, was made available for information or questions about the planning process. This number only generated a small number of calls.

5.2.2 Public Meetings

Three public meetings were held in 2009: in Bakersfield on February 24, in San Luis Obispo on February 25, and in California Valley on March 7. Attendance totaled 45 individuals, with the attendance per meeting as follows:

- Bakersfield: 5 people
- San Luis Obispo: 20 people
- California Valley: 20 people

The meetings were held to summarize the Draft RMP/EIS for the public via a PowerPoint presentation given by BLM staff on the plan, the alternatives considered, and the preferred alternative. Participants were invited to ask questions or offer formal comment on the plan, Commenters were asked to sign in when entering the meeting and to indicate whether they wanted to speak. (However, comments were accepted from everyone, not only those who had indicated their interest on the sign-in sheet). At the beginning of their oral comments, each individual was asked to provide their full name. Public comment forms were also distributed so that people could hand them in at the meeting or mail them in later if they preferred to write their comments rather than speak publicly. Everyone was told that they could submit written comments in any format (that is, using the form provided, email, letters, or fax), even if they already made oral comments at the meeting.

The following organizations and agencies were represented among the people who signed in at the public meetings (in alphabetical order):

- Representative of Congressman Lois Capps
- Formal Representation of the MAC
- Sierra Club
- TNC

5.2.3 Public Comments

The comments on the Draft RMP/EIS included three verbal comments at public meetings, three from public agencies (U.S. Environmental Protection Agency Region IX, the California Department of Forestry and Fire Protection, and the California State Historic Preservation Office [SHPO]), and 17 organizations, as follows:

- California Native Plant Society, Kern County Chapter
- California Native Plant Society, Mojave Desert Chapter
- California ORV Association
- Californians for Western Wilderness

- Center for Biological Diversity
- Defenders of Wildlife
- Desert Survivors
- Golden Trout Fund
- Living Trust of Marlene A. Braun
- Los Padres ForestWatch
- National Trust for Historic Preservation
- Natural Resources Defense Council
- Sierra Club CA/NV Desert Committee
- Sierra Club Santa Lucia Chapter
- The Wilderness Society
- Western Watersheds Project

Section 5.7 (page 5-5) summarizes the content analysis of the public comments, and Section 5.8 (page 5-15) presents a summary of the comments and BLM’s responses.

5.3 Additional RMP Collaboration, Coordination, and Cooperation

Coordination, cooperation, and the collaboration processes are required by FLPMA, NEPA, CEQ, and implementing regulations in the CFR. Many interactions as a result of this planning effort are shown below.

5.3.1 Monument Advisory Committee, Managing Partners, Native American, and Cooperating Agency Participation

A number of key cooperators have played an integral role in RMP development. The respective roles of these entities—the Managing Partners (TNC and CDFG), Monument Advisory Committee, and Native American Advisory Committee—are outlined in Chapter 1 (for more information on these groups, see Section 1.8, Collaboration, in Chapter 1).

5.3.2 State of California (Including State Historic Preservation Officer) Consistency

The proposed RMP/Final EIS (PRMP/FEIS) will be reviewed by appropriate state agencies for consistency with California state plans and policies. The PRMP/FEIS will also undergo a 60-day “Governor’s Consistency Review.” SHPOs have responsibilities under state law as well as under Section 101(b)(3) of the *National Historic Preservation Act* (NHPA) to “consult with the appropriate Federal agencies in accordance with [the NHPA] on Federal undertakings that may affect historic properties, and the content and sufficiency of any plans developed to protect, manage, or to reduce or mitigate harm to such properties.” In addition the BLM-SHPO California State Protocol agreement states that all draft and final RMPs shall be submitted to the SHPO for review and comment. The SHPO reviewed the Draft RMP/EIS and will also review the PRMP/FEIS as part of the consultation process.

5.4 Completion of the Planning Process

Comments on the Draft RMP EIS were reviewed and incorporated into this PRMP/FEIS. The availability of the Proposed RMP/Final EIS will be announced in the Federal Register, and a 30-calendar-day public protest period will follow. Anyone considering protesting the proposed plan may meet with BLM to discuss his or her protest concerns. At the conclusion of the public protest period, the BLM Director will evaluate and resolve any protests. After protests are resolved, the BLM California State Director will

publish the approved RMP and Record of Decision (ROD). Its availability will be announced through the mailing list, website, and regional media.

5.5 List of Preparers

This RMP/EIS has been prepared by an interdisciplinary team of resource specialists from the Managing Partners. In addition, assistance was provided from specialists at the BLM state office and from Labat Environmental and Terra Nova consulting firms. The following table lists members of the planning team and their job title.

Table 5.5-1. List of Preparers

Name	Job Title
<i>BLM Bakersfield Field Office</i>	
Lisa Ashley	Natural Resource Specialist (02/09 – present)
Duane Christian	Archaeologist
David Christy	Public Affairs Officer
Ryan Cooper	Recreation Planner
Karen Doran	Rangeland Management Specialist
Nora DeDios	Project Lead (2/09 – 05/09)
Joy Fatooh (Bishop Field Office)	Wildlife Biologist
Gabe Garcia	Assistant Field Manager, Minerals
Patricia Gradek	Acting Field Manager (through 6/07)
Johna Hurl	National Monument Manager
Denis Kearns	Botanist
Amy Kuritsubo	Wildlife Biologist
Stephen Larson	Assistant Field Manager, Resources
Sue Lopez	Realty Specialist
Sue Porter	Project Lead (8/09-Present)
Jeff Prude	Petroleum Engineer
Chris Ryan	Soil, Air, and Water Specialist
Nancy Ryan (volunteer)	Administrative Support
Judith Sackett	Administrative Support
Larry Saslaw	Wildlife Biologist
Kathy Sharum	Wildlife Biologist
John Skibinski	Associate Field Manager
Tim Smith	Field Manager (6/07–present)
Diane Simpson	Recreation Planner
Dylan Tucker	Rangeland Management Specialist
Kent Varvel	Hazardous Materials
Larry Vredenburg	Geologist and GIS Coordinator
Bob Wick	Project Lead (through 5/08) (and 5/09-8/09)
Katherine Worn	Project Lead (6/08–01/09)
Tamara Whitley	Archaeologist (4/09-present)
<i>California Department of Fish and Game</i>	
Deborah Hillyard	Staff Environmental Scientist
Bob Stafford	Associate Wildlife Biologist
<i>The Nature Conservancy</i>	
Tom Maloney	San Luis Obispo Program Director
Scott Butterfield	Ecoregional Scientist
<i>California State University, Sonoma</i>	
Caroline Christian	Associate Professor, Dept. of Env. Studies

Name	Job Title
BLM California State Office	
Dianna Brink	Rangeland Coordinator
Paul Brink	Wilderness Coordinator
Steve Kupferman	Geologist
Sandra McGinnis	Planning and NEPA Coordinator
Lenore Thomas	Hydrologist
Ken Wilson	Archaeologist, Tribal Liaison
Labat Environmental and Terra Nova (Consultants)	
Christine Modovsky (Labat Environmental)	NEPA Specialist / Consultant Team Manager
Jennifer Knuth (Labat Environmental)	Technical Editor / Cultural Resources Specialist
Tamar Krantz (Labat Environmental)	Technical Editor / Environmental Scientist
Laura Alstadt (Terra Nova)	Environmental and Socioeconomic Specialist
John Criste (Terra Nova)	Environmental Planner

5.6 Advisory Committees

The following committees provided advice during development of the RMP.

Table 5.6-1. Carrizo Plain National Monument Advisory Committee

Name (Title)	Represents
Neil Havlik, PhD (Chair)	Public at Large
Ellen Cypher (Vice Chair)	Public at Large
Raymond Hatch	Public at Large
Michael Khus-Zarate	Carrizo Plain Native American Advisory Committee
Dale Kuhnle	Grazing
Robert Pavlik	Public at Large
Jim Patterson	San Luis Obispo County Supervisor, District 5
Carl Twisselman	BLM Central California Advisory Council

Table 5.6-2. Carrizo Plain Native American Advisory Committee

Name (Title)	Represents
Michael Khus-Zarate (Chair)	Chumash
Robert Duckworth (Vice Chair)	Salinan
Elmer Castro	Chumash

5.7 Public Comments – Content Analysis

During the public comment period, which extended from January 23 to April 23, 2009, 15,580 comment submissions were received from individuals, agencies, and organizations; 15,485 of these were emails containing identical text that had been suggested by three environmental interest groups. Each comment letter typically contained multiple individual comments on one or more of the topics addressed in the Draft RMP EIS. A full listing of commenters, including name, affiliation, and comment number is provided in Table 5.7-1. Comments were received in letters, electronic mail messages, and verbally at the public meetings.

The commenters include federal and state officials; public interest groups; and private citizens. The breakdown of respondents and number of comments is as follows:

- 3 comment submissions from public agencies, containing a total of 11 individual comments;
- 20 comment submissions from special interest groups (including a joint submission from 10 organizations, 3 of whom also submitted additional separate letters) containing a total of 282 individual comments;
- 72 unique comment submissions from individuals, containing a total of 442 individual comments; and
- 15,485 submissions of three different form letters, containing a total of 18 individual comments.

The form letter submissions were reviewed via automated comparison to the files containing the standard text, revealing 10 unique comments that were not included in the original form letter text and that also were not raised by the others comments received by BLM.

A summary of major changes made in the Proposed RMP / Final EIS, in response to public comment, is provided in Chapter 1.13. The comment letters are included in the Administrative Record for this NEPA process, and are available for review at BLM's Bakersfield Field Office. A two-part reference number was used for each individual comment: the first number is the number assigned to each letter / commenter and the second number identifies the individual topic-specific comment.

Comment summaries, by topic, and responses to comments are provided in Section 5.8 (page 5-15) of this chapter. The comment summaries provide a brief overview of the comments for the reader's convenience in reviewing the responses, and are not intended to provide a complete representation or interpretation of the comment's meaning. BLM's responses are based on the comments in the letters themselves.

The comment entries are organized according to resource, as listed in the Table of Contents for this appendix. Comment responses for topics under each category provide: (1) a list of the comment numbers addressed in that response, (2) a summary of the comments, and (3) the response. Frequently, more than one commenter submitted identical or similar comments; in those cases, comments were grouped together, summarized, and given a single response. Also, where a single response addressed several unique comments, these comments were summarized as a set. In compliance with the provisions of NEPA and CEQ regulations, public comments on the Draft RMP EIS were assessed both individually and collectively by BLM. Some comments resulted in changes or modifications to the PRMP/FEIS. Comments that were not associated with modifications to the PRMP/FEIS may have generated responses to correct readers' misinterpretations, to explain or communicate government policy, to clarify the scope of the PRMP/FEIS, to explain the relationship of the PRMP/FEIS to other documents, to refer commenters to other information in the PRMP/FEIS to answer technical questions, or to further explain technical issues.

The ROD will present the decisions made by BLM, and will reflect consideration of these public comments on the Draft RMP EIS.

Table 5.7-1. Summary of Comment Letters on Carrizo Plain National Monument Draft RMP EIS

Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
1	Jack	?		biological resources
2	Jack or Jake	?		biological resources
3	George & Frances	Alderson		general comments on alternatives and analyses, biological resources, WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals, lands and realty
4	Julia	Barfield		general comments on alternatives and analyses, biological resources
5	Caren	Barker		general comments on overall document, biological resources, travel management
6	Lori S.	Barrett		general comments on overall document
7	David	Batts	EMPSi	general comments on overall document
8	Julie	Beer		general comments on overall document, general comments on alternatives and analyses
9	Lisa	Belenky	Center for Biological Diversity	purpose and need, general comments on alternatives and analyses, biological resources, climate and climate change, livestock grazing, travel management, minerals
10	Robert O.	Binnewies		biological resources, livestock grazing
11	Robert O.	Binnewies		livestock grazing
12	Ralph J.	Bishop		biological resources, geology/paleontology, cultural resources, livestock grazing, recreation, minerals

Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
13	Alice	Bond	Wilderness Society et al.	purpose and need, general comments on alternatives and analyses, biological resources, air quality, soils, water, climate and climate change, cultural resources, WSAs and lands with wilderness characteristics, livestock grazing, recreation, travel management, minerals, lands and realty, conservation target table, oil and gas SOPs,
14	Enrico	Bongio		livestock grazing
15	Eric and Marty	Brown		general comments on alternatives and analyses, livestock grazing
16	Mary	Brown		biological resources, travel management
17	Syd	Brown		livestock grazing
18	Christopher L.	Campbell	Baker Manock & Jensen for Bidart Bros.	livestock grazing,
19	Ray	Chowkwanyun		minerals
20	Lucy G.	Clark	Kern County CNPS	WSAs and lands with wilderness characteristics, livestock grazing, travel management
21	Willard	Cole		livestock grazing, recreation, travel management
22	Michael J.	Connor	Western Watersheds Project	purpose and need, general comments on alternatives and analyses, biological resources, visual resources, livestock grazing
23	Rose-Marie	Coppola		biological resources, WSAs and lands with wilderness characteristics, livestock grazing, travel management, mineral
24	John	Day		livestock grazing
25	Bill	Denneen		livestock grazing
26	David	Dennis		livestock grazing, recreation, travel management, minerals

Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
27	Craig	Deutsche		biological resources, cultural resources, WSAs and lands with wilderness characteristics, livestock grazing, recreation, travel management, lands and realty
28	Don	Dollar		general comments on alternatives and analyses, biological resources, visual resources, livestock grazing, travel management
29	Alyssa	Firmin		minerals
30	Martin	Florentino		biological resources, livestock grazing, travel management, minerals
31	Steven	Gale		general comments on alternatives and analyses
32	Roger D.	Gambis		purpose and need, general comments on alternatives and analyses, biological resources, conservation target table
33	Kathleen M.	Goforth	US EPA Region IX	purpose and need, biological resources, livestock grazing
34	Ron	Guidotti		general comments on alternatives and analyses, travel management
35	Michelle and Dorian	Hachigian		biological resources, livestock grazing
36	Lynn	Hague		general comments on alternatives and analyses, WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals
37	Alexander "Ti"	Hays V	National Trust for Historic Preservation	purpose and need, cultural resources, livestock grazing
38	Katherine	Hermes	Living Trust of Marlene A. Braun	cultural resources, WSAs and lands with wilderness characteristics, livestock grazing, lands and realty
39	Richard	Holmes		biological resources, cultural resources, WSAs and lands with wilderness characteristics, livestock grazing

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Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
40	Susan	Holmgren		general comments on alternatives and analyses, cultural resources, livestock grazing
41	Randall	Kaufmann		general comments on overall document
42	Pete	Kelley	Golden Trout Fund	purpose and need, biological resources, livestock grazing, recreation
43	Anthony and Kathleen	Kent		travel management
44	Jackie and William	Knowlton		biological resources, WSAs and lands with wilderness characteristics, livestock grazing
45	Peggy	Koteen		livestock grazing
46	Jeff	Kuyper	Los Padres ForestWatch	biological resources, air quality, soils, water, cultural resources, visual resources, minerals, oil and gas SOPs
47	R. Larry	Laffoon		biological resources, WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals
48	Christopher	Lish		general comments on alternatives and analyses, biological resources, climate and climate change, cultural resources, WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals
49	George	Madrid		purpose and need, cultural resources, livestock grazing, recreation
50	Donald	McCormick		minerals
51	Robert	Miller		general comments on alternatives and analyses
52	Tammy	Morgan		general comments on overall document, biological resources
53	Justin	Oldfield	California Cattlemen's Association	livestock grazing
54	Form letter (2 similar versions) with a total of 8,722 submissions		NRDC	general comments on alternatives and analyses

Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
55	Elizabeth	Painter		general comments on alternatives and analyses, biological resources, soils, livestock grazing, conservation target table, CPNM flora
56	Bindi	Peluce		general comments on alternatives and analyses
57	Mette	Peluce		minerals
58	Chuck	Pritchard		general comments on overall document
59	Bill	Rabenaldt		general comments on overall document
60	Bill	Rabenaldt		out of scope
61	Jennifer	Read		general comments on overall document, minerals
62	Travis	Robertson		travel management
63	Jim & Liz	Robinson		general comments on alternatives and analyses, biological resources, WSAs and lands with wilderness characteristics, livestock grazing, recreation, travel management, minerals
64	Brenda	Rose		cultural resources, WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals
65	Barbara	Rosenthal		cultural resources, travel management
66	Paula	Schiffman		purpose and need, general comments on alternatives and analyses, biological resources, visual resources, livestock grazing, recreation, travel management, conservation target table
67	Alan	Schmierer		travel management
68	Melissa	Schwartz		general comments on overall document
69	Betsy	Shade		biological resources, WSAs and lands with wilderness characteristics, livestock grazing, recreation, travel management, minerals

Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
70	G. Sidney	Silliman		general comments on alternatives and analyses, livestock grazing, travel management
71	Laurence W.	Spanne	Archaeological Assessment & Management	general comments on overall document, general comments on alternatives and analyses, geology/paleontology, cultural resources, WSAs and lands with wilderness characteristics, livestock grazing, recreation, consultation and coordination
72	John D.	Stickle		general comments on overall document
73	Carolyn	Straub		minerals
74	Rick	Swan	CALFIRE	fires and fuels management
75	Mark	Takaro		cultural resources, WSAs and lands with wilderness characteristics, livestock grazing
76	Elfmagic	Taylor		general comments on alternatives and analyses
77	Paul	Tehaney		purpose and need, travel management
78	Bob and Carol	Thille		biological resources, livestock grazing, travel management, minerals
79	Collin	Thomas		minerals
80	Tim	Thomas	Mojave Desert CNPS	purpose and need, biological resources, livestock management guidelines, CPNM flora
81	Form letter with 3,476 submissions		The Wilderness Society	biological resources, cultural resources, WSAs and lands with wilderness characteristics, livestock grazing
82	Daniel	Vaughn		purpose and need, visual resources, recreation, minerals, lands and realty
83	N. Patrick	Veesart		livestock grazing, recreation, actual grazing use

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Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
84	John	Weatherman		general comments on alternatives and analyses, biological resources, fire and fuels management, cultural resources, livestock grazing, recreation, minerals, lands and realty
85	Bill	Weitkamp		biological resources, livestock grazing, consultation and coordination
86	C. Robert	Wells		biological resources, WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals
87	Bruce	Whitcher	CA ORV Assn	general comments on overall document, recreation, travel management
88	David	Whitley		cultural resources
89	Jane	Wooster	Caliente Ranch, LLC	purpose and need, general comments on alternatives and analyses, biological resources, water, visual resources, livestock grazing, travel management
90	Lo I and Won	Yin		WSAs and lands with wilderness characteristics, livestock grazing, travel management, minerals, lands and realty
91	Karen	Bednorz		minerals
92	Valerie	Zachary		general comments on alternatives and analyses, recreation, travel management, minerals
93	Bradley	Zane		biological resources
94	Form letter with 3,287 submissions		Center for Biological Diversity	general comments on alternatives and analyses, biological resources, climate and climate change, livestock grazing, travel management, minerals
95	Milford Wayne	Donaldson	SHPO	cultural resources

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Commenter Number	Commenter Name		Commenter Affiliation	Comment Categories
	First	Last		
CBD				purpose and need, biological resources, livestock grazing, recreation
NRDC				minerals
WS				general comments on overall document, general comments on alternatives and analyses, water, livestock grazing, recreation

5.8 Public Comments – Comment Summaries and BLM Responses

5.8.1 General Comments – Overall Document

Comment Numbers: 5-1, 7-1, 59-1

Comment: The document looks good and is conservative yet functional. Commenter is pleased that EPA had no objections to document. This represents the type of work the public can be proud of.

Response: Thank you for your comment.

Comment Numbers: 6-1, 8-1, 41-1, 52-2, 61-1, 68-1, 72-1, WS-3

Comments: The Carrizo Plain will succumb to development because it is so near heavily populated areas; we must not let this happen. I am worried about the future of this place in crowded California. Please protect the Carrizo Plain for future generations to enjoy and for future kids who need exposure to the wonders of our environment. We are stewards of the Earth and its animals; it is then our direct responsibility to exercise both good planning and good judgment and act accordingly. Protect the Carrizo Plain from development and further encroachment by man. Carrizo is one of the last places that isn't fragmented into destruction and it should be preserved at all costs! Never allow developers on the property

Response: The RMP includes objectives and actions in several management programs to continue restoring resource values and protecting the undeveloped character of CPNM. For example, the proposed plan alternative includes recommendations to manage additional acreage to protect wilderness character. Biological resources goals direct BLM to preserve the nature and ecological function of the Monument. These goals are

- Manage the landscape to enhance the CPNM as a significant unique and undeveloped portion of the once vast San Joaquin Valley ecosystem (which is of crucial importance and provides the context for management).
- Restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem, including ecological processes that sustain them. Manage resources to emphasize an increase of native and indigenous species.
- Manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery, rare natural communities, and conservation of the regional landscape.

Comment Numbers: 58-2, 58-3

Comments: The plan has an obvious anti-grazing bias. I can foresee ecological and financial disaster in the making if this is the direction that this effort continues to take.

Response: BLM developed the alternatives in accordance with NEPA and the requirements of the Proclamation, and conducted the impact analysis for biological and social/economic resources using the available scientific data.

Comment Number: 71-1

Comment: Throughout the document, include a statement that precedes discussions of proposed management actions that clarifies the lack of specificity in this plan (like the statement on this

topic that is in the Readers Guide) and references the various guidance documents to be relied on for providing more specific management procedures.

Response: As noted in the purpose and need statements, this RMP this is a document intended to provide overall guidance for CPNM management and land uses. The primary laws, regulations, and program manuals that guide BLM in the management of cultural and natural resources are listed in the Introduction to Goals, Objectives, and Management Actions.

Comment Number: 87-4

Comment: Throughout the document, BLM uses the terms “off road vehicle” (ORV) and “off highway vehicle” (OHV) interchangeably. These terms have different meanings under the California Vehicle Code. The RMP EIS should utilize the term OHV in the RMP EIS because this more accurately reflects motorized vehicle use on the Monument.

Response: 43 CFR 8340, which provides authority for planning and regulating use of vehicles on BLM-managed land, uses the term “off-road vehicle,” which is a reflection of the commonly used term at the time period that the regulations were approved. BLM recognizes that “off-highway vehicle” (OHV) is the preferred terminology, and uses this term in all public outreach materials. Also, the Monument Proclamation and RMP make it clear that public vehicle use is not permitted off of the designated road network.

5.8.2 Purpose and Need

5.8.2.1 Planning Area / Issues Not Analyzed / Planning Process

Comment Numbers: 9-12, 13-40

Comments: Because critical issues are not adequately addressed and there is no true conservation alternative offered, BLM should revise the document and re-circulate a new draft. BLM should provide more information and analysis on the travel network and provide a public comment period before the final RMP is published.

Response: It is unclear what is meant specifically by a “conservation alternative.” All alternatives in the RMP serve to implement the purpose and need for the action (which is primarily to protect the objects and meet other requirements of the National Monument Proclamation). A reasonable range of alternatives was developed to meet the purpose and need while taking different approaches to management and emphasizing various objects of the Proclamation (tradeoffs are involved in protecting certain objects compared to others). All alternatives remain viable until the record of decision (ROD) is signed, and the agency and public can select portions of various alternatives to form the final decision (ROD). Examples include: Alternative 1 calls for management of all acreage meeting wilderness characteristic inventory criteria, so would maximize conservation of wilderness values. Conversely, Alternative 2 provides for more active restoration of biological objects of the Proclamation, so would provide for a higher level of species conservation than the direction in Alternative 1’s biology program. Public comments on the Draft RMP have led BLM to make a number of changes and clarifications that have been incorporated into this PRMP. Many of these changes will help refine and improve the plan goals of conserving objects of the Proclamation. However no additional information or changed circumstances have occurred that that would lead BLM to develop a supplemental EIS or reissue the draft RMP with additional alternatives.

The RMP includes an analysis and identification of OHV area and route designations as required under 43 CFR 8340. The draft RMP was somewhat confusing regarding the definition of “limited” routes. Section 2.18 has been updated to include a revised description of the travel management network that better describes which routes are open to motorized, mechanized, and non-mechanized use.

Comment Number: 82-2

Comment: The 1996 Interagency Plan addressed the future of the lands of all the managing partners within the Monument. This RMP seems to apply to only BLM lands within the Monument. If so, this should be clearly stated. Explain whether BLM will sign new managing agreements with the partners to replace the 1996 plan.

Response: This new plan only applies to BLM lands within the Monument as described in Section 1.3. CDFG is currently completing a plan for the Chimineas Ranch that will include CDFG lands within CPNM. The Nature Conservancy, BLM, and CDFG have signed an updated Memorandum of Understanding stating that they will manage their respective lands in a complementary fashion to achieve the goals of the Monument Proclamation.

Comment Numbers: 49-2, 49-3

Comments: I would like to see the Nature Conservancy be the lone over-seer of Painted Rock and Carrizo Plain; with CDFG gone, there would be no hunting.

Response: BLM, the Nature Conservancy, and CDFG have established a long-term partnership for cooperative management and protection of the CPNM. Your concern regarding hunting is noted. However, most of the land within the CPNM is BLM public land. FLPMA directs BLM to allow for hunting on these public lands, and the Monument Proclamation provides that CDFG continue to be responsible for wildlife management. The RMP does include a closure on varmint hunting.

Comment Numbers: 32-2, 32-3

Comments: There are not enough staff to implement the management practices outlined in the RMP; staffing must be increased by the time the plan is finalized. The present level of funding is insufficient to implement the management practices outlined in the RMP.

Response: The RMP provides direction for management of BLM-managed lands, and does not serve as a budget document. BLM budgeting levels are determined by the congressional appropriations process. Upon completion of the RMP, a companion business plan will be developed that identifies 3-5 year implementation priorities and costs (including staffing levels) required for implementation. This plan will be used in requesting additional appropriations as well as partnership funding to allow for implementation of the RMP priorities.

Comment Numbers: 33-8, 37-8, 66-17, 77-2

Comment: A clearly articulated archaeological survey plan may create opportunities for BLM to obtain funding. If grazing was discontinued, the money required to sustain the grazing infrastructure could be re-allocated to conservation activities. Raising red and green sticker fees can raise generate funds for proper trail maintenance and ensure staffing levels. Funding for a

monitoring and adaptive management plan for threatened and endangered species should be included in the FRMP/FEIS.

Response: Section 3.21 describes the current collections of grazing fees and contributions made for federal grazing use. Should grazing authorizations be removed, those funds would not be collected, and thus could not be reallocated elsewhere. The RMP includes direction for conducting additional inventories and site-specific planning for archaeological and historic resources. Specific funding requests and the details of any future planning is an implementation action that is beyond the scope of this plan. The red and green sticker program and associated fee levels are administered by the state of California so are outside BLM's management authority. The RMP is not a budget document, so does not include funding requirements for implementation projects. However, BLM will complete an implementation strategy/business plan upon completion of the RMP. This strategy will highlight priorities and funding needs for plan implementation.

Comment Number: CBD-2

Comment: I would enthusiastically support any efforts to reconstruct the traditional management methods of the area tribes - Kumeyaay, etc. - and to give preference to management of this area under the direction of tribes knowledgeable in these methods, allowing for their harvesting of resources there for the mutual benefit of the tribes and of the rare and imperiled plants and wildlife there. I believe that managing Carrizo Plain National Monument in this manner would best ensure not only the survival of these rare plants and wildlife, but also their thriving abundance, long into the future.

Response: Section 2.11 describes numerous actions that would be taken to coordinate with Native American groups in the management of CPNM cultural and natural resources. BLM would continue to work closely with the CPNM Native American advisory council to implement the RMP. BLM and the Forest Service have developed a Traditional Gathering Policy for Federal Lands in California that encourages and allows for gathering. The proposed RMP includes the following action to implement this policy: "Pursue development of a protocol agreement with the Native Americans to implement the statewide policy regarding traditional plant gathering and other traditional practices such as ceremonial rites and access."

5.8.2.2 Related Plans and Policies

Comment Number: 37-7

Comment: BLM must comply with Section 106 of NHPA prior to designating travel routes as open for motorized and mechanized uses in the Monument. The strategy for compliance must include commitments to conducting cultural resource surveys along designated routes, taking into account the indirect and direct effects of the route designations, and considering additional route closures or other avoidance measures when BLM determines that a route designation would cause adverse effects on one or more protected objects.

Response: Approximately one-half of the existing routes on the CPNM have been inventoried for the presence of cultural sites. In Section 4.10, the RMP indicates that under all alternatives, where cultural sites are known to be located on existing roads, these roads would be closed or mitigated for impacts. As part of a future cultural resource management plan, survey strategies will be included to provide inventory coverage of the remainder of the unsurveyed existing roads. The inclusion of a comprehensive strategy detailing these procedures is beyond the scope of this plan.

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Language more clearly defining the application of the Section 106 process during actions related to route designation, construction and maintenance has been added to the Travel Management section of the RMP addressing impacts to cultural resources from actions common to all action alternatives. This addition states that Section 106 procedures will be applied toward all actions with the potential for ground surface disturbance during route designation, construction, and maintenance on the Monument.

Comment Number: 37-10

Comment: The draft RMP does not contain specific management prescriptions that would implement the requirements of Section 110 of the NHPA if the National Historic Landmark nomination (submitted in 2004) is approved. BLM should determine whether additional grazing restrictions would be required, and determine whether any other management prescriptions for the proposed NHL area would be required.

Response: The cultural properties within the proposed NHL currently encompass the Carrizo Plain Rock Art Discontiguous District, and BLM feels that existing management prescriptions as identified in the proposed plan are adequate. The RMP proposes under all alternatives that these sites are managed in a manner that emphasizes preservation and protection. Upon the future designation of this area as a NHL, this management emphasis will be sustained and augmented to the standards acceptable for this designation.

Comment Number: 80-10

Comment: BLM will have to secure an *Endangered Species Act* Section 7 compliance from the USFWS for this EIS for the federally listed plants, and yet there is an absence of this information in the document.

Response: BLM will consult with USFWS under Section 7 of the *Endangered Species Act* for all federally listed plant and animal species. The ROD for this RMP/EIS will not be signed by BLM until that process is completed with an approved Biological Opinion. The proposed plan has includes additional information and analysis on both federally plant listed species and other plant species of concern.

Comment Number: 82-3

Comment: BLM might consider eliminating the Monument portion of the Upper Salinas-Las Tablas Resource Conservation District (RCD) to avoid possible future entanglements, jurisdictional disputes, and property tax levies by the District.

Response: Comment noted. The RCD jurisdiction does not extend to federal lands within the Monument. BLM will coordinate with the local RCD as well as other local entities to promote efficient and common-sense management of Monument resources.

Comment Number: 89-5

Comment: All grazing activities are subject to compliance with the March 31, 1997 Biological Opinion.

Response: This requirement is included in the list of related plans and policies in Section 1.9. A Biological Opinion is under development specific to this plan and its updated objectives, actions and uses. This Biological Opinion will replace the March 31, 1997 opinion.

5.8.2.3 Mission/Vision

Comment Number: 22-1

Comment: The mission and vision statements should be amended to reference protection and enhancement of the viewsheds that provide the Monument’s “natural splendor” referenced in the Proclamation.

Response: BLM agrees that the visual attributes are an important component of the National Monument and the vision statement has been updated to include “scenic.”

Comment Number: 42-4

Comment: Why does BLM spend so much effort to ensure the continuance of grazing in the landscape, especially when it has nothing to do with the mission? Why is BLM mitigating the needs of the very species the mission intends to “protect, enhance, etc.” for the continued use and well being of a miniscule (in the scope of things) amount of cattle and sheep?

Response: BLM acknowledges the grazing program called for under the RMP is complex and can be difficult to interpret. The Proclamation directs BLM to protect the objects of the Proclamation while continuing to administer grazing use under current law, regulations, and BLM policies (see Appendix A, and also Section 1.13 for a discussion of the Monument grazing program). The objectives and actions in the biology and grazing sections of the plan have been developed to implement this direction. Please also refer to response to Comments 9-5 et al. and 10-1 et al. in Section 5.8.14.1 (pages 5-88 and 5-89, respectively) below.

5.8.3 General Comments – Alternatives and Analysis

5.8.3.1 General Comments - Alternatives

Comment Number: 3-7, 55-5 (See also Comment 13-15 on page 5-31 in Section 5.8.4.1, Biological Resources – Alternatives.)

Comment: BLM should select Alternative 1, which might be modified to include prescribed burning. I strongly recommend that BLM offer a revised Alternative 1, with management based on best available science, without livestock grazing and with controlled burning as a management tool, rather than accepting the preferred Alternative.

Response: The proposed plan alternative continues to allow the use of livestock grazing as a management tool. However, the plan actions and analysis have been updated to clarify the intent and narrow the scope of this use. Please also refer to response to Comments 9-5 et al. and 10-1 et al. in Section 5.8.14.1 (pages 5-88 and 5-89, respectively) below.

Comment Number: 4-2, 22-2

Comment: Decisions about management of this special National Monument need to be carefully considered and take into account recommendations of scientists. We trust that BLM will ensure

the final plan follows the President's and Secretary's firm guidance (regarding restoring science to its rightful place in guidance management decisions), and that its decisions will be based on sound science.

Response: BLM must use the best available data in order to make informed decisions about management of public lands. This information can include a combination of peer-reviewed scientific documents (where available), unpublished monitoring data, field observations, and public input. The CPNM management plan acknowledges that there is scientific controversy and uncertainty regarding certain aspects of Monument management, especially relating to biological resources. The RMP incorporates an adaptive management component (see Section 2.3), so that the managing partners can continue to solicit scientific information and monitoring data to refine the management approach to meet plan objectives for protection and restoration of the objects of the Proclamation.

Comment Number: 3-1, 4-3, 4-4, 4-5, 8-2, 8-3, 8-4, 13-1, 13-2, 28-1, 28-2, 28-3, 31-1, 31-2, 36-5, 54-1, 54-2, 54-3, 56-1, 70-1, 76-1, 94-1, 94-3

Comment: Follow the letter and the spirit of the National Monument Proclamation. BLM must abide by the Proclamation's terms and purposes. BLM should ensure that protection of the Monument objects is given priority over other uses of these lands. Maximize resource protection and wilderness. Make protection of ecological, geological, and archaeological resources the highest priority. Rather than manage this Monument pursuant to multiple-use principles, the bureau must manage it for the purpose of protecting and preserving its extraordinary historic and other resources. Please keep Carrizo Plain natural. BLM must consider other opportunities to protect natural and cultural resources, in accordance with FLPMA and NEPA, although the range of alternatives must still prioritize protection of Monument objects. Be proactive in management so we can avoid further *Endangered Species Act* listings. Goal - Fully functioning ecosystems.

Response: All of the action alternatives were written so that they implement the requirements of the CPNM Proclamation and protect the objects of the Proclamation. The purpose and need statement (Section 1.2) describes the purpose of this effort, which is to develop a plan that includes the actions to protect the objects of the Monument Proclamation and fulfill other requirements for management in a manner that is consistent with the Proclamation. However, the Proclamation also directs BLM to recognize valid existing rights and follow existing legal authorities in managing uses of the Monument. Uses are provided for under the plan alternatives only to the extent that they can occur while protecting the objects of the Proclamation, or where valid existing rights limit BLM's authority regarding their management. BLM feels that this proposed plan alternative prioritizes protection of objects of Proclamation while meeting other requirements identified under the Proclamation by allowing for compatible public uses and recognizing existing rights.

Management objectives and implementation of the Conservation Target Table are designed to reverse past degradation and replace lost habitat in the Monument.

The first four planning criteria (Section 1.6) used to frame the plan alternatives and select the preferred alternative / proposed plan alternative recognize the CPNM's context and importance for species conservation. These include:

- The plan decisions will recognize the CPNM's primary importance as habitat for threatened and endangered species, rare natural communities, species recovery, and regional conservation.

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- The plan will recognize the uniqueness of the CPNM as a significant undeveloped portion of the once vast San Joaquin Valley ecosystem, which is of crucial importance and provides the context for management.
- The plan will identify core geographic areas for endangered species population management and recovery. Within these core areas, endangered species habitat will be a management priority relative to other resources and uses.
- The plan will recognize the importance of restoring and maintaining a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem. Plan decisions will emphasize an increase of native and indigenous species.

Comment Number: 4-6, 8-5, 9-3, 48-9, 51-1, 54-4, 70-5, 94-8

Comment: BLM must consider the full range of alternatives for protecting the unique natural and cultural resources of the Carrizo Plain during the RMP process. The Draft RMP/EIS fails to provide a true conservation alternative as contemplated in the Monument Proclamation. BLM should identify and analyze at least one alternative that will prioritize conservation and restoration.

Response: It is unclear what is meant specifically by a “conservation alternative.” All alternatives in the RMP serve to implement the purpose and need for the action (which is primarily to protect the objects and meet other requirements of the National Monument Proclamation). A reasonable range of alternatives were developed to meet the purpose and need while taking different approaches to management and emphasizing various objects of the Proclamation (tradeoffs are involved in protecting certain objects vs. others). All alternatives remain viable until the ROD is signed, and the agency and public can select portions of various alternatives to form the final decision (ROD). Examples include: Alternative 1 calls for management of all acreage meeting wilderness characteristic inventory criteria, so would maximize conservation of wilderness values. Conversely, Alternative 2 provides for more active restoration of biological objects of the Proclamation, so would provide for a higher level of species conservation than the direction in Alternative 1’s biology program. Public comments on the Draft RMP have led BLM to make a number of changes and clarifications that have been incorporated into this PRMP/FEIS. Many of these changes will help refine and improve the plan goals of conserving objects of the Proclamation. However no additional information or changed circumstances have occurred that that would lead BLM to develop a supplemental EIS or reissue the Draft RMP/EIS with additional alternatives.

Comment Number: 4-7, 8-6, 51-1, 54-5

Comment: The process must fully address the threats that the resources now face - oil and gas exploration and development, habitat loss and degradation, and intensive livestock grazing - and ensure that actions necessary to deal with those threats are not only identified, but will be undertaken.

Response: Many of the actions in the RMP, especially in the biological resources section, are focused on restoring landscapes impacted by past land uses to more natural functioning conditions. Please see the biology section for a detailed discussion of these actions. The RMP fully discloses impacts, both positive and negative, from implementing each of the alternatives. The RMP is not a budget document, and implementation of specific plan actions is contingent on funding appropriations. However, BLM has instituted a requirement that business plans be developed within six months of the signing of each RMP. These plans identify funding and

staffing levels necessary to implement RMP priorities over a 3-5 year timeframe, and are used in developing budget requests and in securing funding from partner organizations.

Management objectives and implementation of Conservation Target Table are designed to reverse past degradation and replace lost habitat in the Monument. Management actions are to be implemented to meet these objectives.

Comment Number: 13-18

Comment: BLM should make full use of the expert opinion and detailed recommendations to correct inadequacies in analysis and management prescriptions submitted by Dr. Painter.

Response: One of the planning criteria used in developing the plan and selecting the preferred alternative (now the proposed plan) is: “The plan decisions will recognize the CPNM’s primary importance as habitat for threatened and endangered species, rare natural communities, species recovery, and regional conservation.” The plan recognizes the importance of protecting the biological resources and other objects of the Monument while allowing for compatible uses as directed under the Proclamation. Dr. Painter’s comments have been incorporated into the plan and EIS analysis for biological resources; please see responses to comment letter #55.

Comment Number: 13-21

Comment: The RMP should include a commitment to implementation and strategies for enforcement of the standards set out in the Conservation Target Table (Appendix C).

Response: The RMP provides direction for Monument management, and will serve as a basis for developing implementation and enforcement strategies. Specific implementation strategies are beyond the scope of the RMP effort. However, a business plan will be developed after the RMP is completed and will outline 3-5 year budget needs and implementation actions.

Comment Number: 13-72, 13-73, 13-74

Comment: The RMP relies heavily on adaptive ecosystem management, which can be a flexible and effective tool but cannot be the only tool. BLM must commit to taking specific actions now to manage for known impacts of climate change. Adaptive management can then be used to respond to new information over the course of the plan. Augment BLM staff capacity for monitoring by engaging local universities, volunteer citizen-scientists to conduct field research. Use indicators for species viability as the basis for determining whether a management approach is working.

Response: The management plan as written takes into account the anticipated impacts of climate change on the planning area. (Both the affected environment and environmental impacts sections discuss those anticipated effects.) The RMP objectives and actions as written recognize the high degree of variability of the ecosystem conditions in the CPNM (extreme temperature and rainfall variability). These objectives and actions, when combined with an adaptive management program, will enable BLM to proactively deal with both long-term change and short-term variability in protecting the objects of the Proclamation and managing ecosystems and special status species in a regional context. Actions and associated monitoring can be implemented immediately upon the signing of the ROD for the RMP.

Secretary of the Interior Order Number 3270 calls for BLM and other Department of the Interior agencies to incorporate adaptive management principles into programs and management planning (Section 2.3). Adaptive management acknowledges that there are incomplete data when dealing with natural resources, and through continued research and monitoring of management practices, new information will be obtained. The process of adaptive management allows for the experimental comparison of selected management actions by evaluating alternative hypotheses about the ecosystem under management. Adaptive management consists of three parts: management actions, monitoring, and adaptation. Several resource management programs (biology, including both wildlife and vegetation; livestock grazing; and fire and fuels management) rely on the process. In the RMP, specific objectives or targets have been developed to guide program implementation in achieving “desired future conditions” of various Monument resources; refer to Appendix C, Conservation Target Table. The table was developed by the managing partners and includes many species indicators that will be monitored and will serve to act as a trigger when actions are needed. Monitoring is an important component of RMP implementation and will be used to gauge the effectiveness of actions at achieving objectives for management outcomes. Any impacts to climate change, whether negative or beneficial, can only be measurably detected through implementing an adaptive management strategy. The RMP is structured so that the CPNM managing partners can continue to apply adaptive management principles within the framework of “Adaptive Management: The U.S. Department of the Interior Technical Guide” (USDI 2007), as directed by Secretary of the Interior Order Number 3270.

In addition to adaptive management, the RMP proposes other strategies for managing the impacts of climate change, which include the continued restoration of native plant communities, the conversion of administrative facilities to alternative renewable energy sources, and improving mileage of vehicles based on national fleet management policies. Vegetation management would improve the carbon storage capability of Monument ecosystems in all alternatives and these strategies will result in a net reduction of greenhouse gas emissions. A climate change objective (Section 2.6.1.2 Objectives, *Objective AIR-2(P)*) and management action (Section 2.6.1.3 Management Actions, *Action AIR-2(I)*) have been added to the air quality program, and are common to all alternatives. These additions represent a commitment by BLM to consider the impacts of management actions and program activities on climate change and the effects of climate change on Monument resources.

BLM has a long history of encouraging field research and partnerships with outside entities on the CPNM, and would continue to do so under this RMP; please see management actions in Section 2.21.

Comment Number: 13-76, 15-1, WS-4

Comment: The RMP should tailor the proposed management approach to provide for monitoring and management to address the foreseeable impacts of solar energy development on Monument objects, including wildlife habitat and water quantity and quality in Soda Lake. Commenter at public meeting had questions about solar projects. I would like to point out the necessity of protecting the Carrizo Plain from utility-scale solar, and its water consuming destruction to desert lands, and from wind and transmission projects. Renewable energy objectives must be met with local generation that doesn't destroy California's desert and with appropriate placement on disturbed lands.

Response: The DRMP/EIS discusses a new solar energy facility proposed in California Valley during development of the Draft RMP and the associated public concerns that this type of facility may use large quantities of water, potentially affecting water quantity (Section 4.7.6.2). In

addition, there is concern about the use of herbicides and chemicals, or chemically treated water for cleaning equipment, that may potentially impact water quality. The inclusion of specific descriptions of impacts of future solar energy development and specific mitigation is beyond the scope of the CPNM RMP EIS; however, upon receipt of specific information regarding any proposed facility near the CPNM, BLM will analyze site-specific impacts, including water usage and mitigation, and provide comments to the authorizing agencies to minimize impacts to Monument resources. BLM does acknowledge the need for monitoring and the RMP calls for establishment of a monitoring program (Section 2.8). This RMP anticipates the potential for impacts of off-Monument activities on Monument resources from additional development proposals, and establishes objectives and actions to help ensure protection of Monument resources. For example, very little is currently known about groundwater resources in the CPNM. The plan calls for establishment of monitoring wells to provide baseline water quantity and quality information to assess impacts of future activities.

Comment Number: 28-4

Comment: Maintain very high quiet standards.

Response: BLM agrees that quiet conditions are an important attribute of the CPNM. The plan provides for portions of the Carrizo to be managed for wilderness character where no mechanized or motorized use would be permitted. An additional action was added into the minerals section to mitigate sound impacts if oil and gas production occurs on private mineral estate.

Comment Number: 32-1

Comment: Management goals and objectives must be sufficiently comprehensive to ensure that the objects, resources, and landscapes are managed in a fashion congruent with their inherent value and characteristics.

Response: The RMP goals and objectives provide a comprehensive direction for overall resource conservation of the CPNM with priority placed on protection of the objects of the Proclamation. BLM RMPs consist of actions and allowable uses that guide land management and use to achieve desired conditions. This overall guidance provides a basis for more detailed site-specific or resource-specific (for example, cultural resources) implementation plans.

Comment Number: 32-4

Comment: Opinion on Alternative 1: Although restricting public access may protect some Monument objects, the “hands off” approach to management in this alternative does not provide adequate, science-based, proactive management for native biological resources.

Response: “Hands off” used to characterize a relative level of stewardship that relies more on natural processes with less active management than the other alternatives. It does not imply lack of management. Under Alternative 1, biological resources, including threatened and endangered species, would be monitored and management/restoration actions will still be implemented as shown in the RMP. Alternative 1 is not the proposed plan alternative for biological resources.

Comment Number: 32-5

Comment: While I do not think that a multiple use management approach, as taken in much of Alternative 2, is consistent with the intent of the Proclamation, this alternative seems to provide

enough management latitude, except on lands under Section 15 grazing leases, to maintain, protect, and restore resources.

Response: The proposed plan alternative includes objectives that apply to all grazing areas to ensure the objects of the Proclamation are protected. See Section 2.15. If grazing is causing unacceptable impacts, the federal grazing regulations allow BLM to make changes to grazing leases (43 CFR 4110.3-2(b)). When monitoring or field observations show grazing use or patterns of use are not consistent with the provisions of Subpart 4180 (rangeland health), or grazing use is otherwise causing an unacceptable level or pattern of utilization, or when use exceeds the livestock carrying capacity as determined through monitoring, ecological site inventory or other acceptable methods, the authorized officer shall reduce permitted grazing use or otherwise modify management practices. Additionally, grazing leases must be in conformance with RMP objectives. BLM may modify terms and conditions of such leases when grazing use or management practices are not in conformance with the RMP. If these changes still do not achieve RMP objectives, BLM may terminate the lease(s).

Comment Number: 32-6

Comment: Opinion on Alternative 3: While I think that more intensive restoration actions for lands impacted in the past is a desirable component in this alternative, I do not think that active land management for forage production in this alternative is consistent with the Proclamation.

Response: Grazing use at the levels and under the conditions considered in all alternatives of the draft plan is consistent with the Proclamation establishing the Monument. See Section 2.15 for the following goal that applies to all alternatives: "Manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes forage, or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation."

Comment Number: 32-7

Comment: Opinion on No Action Alternative: Management under the earlier plans (Carrizo Plain ACEC, Caliente Mountain WSA in Caliente RMP, and CPNA RMP) largely direct present management and is not consistent with the present status and designation of the Monument.

Response: The CPNM Proclamation served to update these existing plans in that any guidance that conflicts with the Proclamation will not be implemented. With the signing of the Proclamation, the Secretary of the Interior and BLM Director provided interim management direction for BLM to follow until this RMP is completed. Appendix B contains copies of the letters providing this direction.

Comment Number: 34-1, 34-3, 40-1, 63-1, 84-1

Comment: I am writing to support Alternative 1. Where possible, a hands-off approach should be used. We favor the provisions of Alternative 1, emphasizing strict protection of wilderness character and restoration of native grassland ecosystems. Alternative 1 is the nearest to the Proclamation's statement of "primary importance", although the need to actively restore areas to their "natural state" is part of the protection of the National Monument; this would include removing man-made objects such as fences, water troughs etc. Close roads, remove fences and other facilities, and reestablish natural vegetation, especially in Carrizo Plain, which includes rare and imperiled grassland ecosystems currently underrepresented in the conservation system

Response: Thank you for your comment. The Proclamation itself identifies an array of objects that will be protected, but does not identify any resources or uses of “primary importance” in the CPNM. One of the planning criteria in Section 1.6 identifies the Monument’s primary importance for protection of endangered species and regional conservation. However this is one of 10 criteria that BLM has used in considering the selection of the preferred alternative (now the proposed plan). Alternative 2 was chosen in the Draft RMP EIS as the alternative that best meets the planning criteria. Several aspects of Alternative 1 have been incorporated into the proposed plan alternative, including additional acreage managed for wilderness character and a prohibition of the use of non-street licensed vehicles within the Monument.

Comment Number: 66-5

Comment: The scenarios in Alternatives 1 and 3, and usually the No Action alternative, seem to be designed to serve as extreme frames of reference against which Alternative 2 can be viewed, rather than as potentially viable management alternatives.

Response: As stated in Section 2.2 of the RMP, all alternatives must meet the purpose and need for the plan, be viable and reasonable, and be responsive to issues identified in scoping. BLM considers all of the alternatives developed under this plan to be reasonable, and is required to select a preferred alternative for the Draft RMP EIS. However, all alternatives remain viable until the signing of the ROD for the RMP. To this end, based on public comments, BLM has incorporated several aspects of Alternative 1 into the proposed plan alternative. BLM is required to consider a full range of reasonable alternatives, so to that end, Alternatives 1 and 3 generally represent both ends of the spectrum of analysis. For both the proposed RMP and the ROD, BLM may select a combination of objectives, actions, and allowable uses that fall within this full range of analysis. For example, an action that falls between Alternatives 1 and 2 or 2 and 3 could be incorporated into the final RMP.

Comment Number: 71-24

Comment: Section 2.4.2.1 indicates that management of endangered species habitat will have priority over other resources and uses. Is there a legal basis for non-compliance with some federal regulations in order to comply with others? (Examples cited of potential conflicts between managing T&E species and protection of cultural resources.) Please clarify.

Response: Section 2.4.2.1 states that one of the goals of the wildlife and vegetation resources program on the CPNM will emphasize the Monument’s critical importance for threatened and endangered species conservation and recovery. This statement does not preclude the preservation goal of the cultural resources program (Section 2.11). Any actions associated with habitat restoration or endangered / threatened species management will be required to consider potential effects to cultural properties as required by Section 106 of the NHPA.

Comment Number: 84-4

Comment: The use of ecological subregions should remain a purely biological management feature and not become a dividing up of the National Monument with separate management plans for mineral extraction, recreational opportunities, etc.

Response: The ecological subregions only pertain to biological resources and are intended to provide context for management actions and objectives, and not to divide the area into separate planning units.

Comment Number: 92-1

Comment: NOW is the time for a real change, to shift our focus to conservation, non-polluting, sustainable, renewable resources, and recreation that does not harm; please keep the regulations you have, add more, and enforce more protections.

Response: Thank you for your comment.

5.8.3.2 General Comments – Environmental Consequences

Comment Number: 13-18

Comment: BLM should make full use of the expert opinion and detailed recommendations to correct inadequacies in analysis and management prescriptions submitted by Dr. Painter.

Response: Thank you for your comment. Please refer to Commenter #55 comments throughout this section for responses to Dr. Painter's comments.

Comment Number: 13-30

Comment: BLM must evaluate the potential benefits for restoring habitat that can only be achieved by reducing lands available for grazing.

Response: Alternative 1 of the RMP discusses elimination of livestock grazing from the Monument and analyzes the associated effects. The proposed plan alternative represents a reduction of livestock grazing from historic levels. However, it continues to authorize grazing use in the Section 15 allotments (55,900 acres) based on direction in the Monument Proclamation to follow current BLM policy, guidance, and regulations, which prevent cancellation of existing leases without sufficient cause. On the majority of the Monument (117,500 acres), grazing would only be used as a management tool in specific instances to target improvement of habitat for special status wildlife species. The RMP acknowledges the uncertainties regarding the benefits of grazing, and calls for its use as a tool only under specific circumstances such as wet years, and also calls for continued studies/monitoring to determine what, if any, level of grazing is necessary to achieve plan objectives. The impact analysis recognizes that grazing would not occur routinely, or at levels approaching past use, but any one pasture would only be grazed an average of twice in any 10-year period during the initial period of plan implementation. Grazing use as a tool could be further reduced or eliminated altogether if additional studies/monitoring shows that it is not effective as a management tool. The proposed plan alternative has been clarified to better acknowledge the complexity of components of the CPNM ecosystem and to better describe that what benefits one resource can be detrimental to another. Habitat management needs for special status wildlife species, and continued scientific controversy over the effectiveness of grazing in CPNM ecosystems warrants the continued designation of areas as available for grazing so that it can be available for use as a management tool under an adaptive management approach.

Comment Number: 22-9

Comment: The RMP should clearly document the many considerable impacts that livestock have on all the Monument's resources and objects. BLM must identify any resource conflicts that may impair the Monument. As BLM states a number of times in the DRMP, continued livestock grazing is a very controversial issue.

Response: The potential impacts of grazing on each resource are discussed, by resource, in Chapter 4.

Comment Number: 66-11, 66-12

Comment: Additional grazing-related concerns that need to be addressed include how the effects of cattle grazing differ from the effects of sheep grazing at Carrizo (both are lumped together as "livestock" in the DRMP/DEIS) and how long-term exposure to livestock affects native species composition.

Response: The varying and multifaceted effects of livestock grazing on vegetation including effects on vegetation composition described in Chapter 4. The individual and differing effects of cattle versus sheep grazing on vegetation are not necessary at this level of analysis. It is anticipated that cattle would be the primary livestock authorized within the CPNM, so analysis of vegetation impacts was completed under that assumption. Cumulative impacts to vegetation from Monument management, including proposed livestock grazing, are described in Section 4.3.3.

Comment Number: 89-2

Comment: The EA for livestock grazing authorization concluded that grazing for the leases on the Selby Ranch and Sulphur Canyon allotments was cumulatively insignificant. The EA to the Caliente RMP and FEIS of December 1996 supports our assertion that the historical grazing on these allotments shows no evidence of damage and that grazing in general is a compatible use.

Response: Although the cited EA may have concluded that the cumulative effects were insignificant, there may have been direct and indirect effects documented in the analysis as are also provided in the proposed CPNM RMP. Additionally, the Monument Proclamation was signed after the Caliente RMP and FEIS was completed, and provides additional direction for management of uses, including livestock grazing, within the CPNM. The current CPNM RMP, once completed, will replace any previous direction and associated analysis and provide future direction for grazing management consistent with the Proclamation. In summary, the RMP will replace any past analysis and guide all future authorizations.

Comment Number: 89-12

Comment: If cattle grazing is to be discontinued when the RMP is finalized, it will be necessary to prove before that happens that removing the cattle will not have a negative effect on Monument "objects," plants, and animal life; we did not see reference to such a study in the EIS.

Response: BLM is required under NEPA to use the best available information in order to make informed decisions regarding management. CEQ requires BLM to obtain information if it is relevant to reasonably foreseeable significant adverse impacts, and if it is essential to making a reasoned choice between alternatives. Chapter 4 of the proposed RMP and final EIS contains information from published and unpublished studies regarding biological effects of livestock

grazing on ecosystem types found within the Monument and in similar ecosystems in CA. This information, combined with the adaptive management program that will guide implementation of the management program, is considered to be adequate to make an informed choice regarding management. Alternative 1 includes an analysis of the reasonably foreseeable impacts to CPNM resources with no grazing.

5.8.4 Biological Resources

5.8.4.1 Biological Resources – Alternatives

Comment Number: 4-1

Comment: Some of the species on the Carrizo Plain are endangered due to the loss of appropriate habitat, which makes it that much more urgent to carefully manage the habitat they have left in the Carrizo. Careful habitat management is crucial to these species' health. For instance, carefully managed, limited grazing seems to be beneficial for the kangaroo rats, which do better when the grasses are not too high.

Response: Thank you for your comment. See also response to Comment 13-12 et al. on page 5-91 in the Livestock Grazing section of these comment responses.

Comment Number: 9-1, 9-2, 12-13, 52-1, 84-2

Comment: The wildlife species in the Monument that must be protected include the San Joaquin kit fox, the blunt-nosed leopard lizard, the giant kangaroo rat, the California condor, the San Joaquin antelope squirrel, tule elk, pronghorn herds, San Joaquin woolly threads, and California jewel flower. There are also increasingly rare native plant communities and habitats, including vernal pools and native grasslands. It is imperative to cater to pronghorn and elk instead of cattle. Endangered animals depend on the habitat there to live – don't destroy their environment for human greed; their lives have value, worth and sustain the earth's cycles.

Response: Management actions related to each of these species, and others, are included in the RMP. The plan includes specific objectives for increasing elk and pronghorn population sizes within CPNM; any grazing to improve habitat for other species under the Conservation Target Table (Appendix C) would be balanced with objectives for elk and pronghorn.

The management of pronghorn and elk will continue to be a priority. Livestock grazing in the vast majority of their habitat is strictly limited to that needed to benefit biological resources. See priority in Mission and Vision (Section 1.11), Proclamation (Appendix A). Also see the goal in Section 2.15, common to all alternatives, to manage all livestock grazing in a manner that protects the objects of the Proclamation; and the objective, also in Section 2.15, to manage livestock grazing to meet, and to not be in conflict with, the management objectives for all other resources and programs in the Monument.

Comment Number: 9-4, 48-1, 94-2

Comment: The Monument should be managed as a refuge for rare and imperiled plants and wildlife to ensure their survival into the future. Preserving the Carrizo Plain with its suite of rare and imperiled species and native grasslands is imperative.

Response: Thank you for your concern. A major focus of the RMP is to develop objectives and management actions to ensure that biological resources, including threatened and endangered plants and animals, are protected.

Comment Number: 13-15, 30-4, 55-3, 66-19 (See also Comments 3-7 and 55-5 on page 5-20 in Section 5.8.3.1, Alternatives – General.)

Comment: Prescribed burning should be an option if there is a real need to control invasive species, if it is the right season, and if precautions are taken. Analyze and consider the use of prescribed fire in conjunction with or as an alternative to grazing and other methods. BLM's rationale for allowing only hand removal and mechanical tools but not controlled burning is unclear. The rationale for not including prescribed burning in Alternative 1 is unclear, when labor-intensive methods are perceived to be more "hands off" than prescribed burning; seems to be a matter of spatial scale, but the rationale for using spatial scale as a means for restricting management methods seems weak.

Response: The RMP establishes desired future conditions (objectives) for wildlife habitat and botanical resources, including special status species. The plan recognizes the uncertainty of effectiveness and impacts surrounding the use of specific implementation tools (including prescribed fire) to meet these objectives. Prescribed fire has been used as a management tool in the CPNM, and will continue to be used as a tool under this RMP under an adaptive management approach, as long as monitoring shows that it is effective in meeting objectives (see Section 2.4.1). The RMP also analyzes the effects of use of prescribed fire, both in the biology and fire sections of Chapter 4.

NEPA requires federal agencies to consider a reasonable range of alternative approaches when proposing and analyzing federal actions. To accomplish this, BLM has proposed three alternatives including Alternative 1, the "hands off" approach. This approach is best described as letting nature take its course with little intervention by humans. Prescribed fire, while labor intensive, also requires scraping or grading the perimeter of the area, foaming, or other methods to prevent escape, as well as the presence of fire personnel, engines, and other necessary fire equipment. A full range of alternatives regarding fire management was analyzed.

Comment Number: 13-27, 13-28

Comment: Under the "Goals, Objectives, and Management Actions Common to All Action Alternatives" for Biological Resources, add longhorn fairy shrimp as a covered species within the "Core Area Threatened and Endangered Animals" objectives, and develop and identify specific management actions for its protection; these should complement the goals and objectives for vernal pools and sag ponds. Establish a specific management program for the longhorn fairy shrimp, similar to the programs established for pronghorn, tule elk, and long-billed curlew.

Response: The Core Area Threatened and Endangered Animals objective is intended to cover the San Joaquin Valley suite of upland species. These species have contiguous populations and contiguous expanses of suitable habitat. Since nonnative annual species tend to dominate these habitats, occasional habitat management may be required to maintain suitable habitat for these species. For example, in successive years with high rainfall, nonnative annual vegetation may become too dense or tall to be optimal for such species. Management action may be needed to create suitable habitat. In contrast, longhorn fairy shrimp populations and suitable habitat are not contiguous. Individual pools are separated by uplands areas that do not provide potential habitat. In addition, not all pools provide suitable habitat for the longhorn fairy shrimp. One pool may

support a population while the adjacent pool does not. Fairy shrimp are better managed at the site-specific level. For these reasons, they are not included in the Core Area Threatened and Endangered Species objective.

Text has been added to the Vernal Pool and Sag Ponds objective (See Section 2.4.2.2, Action BIO-41), to recognize that the North Carrizo Plain and South Carrizo Plain Vernal Pool core areas occur within the Monument.

Comment Number: 13-29

Comment: Provide that vernal pool habitats shall be protected from all possible disturbances, including oil and gas activities and communications rights of way.

Response: Text was added to the Vernal Pool and Sag Ponds objectives: “Ensure that BLM actions and authorizations are designed to avoid impacts to vernal pools.” See Chapter 2.4.2.2, Action BIO-41

Comment Number: 13-31

Comment: The RMP should adopt planning and decision-making processes (including data collection, analysis, and monitoring) that employ measurable planning objectives at multiple biological scales to ensure viable fish and wildlife populations.

Response: The Conservation Target Table (Appendix C) has objectives to maintain some species at different scales: within the Monument, within core areas, and characteristics of suitable habitat. There are also objectives to maintain target species and communities at the landscape scale.

Comment Number: 13-32

Comment: The RMP should evaluate whether the restoration of native ungulates like tule elk and pronghorn antelope (and the concurrent reduction of livestock grazing there) will provide a more consistent and reliable food source for California condors.

Response: Text in the Environmental Consequences chapter has been rewritten to address this comment. This text is included in the No Action alternative for livestock grazing and includes the use of native ungulates by condors.

Comment Number: 13-45, 27-22, 27-23, 27-25

Comment: BLM should assess whether guzzlers are necessary for enhancing management objects, and remove any that are not, closing and rehabilitating any associated roads. The entire question of the need for guzzlers should be evaluated. At a minimum, existing guzzlers should be maintained (or repaired) or else they should be removed. A time frame for inventory and disposition of guzzlers should be part of the final RMP.

Response: BLM has added an action to evaluate guzzlers’ condition and utility in meeting Monument objectives and to remove guzzlers that do not meet objectives. See Section 2.4.3.4, Action BIO-76. Site-specific NEPA analysis will be conducted for any new water developments. The RMP includes an action for BLM and the managing partners to remove and or repair guzzlers as needed.

Comment Number: 13-65

Comment: Likely effects of climate change include less resistance to nonnative species, desertification, and loss of woodlands. BLM should develop a strategy to identify and recommend more limitations on those activities most likely to introduce nonnatives, such as grazing and motorized vehicle routes.

Response: The proposed plan alternative calls for reductions in livestock grazing within the CPNM, and limits vehicle use to designated routes. Continued grazing, vehicle use, and other public uses can introduce additional nonnative species into the Monument. The RMP includes provisions for monitoring, public education, rapid response eradication, and employment of BMPs for authorized uses to limit the spread of weeds and eradicate populations when located (see Section 2.4).

Comment Number: 16-2

Comment: The invasive grazing species need to be managed to protect the area.

Response: This comment is unclear in its meaning. However, the goal of “management to protect this area” is in the central tenet of this plan from the Proclamation (Appendix A), to the Mission (Section 1.11), to the program by program goals and objectives of the proposed plan alternative.

Comment Number: 12-11, 12-12, 22-12, 23-5, 28-7, 30-2, 47-5, 63-4, 66-15, 69-2, 78-3, 86-5

Comment: Transecting the Monument with fencing should be cut to an absolute minimum; I strongly suggest that derelict wire and fencing be removed as a priority. Fencing should be dismantled to allow the free movement of pronghorn throughout the grassland habitat. The DRMP provides no analysis of any alternative mechanism (such as a herding approach instead of pasturing) that would allow both livestock control of vegetation and complete removal of the thousands of miles of fencing and numerous cattle guards, which are serious impediments to the movement of pronghorn and tule elk. Fences should be removed or modified to allow pronghorn antelope to range freely throughout the area. Minimize the number and miles of fences; make sure all needed fences allow for wildlife passage and address visual resources management, and use lay down seasonal fences in areas. Consider removing fences that inhibit the movement of pronghorn. Barbed wire fences should be removed to allow freer movement of the wildlife. It is difficult to imagine how, without the removal of fences, the stated population goals of 250 pronghorn and 500 tule elk could be achieved, with current populations at only 84 and 240 individuals, respectively, despite ongoing efforts to modify existing fences to allow animal passage underneath.

Response: The RMP allows for the creation, modification, maintenance, or removal of fences and other livestock management facilities. Please see Section 2.15. Fences will continue to be removed, relocated, or modified to address wildlife and visual concerns. Fencing left in place will be only the minimum needed to preserve historical integrity, or to support resource management and protection. BLM can employ many different livestock management tools to implement grazing prescriptions. Removal of fences and herding of livestock could be one of those.

BLM understands the impacts associated with fences, and has made it a priority to continue to remove fences whenever possible. The proposed management plan will “promote herd travel across the landscape by modifying all fences to allow animal passage underneath. Realign or remove fencing as identified in the Conservation Target Table” (Section 2.4). Over 150 miles of

fencing has been removed or modified on the Monument since 1998. BLM and the managing partners will evaluate existing fences to identify those that can be removed or realigned. For fences that still have a purpose, modifications are being completed so as to be least impacting to other resources and values. While some pronghorn have been observed to have problems negotiating even modified fences (due to panic behavior and obstructions like tumbleweeds), modified fences are not known to be a factor in reaching and sustaining population objectives. An ongoing study of pronghorn fawn mortality will be used to evaluate fencing and determine management actions. Any new fences will be evaluated under a site-specific environmental assessment to determine if a proposed project is consistent with plan objectives and the Proclamation.

Comment Number: 32-8

Comment: Discussing habitat and habitat management in terms of plant cover and residual dry mass is inadequate when considering the habitat for predatory and small herbivorous special status species; adverse impacts of this approach are evident in the Conservation Target Table and in the management actions for these species. Proper experimental design for systematic measurements of prey bases and predator pressures, as well as plant cover and dry biomass, offer one solution to populating the cells in the Conservation Target Table with verified experimental results.

Response: Thank you for your comment. BLM notes your recommendations and has added them to the Conservation Target Table as potential research/monitoring methods for the species indicated in the comment. (See Appendix C, Actions to Test and Evaluate under Livestock Grazing.)

Comment Number: 32-9, 32-10

Comment: Assessment of core populations of target species should include experimental evaluations (see Comment 32-10) of the effects of proposed management actions on special status species in addition to their general population characteristics to gain knowledge before previous, untested, or new management actions are implemented when a population drops below a desired threshold value. One of the first actions should be to experimentally evaluate (with adequate sample sizes) the status and effects of proposed management actions on special status species. This work should be planned by qualified statisticians familiar with using multivariate statistics under field conditions. Because recent statistical analyses indicated previous management actions (e.g., grazing and prescribed fire) had either no beneficial effect or were detrimental, results from the recommended studies should be obtained BEFORE applying adaptive management actions. This approach also provides a basis identifying when thresholds in the Conservation Target Table are reached, indicating a need for action, and is called for to determine whether one of the six criteria identifying when adaptive management is warranted (“uncertainty can be expressed in a set of competing models”).

Response: Thank you for your recommendations. BLM and the partners recognize that there may be a number of measures or steps needed to acquire knowledge about target species. The Conservation Target Table is an evolving document that will provide guidance as well as identifying gaps in the steps already laid out. Your suggestion has been added to the Table as potential steps to include in our actions. (See Appendix C, Actions to Test and Evaluate under Livestock Grazing.)

Comment Number: 32-12

Comment: The management actions common to all action alternatives for core area T&E animals are reactive instead of proactive. Proactive management requires research on factors that influence populations before or during monitoring, to provide a set of tested tools if management actions are needed and to allow for discard of tools not found to produce significant results before they are used in response to an impending crisis.

Response: The adaptive management process includes testing, monitoring, and learning about the resource as well as which tools and methods are successful while ruling out those that are unsuccessful.

Comment Number: 32-13

Comment: Maintaining viable populations should involve Population Viability Analyses.

Response: Thank you for your comment and recommendation. The managing partners intend to explore options and methods available to us in determining factors about many species through species experts, the scientific community, agency experts, and others.

Comment Number: 32-14

Comment: Linkages should also be maintained between the CPNM and areas to the south, north, and west.

Response: Although the planning area is limited to BLM lands within the CPNM, the RMP analysis recognizes the importance of the Monument in the regional conservation of species and habitats. Additional management plans including the CDFG plan under development for the Chimineas Ranch, and the BLM RMP under development for the Bakersfield Field Office, also recognize the importance of linkages between the CPNM and adjoining areas.

Comment Number: 33-8

Comment: EPA recommends that, for threatened and endangered species, baseline conditions should be determined initially, and a monitoring and adaptive management plan should be established to evaluate and respond to the impact on resources. A description of the monitoring and adaptive management plan should be included in the FRMP/FEIS.

Response: The baseline conditions for wildlife and plant species found within the CPNM are described in Section 3.2 (Affected Environment, Biological Resources). The Conservation Target Table serves as the foundation of adaptive management and incorporates the objectives of the RMP into a framework of more specific implementation targets and actions. Section 2.3 describes how the adaptive management process would be implemented and the use of the Conservation Target Table. The discussion acknowledges that the Conservation Target Table is a “work in progress” and describes how it would be updated in a manner consistent with NEPA and BLM planning requirements. BLM agrees that a more specific baseline and monitoring plan is critical to effective implementation of an adaptive management process. Text has been added to the plan to identify that a monitoring plan to implement the Conservation Target Table will be developed during early stages of RMP implementation. This would also ensure that threats to biological resources would be identified and management actions would be implemented and evaluated. Text on this topic has been added in Section 2.3.

Comment Number: 44-4

Comment: We would like to see only elk and pronghorn antelope grazing on these grassland ecosystems that are rare and imperiled, and underrepresented in the conservation system.

Response: While the goal for biological resources is to emphasize an increase of native and indigenous species, there are too few tule elk and pronghorn on the Monument for them to be an effective tool for endangered species habitat management. For that reason, livestock are used as a management tool. Parts of the CPNM, while naturally appearing, have been heavily impacted by past land uses. For example, much of the valley floor was cultivated as recently as the 1980s. This has increased the presence of nonnative species, such as Mediterranean grasses, to levels that can be detrimental to certain animal species and that cannot be effectively grazed by native ungulates alone.

Comment Number: 46-70, 46-71

Comment: The placement of new transmission lines, towers, or other structures should be prohibited altogether in condor habitat, not merely restricted. BLM should require that existing transmission lines, towers, or other structures be “condor safe” by installing appropriate exclusion devices.

Response: Wherever feasible, such structures will be prohibited in condor habitat. If a new structure must be installed, formal consultation with the USFWS will be completed prior to any authorization. BLM will use the formal consultation process to determine if a new structure can be placed in condor habitat. The following existing text in Appendix O also addresses this comment: “New wells and power lines would not be developed within 100 yards of ridge lines to minimize potential impacts to condors.” Text has been added to the California condor objective to address existing structures. (See Section 2.4.2.2, Objective BIO-6, Action BIO-22.)

Comment Number: 55-2

Comment: Because most of the listed, sensitive, rare, special status plant taxa are as yet unmapped (including one federally endangered species), active protection of all listed, sensitive, rare, special status plant taxa that could be impacted should preclude grazing on all parts of the Monument area where any of these taxa could occur.

Response: The proposed RMP calls for additional inventory of sensitive plant species within the Monument. The plan objectives and actions include protective management of plants including surveys prior to surface disturbing projects and temporary/permanent fencing (see Section 2.4).

Comment Number: 55-7

Comment: Since BLM is “directed to maintain an inventory of wildlife, plant communities, threatened, endangered, and candidate species; support and carry out research necessary for proper and efficient management of wildlife and special status species”, the draft Plan should include language spelling out how such an inventory is (and will be) conducted and maintained.

Response: The RMP establishes objectives and actions for protection of Monument resources and allowable public uses. The EIS analysis in Chapters 3 (Affected Environment) and 4 (Environmental Effects) is based on the best available information, which includes site-specific

inventory data where available. References in these chapters describe the sources of information. Specific process discussions for future inventories are beyond the scope of the document, but they would be conducted using proper protocols commensurate with the type of information being collected. The RMP also includes objectives focused on encouraging scientific research.

Comment Number: 55-20

Comment: By restricting discussion to Noxious Weeds, parts of the draft Plan ignore serious pest plants included on Cal-IPC's Invasive Plants lists.

Response: The RMP list includes species that have been found on CPNM, those nearby, or with potential to be found. The plan allows for treatment of species not on the list.

Comment Number: 55-24

Comment: One of the draft Plan goals is to manage the CPNM in a manner that emphasizes rare natural communities. However, the draft Plan does not discuss any rare plant communities or vegetation types. The only rare natural communities mentioned in draft Plan are all animal communities. This implies that the draft Plan does not recognize the plant communities recognized by CDFG nor those tentative mapped on the Monument area, based on recent survey work by CDFG personnel (commenter lists several plant communities and alliances recommended for inclusion).

Response: Additional plant communities listed in the comment stem from the 2008 survey done as part of the California vegetation mapping project (CDFG and CNPS). The results from mapping the Monument have not yet been made available to BLM and, thus, the information has not been included in this document. As part of BLM's commitment to adaptive management, information generated from sources, such as the recent mapping project, will help define locations of rare plant communities, allowing their inclusion in the Conservation Target Table, and identifying locations of possible threats. With this information, BLM can make modifications to rectify any problems identified. In the RMP, there was some discussion of Soda Lake and vernal pools as rare habitat and now, a wider discussion of the *Ephedra* community in Chapter 4. Available information on *Eastwoodia* is not adequate to define or map the community. The species was added to the list of important shrub communities.

Comment Number: 55-25

Comment: One stated goal of the draft Plan is to restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem, including ecological processes that sustain them and to manage resources to emphasize an increase of native and indigenous species. A primary goal for vegetation restoration should be enhancement of populations of all listed, sensitive, rare, and special status plant taxa. Another should be enhancement of all native-dominated vegetation. In addition, a very important goal should be controlling and/or eradicating nonnative plants and eliminating alien-dominated habitats in the Monument area. However, the methods used to control or eradicate should have minimal impact on native plants or animals, biological soil crusts, and soils. Restoration includes weed control and eradication. Control programs require long-term commitments, and short-term lapses may negate years of expensive control efforts. Conceptual frameworks for ecosystem change have suggested that the probability of reversing livestock-grazing-induced change may be inversely related to amount of disturbance involved in the transition, with the same amount of energy being required to alter species composition of vegetation as is required reverse the process.

Response: Comment noted. Thank you for your comment.

Comment Number: 55-26

Comment: Much of the restoration discussion in the draft Plan centers around enhancing or restoring grasslands (including perennial grasslands) and increasing native perennial grasses. Before any restoration is begun, suitability needs to be assessed. Native perennial grasses should be enhanced or restored where there is compelling evidence that they were a dominant or an important component. No evidence is provided that they occurred in the areas where BLM wants to enhance or restore, nor that they were an important component of the native vegetation.

Response: Some discussion of the uncertainty of defining pre-European conditions was presented in the affected environment (Chapter 3) and within the introduction to the vegetation impacts section (Chapter 4), where it was noted that grasses were probably not a major part of the landscape for the valley floor. Recent restoration has focused on areas adjacent to the Caliente foothills, in the northern part of the Monument, where grasses would have been expected. In addition, it is thought that scattered native bunchgrasses could help produce a better environment for native annuals, in contrast to the existing predominance of nonnative grasses. The model has been the nearby Swain pasture, with expansive stands of native bunchgrass and wildflower displays. Grasses were emphasized because BLM has a reliable source of genetically appropriate seed for the two most common species. In addition, it is much easier to tell if a target pasture is lacking bunchgrasses, but more difficult to determine the missing annual (ephemeral) flora. There is a strong desire to include more native annual herbs in restoration activities and the document has been revised to emphasize this pre-existing but not well-explained goal. Appropriate herbaceous species still need to be identified and sufficient quantities of seed procured.

Comment Number: 66-1

Comment: Much of the Carrizo Plain's ecology is not well understood, so the potential for adaptive management should be maximized. Unfortunately, the management alternatives in the Draft RMP/EIS put the capacity for genuine adaptive management at Carrizo in doubt.

Response: The RMP is written to incorporate the latest direction from the Department of the Interior Manual 522 DM 1, which provides direction for all Interior agencies for developing and implementing adaptive management strategies. Section 2.3 of the RMP describes BLM's commitment to use the adaptive management process in implementing the RMP.

Comment Number: 66-19

Comment: Commenter's experience is that the removal of accumulated mulch (by hand) did not promote vegetative plant growth or reduce nonnatives in small research plots, suggesting that some of the management options available for Alternative 1 would be ineffectual for managing vegetation even at small scales.

Response: Mowing is useful for removing biomass, but the real problem is the presence of nonnative grasses in the seed bank. Mowing does not address this problem. What mowing does is to remove thick thatch that may hamper the growth of some herbs. Annual grasses, by the nature of their architecture and growth patterns, are able to grow through a thatch layer much better than herbaceous species. The simple removal of thatch may allow herbaceous species to grow better. The results noted in this comment are similar to the results of the BLM grazing study where

grazing was used to remove biomass: nonnative grasses were not reduced and native annuals were depressed.

Comment Number: 66-22

Comment: Insufficient attention is given to burning in the context of vegetation management, particularly as an alternative to grazing for accomplishing resource management goals. Research done at Carrizo provides some evidence that properly timed burns were quite effective. In Alternative 2, instead of focusing the discussion of prescribed burning on specific conservation goals or questions, the sections of the document that address burning are completely devoted to the engineering of controlled burns.

Response: BLM recognizes the benefit of using prescribed fire as a tool for vegetation management. Historically, grazing has been used as the predominant tool for vegetation management in the planning area, and has also been the focus of more controversy during the planning process. Therefore, the plan contains more background information and discussion regarding its use. However, fire has also been successfully used and will continue to be used as a management tool under the plan objectives.

Comment Number: 66-24, 66-25

Comment: Certain plants that are not wildflowers or listed species deserve specific attention in the RMP/EIS; for example, *Ephedra californica* should be assessed on a periodic basis to assure it continues to exist at Carrizo. *Eastwoodia elegans* is a shrub species that should be given greater attention at Carrizo, for both botanical and historical reasons.

Response: *Ephedra* is mentioned, but not treated separately, partially due to a limited amount of information available about the populations within the planning area. Additional information on it has been added to Chapter 4. *Eastwoodia* is now mentioned with other shrub communities.

Comment Number: 80-1

Comment: There are a couple of references to the rare plant list as Table 3.2-3 (pg 2-129). The correct table is 3.2-4.

Response: This error has been corrected.

Comment Number: 85-1

Comment: There appears to be a predetermined goal to steer away from any practical use of livestock grazing as a management tool.

Response: Thank you for your comment. The RMP discusses the scientific controversy surrounding use of grazing as a management tool in the CPNM ecosystem. Chapters 3 and 4 of the RMP have been updated to include additional information on the uses and impacts of livestock grazing as a management tool. Specific discussion is found in Section 4.2.5, Giant kangaroo rat impacts from livestock grazing, No Action Alternative.

Comment Number: 85-7

Comment: I applaud your incorporation of prescribed burning in the RMP. But I question if you should count on that as a much better alternative than grazing for vegetation management, which seems to be your drift. While prescribed burning makes a lot of sense in brush areas where grazing can't be employed, I question why it is preferable on grasslands. Why not give preference to prescribed grazing? I sometimes read about the effect of air pollution on national parks and Monuments from outside sources. Here you have a national Monument next door to some of the most polluted air in the nation (San Joaquin Valley) and you may be adding to that pollution! Why not objectively explore more closely the possibilities of prescribed grazing to accomplish your restoration goals?

Response: The proposed RMP allows for the use of a variety of tools to meet habitat restoration objectives. An adaptive management approach will be used to determine which tool(s) are most effective in meeting long-term plan objectives.

Comment Number: 55-35

Comment: Commenter recommended specific considerations and approaches for utilization monitoring (including RDM and other measures of livestock impact to vegetation).

Response: Residual dry matter is a reasonable measure of grass/herbaceous plant cover and structure that is widely used within the range management discipline and is familiar to livestock operators. Using this measure is one means for wildlife managers to inform that resource discipline and industry on habitat management objectives for the San Joaquin Valley listed species.

5.8.4.2 Biological Resources – Affected Environment

Comment Number: 13-53

Comment: For vernal pools, the draft RMP fails to provide the detailed comprehensive information needed as a basis for a comprehensive analysis.

Response: Although a separate vernal pool section was not included in the document, several analyses were conducted in the vegetation, wildlife, and water resources sections: Section 4.2.5.12; Section 4.3.1.4, Impacts of Livestock Grazing on Native Vegetation and Impacts from Grazing to Manage Vegetation for Animal Species; Section 4.7.4.2; and Section 4.7.5.2.

Comment Number: 22-13

Comment: The ecological role of the black-tailed hare is ignored in the DRMP; its role in vegetation management should be addressed in the final RMP.

Response: While black-tailed hare are relatively common on the Monument, they have not been seen in numbers to be considered a significant herbivore. Black-tailed hare is identified as a prey species of the San Joaquin kit fox (Section 2.2). Black-tailed hare habitat requirements have been considered in the wildlife management goal to “Restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem, including ecological processes that sustain them. Manage resources to emphasize an increase of

native and indigenous species.” Black-tailed hare habitat requirements have been considered when promoting shrub communities to provide abundant prey for kit fox.

Comment Number: 22-14

Comment: BLM seems to express surprise at the results of the Christian et al. study, prefacing its review with “Contrary to many other recent grazing studies in California”. Are these primary studies or reviews? Are they peer-reviewed? Are they relevant? Evidently they are not or they would have been cited. The Carrizo grazing study results, as summarized by BLM, clearly show that livestock grazing is not beneficial to the giant kangaroo rat and other Monument objects.

Response: The RMP acknowledges the scientific controversy regarding the impacts and benefits of the use of grazing as a vegetation management tool in restoring wildlife habitat and the proposed plan alternative has been updated to better convey the most recent findings. The Christian et al. study to which the commenter refers is included in the body of research, professional observations of on-site managers, and other information sources used to develop plan objectives and actions. The preliminary study results are outlined in Section 3.2, Summary of the Carrizo Plain Grazing Monitoring Study. The proposed RMP places tighter parameters on when grazing could be used as a management tool as a result of information from recent studies, including the Carrizo Plain Grazing Monitoring Study (Christian et al., in prep.). However, because a body of information also exists that shows grazing to be beneficial to certain species, the RMP retains its use as a management tool under an adaptive approach. It is anticipated that grazing would be used as a tool in only 2 out of 10 years in any one area at the beginning of plan implementation. If further studies confirm that grazing is not beneficial, its use as a tool would be further reduced or eliminated.

Comment Number: 42-5

Comment: If grazing is beneficial to the landscape, then why not allow and provide traditional grazers onto the landscape and eliminate the non native interlopers? Why limit the Pronghorn herd to 250 animals? If the grasses weren’t grazed so profusely, perhaps there would be knee high grasses to sufficiently hide pronghorn fawns? In Nature Conservancy ungrazed days, a visitor was sure to see pronghorn. In the years since, pronghorn sightings have been fewer and fewer, because there is nothing left for them to eat and nowhere to fawn. It has been grazed by private cattle and sheep herds paying reduced fees to graze public lands.

Response: The pronghorn population objective for the herd unit is established by the California Department of Fish and Game. BLM will provide suitable habitat for the segment of the herd residing on the Monument. If the CDFG proposes to increase the herd objective, BLM and CDFG will evaluate the habitat in the Monument and determine what actions will be included in the Conservation Target Table to provide suitable habitat for the population.

Comment Number: 42-5

Comment: The breaking up of the Carrizo into little management units is faulty in its inception. Protecting and enhancing the indigenous species and indigenous communities doesn’t mean managing isolated, handpicked pockets like one manages a zoo or museum. These plants, animals, and communities need to expand, or shrink, at their own pace and ability as the space, habitat, natural conditions, and opportunity provides. Zones and units are contrary to natural function. Your plans all intend to manage for minimum population densities instead of maximum population densities. Your plan should allow the Pronghorn to grow in size compatible to their

need or to fit the resources available to them. By limiting their number you negate your very mission. By limiting Kangaroo Rat densities to “approved” habitats or densities of so many per hectare, you negate your mission. The idea of communities and management areas implies boundaries and fences. Fencing off Painted Rock, fencing flowers so the permittees don’t graze, fencing Kangaroo Rat habitat so it doesn’t get trampled? Is this the openness and remnant of the Valley we are to expect?

Response: The description of core areas and other areas of management focus is intended to optimize characterization of and implementation of plan actions, and not to segregate the area into separate units or to manage an individual resource in isolation. The concept of the core areas is not to limit the distributions of the San Joaquin listed animals to the core areas, but to implement an effective effort to modify habitat structure when needed. Past experience indicated that a concentrated effort in the most important occupied habitat is needed to be successful. BLM has removed over 150 miles of fencing since the lands making up the CPNM were acquired by the federal government and would continue to reduce fencing to minimal levels necessary for management under the plan.

Comment Number: 55-6

Comment: In general, more attention was given to faunal resources than to floral resources. The special status animal list (Table 3.3.3) is much more complete than that for plants (Table 3.3.4). Of the Monument area plant taxa on California Native Plant Society (CNPS) lists, fewer than half are included on Table 3.3.4.

Response: A new list of rare plants has been incorporated into Chapter 3.

Comment Number: 55-10

Comment: The draft Plan contained no lists of nonvascular plant taxa (e.g., mosses) nor of lichens (detailed information on species provided in comment).

Response: Additional information has been added to Chapters 3 and 4 regarding non-vascular taxa.

Comment Number: 55-16

Comment: I can find nothing in draft RMP that would explain how the vascular plant taxa on Map 3-5 (Special Status Plants) were selected nor why most of the special status plants were not mapped. Despite its title, the map included only the 2 federally listed endangered species included in draft RMP and the 1 federally delisted species. It should have included all of the California BLM Special Status Plants, all of the taxa included in the Monument Proclamation as rare and sensitive plant species, and all of the taxa included Section 3.2.3.5 of the draft RMP. Without distribution information, it is difficult to determine to what extent each of the Alternatives may impact each of the “special status plants.”

Response: Additional species have been added to the map to reflect the most up-to-date spatial information that BLM has available.

Comment Number: 55-17

Comment: There are 101 nonnative vascular plant taxa reported as occurring in the Monument area, including 9 on the CDFG Noxious Weed lists and 39 on the Cal-IPC Invasive Plants lists. There are 5 taxa listed in the Conservation Target Table as noxious weeds, 2 of which are included on the CDFG, and all 5 of which are included on the Cal-IPC lists. Alien (nonnative, non-indigenous, exotic) taxa are those taxa occurring in an area in which they have not [sic] evolved since the last Ice Age and whose introduction or immigration was supported deliberately or involuntarily by human activities (Kowarik 1995). Despite the use of the term “new natives” (Heady 1977), biologically, they cannot be considered native to the Monument area (or anywhere else) nor can one manage areas dominated by alien grasses as though they were native systems, although this too has been suggested. Invasive, biologically weedy alien plants are a form of biological pollution and not only decrease structural diversity of native vascular plant communities, but also decrease biological crust cover and species richness.

Response: Weed section has been revised to clarify.

Comment Number: 55-18

Comment: The term “weed” is often casually used; however, to weed scientists and most other biologists, weeds are not simply any plants growing where they are not wanted, which requires a value judgment by the observer.

Response: The RMP has been written to include both scientific names and names in common usage within the region so that the information can be interpreted by the general public.

Comment Number: 55-19

Comment: It is unclear how “noxious weed” is defined in the draft Plan.

Response: Weed section revised to clarify the definition and update the species listed.

Comment Number: 55-21

Comment: Most of the common alien grasses fit the biological definition of ‘weeds’. Most (possibly all) the alien annual grasses on the allotments are aggressive, biologically weedy invaders. Invasion of alien annual plants into perennial plant communities can pose a long-term threat to biological soil crusts, because the crust-dominated interspace between perennial plants is often heavily invaded.

Response: The RMP includes objectives and actions to manage to reduce impacts from nonnative grasses.

Comment Number: 55-23

Comment: Maintenance and restoration on native plant communities and vegetation, and controlling the spread of nonnative plants, may be made more difficult by the lack of clarity in what plant communities and vegetation types found in the Monument area. According to the draft Plan, the plant community designations in follow the classification system developed by Holland (1988) and a more precise vegetation map is in development, based on Sawyer and Keeler-Wolf (1995) was not yet ready for inclusion. Section 3.2 includes discussion of the plant

community/vegetation types [specific examples listed by commenter] occurring on Carrizo Plain National Monument, not all of which are Holland types. One of the management objectives is to map ecologically important plant communities and populations using the nomenclature system developed by Sawyer and Keeler-Wolf. Various names for the plant communities, plant habits, plant alliances, and vegetation types are scattered through the document that do not conform to Holland nor to Sawyer and Keeler-Wolf. [Commenter provided examples from Section 3.2 and Map 3-4.] In addition, differing names for the plant communities, vegetation, plant alliances found in the Monument area are used in other supporting literature. These need to be reconciled.

Response: The vegetation map for the RMP is intended to provide a generalized overview of vegetation communities as a general reference for the reader. Source material used for the map, such as listings in CNPS, contains various terms for plant habitat. Rather than try to find the “map” equivalent for all these different, but understandable vegetation terms, the original terms (in the source material) was used. General terms (such as alkali scrub) were used to denote generalized vegetation types, especially when it was not clear which type of alkali vegetation was being discussed in the source material. Recent vegetation mapping, using up-to-date concepts, has not been finalized and was not available for inclusion in the RMP. The map in the RMP will be superseded as soon as the new map is available (as was mentioned in the text). This update will not change any of the analysis or conclusions in the RMP.

Comment Number: 66-4

Comment: The recent book *California Grasslands: Ecology and Management* provides a detailed review of the status of scientific knowledge about California grasslands. Strangely, this important new information source is not listed among the references in Chapter 6.

Response: This reference is not listed specifically because it was not seen by RMP preparers until after the Draft had been written. Information found in this book, however, is part of the analysis in the Draft, and original papers by some of the book’s authors were consulted in the preparation.

Comment Number: 66-14

Comment: Because year-to-year variation in plant species cover and composition are great and human memory and historical records are extremely incomplete, our capacity to detect ongoing/long-term grazing effects on species composition and ecosystem dynamics are very limited. This means that there is a potential for a “shifting baselines” effect Carrizo. Because of the absence of historical data that can serve as a frame of reference for what constitutes natural conditions, there can be an unintentional failure to perceive slow ecological decline associated with continued grazing and other human activities.

Response: This comment is correct in noting that long-term changes in annual plant composition are difficult to detect, especially when there is little information as to the original ecological conditions. The real issue is the long-term survival of the seed bank, which is difficult to assess. Consequences of management actions, however, can be inferred from studies such as the BLM grazing study (Christian et al., in preparation). The Affected Environment chapter (Chapter 3) describes the baseline of CPNM biological resources using the best available information. The baseline used for the effects analysis is current and recent conditions and uses of CPNM resources. However, the RMP also includes a description of reference (natural) conditions using the best available information, and acknowledges that some of the information is unknown or incomplete.

Comment Number: 66-23

Comment: Grasslands are among the earth's most endangered ecosystems, and California grasslands are unlike the other North American grasslands, and the arid grasslands of the Carrizo Plain are quite different floristically from other California grasslands. The CPNM's native plants deserve more respect in the RMP/EIS. Each annual plant species has its own set of resource needs and habitat preferences and, because wildflowers are so short-lived and so diverse, they among the most poorly understood groups of organisms at Carrizo. These facts are not adequately considered in the Draft RMP/EIS.

Response: New text addresses additional concerns about the native annual flora, especially concerns about the seed bank. This information is within the vegetation and rare plants sections of Chapter 4.

Comment Number: 80-2

Comment: In the DEIS you state that Bureau sensitive plant species are those included by the California Natural Diversity Data Base and the CNPS as list 1B species. Those species are considered as rare, threatened, or endangered in California and elsewhere. The CNPS has modified the ranking to include additional categories of threats in the ranking by adding a decimal evaluation. There are several plants included on the list that are known from the immediate vicinity of the Monument that are not on the floristic list included in the DEIS. This new list includes 37 plant species, 28 BLM sensitive, two that have been documented from the Monument but not included in the DEIS, and six others that very probably occur in the Monument.

Response: Changes have been made to correct the rare plant table in Chapter 3 and text has been added to Chapters 3 and 4 to address these concerns.

5.84.3 Biological Resources – Environmental Consequences – General

Comment Number: 10-2, 22-4, 22-15, 22-16, 42-1, 55-22, 55-31, 66-7, 66-9, 80-13

Comment: There is no scientific, peer-reviewed proof that cattle grazing is beneficial to native flora and fauna. The Monument was not established to experiment with cattle grazing techniques or to attempt to demonstrate over the long term that some form of targeted cattle grazing is administratively acceptable despite negative impact to the Monument's ecosystem.

Surely grazing animals must severally damage the complex network of holes, burrows, and shelters that the very species you are trying to protect need to survive. So #1, we have the grasslands grazed to the ground. How does this protect and enhance an ecosystem? #2, we have holes and dens trampled - how does this protect and enhance an ecosystem? #3, we have the very plants to be protected and enhanced, eaten by nonnative invasive species, the very things that damaged the Valley habitat that the Carrizo is the last remaining remnant of. Must I cite the complete destruction of California jewel flower and habitat I witnessed with my own eyes just two weeks ago by a herd of sheep? #4, we have exposure to predators caused by excessive grazing and denudation of plants and, therefore cover. Out of one side of your mouth you state how grazing has improved kangaroo rat populations, yet you really state that populations have declined since the reintroduction of grazing. These are the very conditions that forced these species which have found last refuge at Carrizo to decline. Only by allowing them space and

protection from grazing did these species recover, now you propose to put them right back into the same situation which pushed them to the brink of extinction in the first place in the name of management! Since the widespread grazing and mowing from the takeover of the National Monument I have noted the following; disappearance of the long tailed weasel, diminished sightings of burrowing owl, hawk species, golden eagle, pronghorn, horned lark, dove, coyote, the once knee high grasses. Something has changed here?

Christian et al. found that grazing did not positively affect endangered giant kangaroo rat populations. At this point, the best available science conducted at Carrizo indicates that livestock grazing is not “required” to promote management tools at the national Monument.

The arguments in Donahue’s *The Western Range Revisited* are relevant here, with the fundamental premise that arid rangelands are not suited for livestock grazing. Without evidence that grazing is actually effective in removing thatch buildup, or that such removal would promote native plant growth and reduce nonnatives, grazing should not occur. All proposed vegetation management tools must be used with considerable care, using best available science; because livestock grazing is considered a threat to most of the listed, sensitive, rare, special status plant taxa, it must be used with great care. Although the draft Plan states that livestock grazing can be targeted on specific weed species, it does not discuss which specific weed species could be targeted nor does it provide any literature to support that such targeting has been found to work, without undue impacts on other resources. According to the draft Plan, livestock grazing might be used for several specific vegetation management objectives; BLM needs to provide strong science-based defenses for the use of livestock grazing to accomplish any of these. The draft Plan does not clearly explain what is meant by targeted livestock grazing for weed removal. Without study and documentation, it is not logical to assume that effects of livestock on alien plant populations will be desirable ones; the presence (not absences) of livestock generally has had negative impacts on biodiversity of native taxa in the arid and semi-arid west.

Despite solid evidence to the contrary, the Carrizo Plain’s managers insist on perpetuating lore about the value of livestock grazing as a vegetation management tool.

Livestock grazing has been found to be a factor in the proliferation of alien plants [commenter provided extensive discussion of available studies]. Because livestock are known to be a major vector for introduction and transportation of alien plants (including ‘weeds’), use of livestock to control these same plants would be inappropriate.

There appear to be contradictions in the arguments presented to justify grazing as a tool to manage for sensitive animal species. You need to present information that is based on sound science and use the information logically. The decision maker needs unaltered information to support a choice of alternative actions, clearly the existing document presents conflicting data that do not allow comprehension to reasonably select an appropriate alternative action that would not cause adverse effects to sensitive resources. The selective use and misuse of published reports and scientific papers to justify grazing as a positive tool is apparent in this document. There is no convincing data to indicate that tall, dense grass is truly detrimental to Giant Kangaroo Rat populations. Some of the data used to justify positive effects of grazing on GKR is of limited scientific value (Elkhorn; no replication, very small data set, small geographic region, only two populations, actual data currently not available, no statistical analysis, not peer reviewed). Whereas, you present studies (Carrizo) that suggest that GKR populations fared better in ungrazed sites than at grazed sites. A reader cannot reach the conclusion that grazing is beneficial to the long term management of the GKR through the use of grazing to manage forage. It is quite clear that trampling of burrows, damage to soil crust and soils, and competitive elimination of

food resources by grazing cannot be beneficial to long term productivity of the listed species. The information presented does not validate the use of grazing as a positive management tool.

The results from the Carrizo grazing study do not support the hypothesis that livestock grazing is beneficial for native plant communities, and neither enhances native annual plant species nor decreases exotic ones. It is unclear why BLM is considering continuing to make most of the Monument available to grazing. As Dr. Schiffman points out, “Despite solid evidence to the contrary, the Carrizo Plain’s managers insist on perpetuating lore about the value of livestock grazing as a vegetation management tool.”

Response: The impact analyses in Section 4.2 recognize the incomplete knowledge and confounding effects of livestock grazing on wildlife and listed animal species, including evaluation of recent monitoring data within the Monument. BLM has reviewed the available literature and agency monitoring data and considers that vegetation structure is an important habitat component that may affect habitat suitability for the listed animals. The effects of herbaceous cover appear to be different among the listed animal species so that a variety of management prescriptions may be required. Additionally, the amount of herbaceous/grass structure appears to have different effects from year to year. BLM has cooperated with species experts and has conducted monitoring to sort out these relationships. The application of livestock grazing proposed in the Conservation Target Table reflects current knowledge regarding vegetation structure, habitat suitability, and management prescriptions. The process of adaptive management will direct the application of livestock grazing to meet Monument objectives to maintain viable populations of the listed animal species.

Use of grazing to increase forb production for pronghorn habitat has been removed from Vegetation Management Tool Box. This will be a subject of study to test and evaluate in Conservation Target Table.

The statement that grazing could be used for grass removal to promote wildflowers was removed from the RMP. Grazing is not proposed for use as a tool to meet objectives for botanical resources. Using grazing for weed controls was clarified in Chapters 2 and 4. The negative impacts to botanical resources from grazing were discussed under the No Action alternative (and referenced in the other alternatives) in the Draft RMP EIS. This has been supplemented with additional text and incorporated into the discussion of the proposed plan alternative.

Comment Number: 13-37

Comment: BLM should address travel management on a landscape-wide basis by addressing the impacts of all roads and fences and accounting for their landscape-wide impacts; direct, indirect, and cumulative analysis of travel management decisions must assess habitat connectivity in light of the road network.

Response: The RMP includes a comprehensive discussion/designation of the transportation network and associated impacts. The proposed plan alternative calls for a reduction of overall road mileage in the CPNM by the closure of redundant roads, and limits use to street-licensed vehicles. The RMP acknowledges that impacts occur from use of roads (especially vehicle strikes). The plan allows for actions such as establishing reduced speed limits on BLM road segments with a high frequency of road strikes, and additional public outreach. The effects of roads and the road network on wildlife and special status animal species were discussed in the No Action alternative, travel management sections (see Section 4.2.4.5 and 4.2.5.1 in the Draft RMP EIS). The analysis concluded that roads in the Monument do not cause habitat fragmentation or

act as barriers to wildlife and the listed animals. The effects of roads are considered negligible and were considered in the direct, indirect and cumulative impacts of the Plan. See also response to Comment 12-11 et al. on page 5-33.

Comment Number: 22-15

Comment: Germano et al. (2001) hypothesized that removing livestock grazing could result in localized extinction of co-evolved native plants and animals, but long-term studies by these same and other researchers provide data to indicate that the beneficial grazing hypothesis does not apply to giant and San Joaquin kangaroo rats, San Joaquin antelope squirrels, and blunt-nosed leopard lizards. In the more recent research, available on the Internet, when the large disparity in the size of treated vs. control plots is taken into account, population densities are higher on the control plots. Similar results appear to have been observed in the unpublished study of Christian et al. Given the known impacts that livestock have on habitats and individual listed species, the preponderance of data points in the clear direction that livestock grazing is impacting these important Monument objects.

Response: BLM stands by the impact analysis using the yet-unpublished Lokern study data. There seems to have been confusion regarding data analysis of different sizes of treatment areas and differences between same sample plot sizes. The experimental design used in the Lokern study had the same sample plot sizes for the treatment and control plots. It is only appropriate to evaluate data between the sample plot sizes. It is not appropriate to compare the data by extrapolating the different sizes of the treatment and control areas.

Comment Number: 30-5

Comment: Oil and gas drilling can impact the natural landscape, plants, and animals. BLM needs to address the potential impacts of oil and gas drilling on split estate lands.

Response: Chapter 4 contains a description of the reasonably foreseeable development scenario on split estate lands and the associated effects on CPNM resources and uses. The proposed plan alternative contains objectives and actions to minimize these impacts while acknowledging that BLM has limited authority to restrict reasonable development of these private property resources.

Comment Number: 39-4, 81-4

Comment: BLM should analyze the impacts of livestock grazing to plant and animal species and ecosystems in the mountains of the Monument.

Response: Potential impacts from livestock grazing to wildlife and vegetation resources at CPNM are discussed in Section 4.2.

Comment Number: 89-5

Comment: The grazing program was evaluated in the 1997 Biological Opinion and was designed to be compatible with the habitat requirements of sensitive species, including federally listed and proposed species.

Response: A Biological Assessment is under development for the current RMP. A new Biological Opinion will be completed to reflect the requirements of the Proclamation and the objectives and actions of the RMP. This will replace the 1997 opinion.

Comment Number: 89-15

Comment: Any benefit of removing the cattle on these lands after centuries of use can only be a supposition. On the other hand, we do know that it would change the environmental balance, and we know that the balance for maintaining some of the species on the Monument is very slight based on the small size of their populations.

Response: Thank you for your comment. The RMP describes the effects of changing or eliminating grazing from the CPNM in Chapter 4.

5.8.4.4 Biological Resources – Environmental Consequences – Wildlife

Comment Number: 5-5

Comment: Lead poisoning from bullets used in hunting is an issue, not too many statistics on actual diminishment of habitat by lead poisoning, though. The hunters I know don't waste lead but save it for the shooting ranges. Due to increases in prices of guns, ammunition, and licenses, I sincerely doubt this area should be concerned with lead poisoning in the future. Hunters are also more careful because they are aware that their privileges to hunt on many lands are threatened because of a few people who abuse those privileges.

Response: The state of California has passed a law banning the use of lead bullets in California condor habitat, which includes all lands within the planning area.

Comment Number: 13-32

Comment: The RMP should evaluate whether the restoration of native ungulates like tule elk and pronghorn antelope (and the concurrent reduction of grazing there) will provide a more consistent and reliable food source for California condors.

Response: Chapter 4 has been updated to reflect this comment.

Comment Number: 13-33, 46-74

Comment: BLM should incorporate additional analysis and detail into the cumulative impacts evaluation of plan implementation on wildlife. A one-page analysis is inadequate. It should include other oil operations in the area and their impacts on wildlife, where drilling has caused particular impacts to California condors and San Joaquin kit foxes.

Response: BLM feels that the cumulative impacts to wildlife have been adequately addressed. The biological objectives of the plan to meet the Proclamation will result in positive impacts for ten different animal species covered under four separate recovery plans (see Section 4.2, subsection on Cumulative Impacts). These beneficial impacts will continue to provide protections that will offset detrimental impacts elsewhere. However, text has been added to the cumulative impacts discussion of oil and gas development on wildlife in Section 4.2.

Comment Number: 32-15

Comment: There is no evaluation of the interaction between improved pronghorn foraging and foraging habitat and the addition of new livestock fencing.

Response: At this time, there are too many unknowns for evaluation. If a desired treatment requires fencing and it becomes necessary to change fence boundaries to reflect ecological parameters, it may be necessary to remove old fences and construct new ones. This action is likely to result in fewer fences overall that pronghorn would need to navigate. The location and extent of such an action has yet to be determined and a site specific NEPA analysis would be completed (see Section 4.1). Furthermore, as stated in Section 2.4.3.3, Management Actions for Pronghorn, all fences would be modified to allow for pronghorn passage and would not be “standard” livestock fences.

Comment Number: 32-16

Comment: Before prescribed fire is used, it is imperative to assess the impacts of fire on all age classes of T/E/Sensitive species (especially those that use burrows in the soil), their food base, burrow systems, and predator pressure in non-core areas first.

Response: To date, prescribed fire on the Monument has been used as a way to remove yellow starthistle, improve habitat conditions for mountain plover and San Joaquin antelope squirrel (both of which were related to studies for those species), and as a pretreatment for native plant restoration. BLM acknowledges that to focus on using fire to improve habitat for listed and sensitive species, it will be necessary to consider many factors. Previous prescribed burns have provided us with some information in non-core areas, but more is needed. Additional text has been added in the Conservation Target Table to document gaps in our knowledge and to highlight as research needs.

Comment Number: 32-17

Comment: It would be prudent to identify and understand all of the factors contributing to low GKR densities after period of high rainfall before prescribing a management action that targets a single factor such as plant cover or residual dry biomass. Elsewhere, the RMP/EIS notes that drought also contributes to low GKR density and, during drought years, plant cover and residual dry biomass are low, but no causal relationship is suggested. Predator densities may lag behind GKR densities. It is essential to understand complexities of these wildlife systems.

Response: BLM acknowledges that there are unknowns relating to low population numbers of giant kangaroo rats in periods of high rainfall and that the cause may be more than just a single factor. The lack of high rainfall events prevents us from understanding all of the factors that may be involved. Current studies being conducted on giant kangaroo rats as well as any future studies will hopefully answer some unknowns about this species. BLM also acknowledges the complexities of the systems we are managing for and that there are many interactions at play. We are identifying gaps in our knowledge of these systems by adopting the use of the Conservation Target Table and through adaptive management, filling in the gaps as we learn.

Comment Number: 46-47, 46-57

Comment: The DEIS provides no evidence to support the conclusion that kangaroo rats and kit foxes would re-inhabit disturbed habitats within several months, in relation to effects after a site is abandoned after geophysical activity/oil and gas exploration or development. Have studies been conducted to determine recolonization rates? What mechanisms will ensure that such restoration occurs “immediately”?

Response: Text has been added in Section 4.2.5.2 in the analysis of Minerals impacts to giant kangaroo rats, No Action alternative to address this concern.

Comment Number: 46-48, 46-49, 46-58, 46-59, 46-60

Comment: The DEIS fails to discuss whether requiring project speeds below 20 miles per hour off county roads is an effective mitigation strategy for giant kangaroo rats and kit foxes; it should discuss whether vehicle strikes may still occur at those reduced speed limits, as well as the likelihood of vehicle operators abiding by the speed limit, and how such a limit would be monitored and enforced. In addition, the DEIS should consider vehicle strikes on County roads, where the 20 mph speed limit does not apply; this is especially important for any possible exploration activities on the valley floor, where these roads are more likely to be used. The RMP should propose other strike avoidance measures, such as limiting or prohibiting nighttime travel by oil operators.

Response: Text has been added to reflect BLM observations on this topic. (See Section 4.2.5.2 Travel Management.) The plan would allow for further reductions in speed limits where monitoring shows a high incidence of vehicle strikes. BLM now has a dedicated law enforcement ranger for the CPNM. This ranger, along with Bakersfield Field Office rangers, would be responsible for enforcing speed limits. BLM has no jurisdiction over county road speed limits, but would work with the county to take similar measures to reduce vehicle strikes.

Comment Number: 46-50

Comment: The DEIS contains an inadequate analysis of the impacts of geophysical activities on giant kangaroo rats; the existing text suggests that BLM does not know what they are. In light of this unknown or unavailable information, BLM should limit such activities. This lack of information must also comply with CEQ's NEPA guidelines regarding incomplete or unavailable information.

Response: Text has been added to the analysis to address this concern. (See Section 4.2.5.1 Minerals.)

Comment Number: 46-51

Comment: The DEIS does not cite any source for the statement, in regard to impacts to San Joaquin kit fox from oil development, that "Since kit fox use multiple dens, the occasional loss of a den is not expected to be significant." We question whether this is true. The destruction of den sites should be considered significant.

Response: A citation for use of multiple dens and changing of dens throughout the year was added to text in Section 4.2.5.2 Minerals. Documents state that occupied dens would be avoided. Unoccupied dens lost from project impacts would be replaced with artificial dens.

Comment Number: 46-45, 46-46, 46-52, 46-53, 46-54, 46-56, 46-62, 46-63

Comment: The RMP should specify the capture-and-release requirement (see DEIS p. 4-20) that would mitigate the impacts of oil development on the giant kangaroo rat, along with other species-specific requirements, and analyze the impacts, which include at least a 40% mortality rate. The DEIS states that San Joaquin kit fox den disturbance from oil development would be minimized by SOPs (and survey and avoidance measures); but the SOPs in Appendix P do not

specifically address den disturbance. The referenced “survey and avoidance measures” should be included or incorporated in the RMP. The DEIS must include more information and analysis about “standard kit fox mitigation measures” and SOPs so the public and other public agencies can evaluate how effective they are. The DEIS uses language similar to that which is the subject of comments on giant kangaroo rats and San Joaquin kit foxes; we incorporate our comments on those species into comments regarding the blunt-nosed leopard lizard and San Joaquin antelope squirrel.

Response: Text has been added to Section 4.2 on capture-and-release requirements for the giant kangaroo rat (see Section 4.2.5.1 Minerals). Site-specific resource inventories, evaluations, and environmental assessments will be conducted to minimize impacts and manage resources consistent with the Proclamation and plan. Oil and gas operations proposed in the plan will undergo consultation with USFWS. Subsequent BLM authorizations not included in the plan or not analyzed in the biological opinion will undergo site-specific consultation with USFWS. It is not possible to develop site-specific measures at this time because project sites are not known. Survey, take-avoidance, mitigation, and compensation measures would be applied to BLM-authorized projects proposals.

Comment Number: 46-55, 46-61

Comment: Even though the actual footprint of oil development is relatively small, the DEIS must evaluate its impacts on habitat connectivity and fragmentation of San Joaquin kit fox den sites, and to their local and Monument-wide populations.

Response: Text in Section 4.2 notes information from the recovery plan indicating that there was similar population density, reproduction, dispersal, and mortality in developed oil fields and undeveloped habitat. Thus, the landscape level population effects have been considered. Text was added to emphasize that site-specific den avoidance would be implemented, the effects to individual foxes would be avoided, and there would be negligible effects at the population level within the Monument (see Section 4.2.5.2 Minerals).

Comment Number: 46-64

Comment: The DEIS states that exclusion barriers may be constructed to remove and exclude antelope squirrels from the construction area, and that this measure has been applied elsewhere but does not say whether such measures were successful in preventing direct mortality to antelope squirrels.

Response: Text added to reflect BLM observations on this topic. (See Section 4.2.5.4 Minerals.)

Comment Number: 46-65, 46-66, 46-67, 46-68, 46-69

Comment: The DEIS should use clearer language to describe the frequency of condor visitation to oilfield areas. BLM should work with the U.S. Fish and Wildlife Service to obtain accurate GIS data of condor roosting, foraging, and flyway areas on the Monument. The DEIS should add noise and habituation to human presence to the list of impacts to condors from oil activity. The DEIS should evaluate the proximity of historic, current, or suitable condor *roosting* areas to oil fields (in addition to nesting locations).

Response: Text in the Environmental Consequences section has been rewritten to address these comments. Text was also added to the objective for All Wildlife and Vegetation Resources to

clarify that all oil- and gas-related activities will require individual consultations with the USFWS (see Section 2.4.2.2).

Comment Number: 46-72

Comment: The DEIS should describe how it concluded that oil drilling and exploration will have a negligible impact on fairy shrimp populations, given that valley floor is designated critical habitat for longhorn and vernal pool fairy shrimp.

Response: Critical habitat does not occur within the Monument. Longhorn fairy shrimp populations are clustered near Soda Lake to the north and the area between Padrone Canyon and Hanline Ranch on the south. Additional text was added to the Environmental Consequences section protecting and avoiding fairy shrimp habitat from such impacts.

Comment Number: 46-73

Comment: The DEIS does not include any analysis of impacts of oil exploration and development on pronghorn and tule elk.

Response: Minerals sections have been added to the analyses of impacts to pronghorn and elk. See Section 4.2.6.1, Impact to Pronghorn Common to All Action Alternatives, Minerals, and Section 4.2.6.2, Impacts to Elk Common to All Action Alternatives, Minerals.

Comment Number: 89-10

Comment: A study on the foothills and valley floors of the northern part of the Monument has been jointly conducted by BLM, TNC, and others; it reportedly concluded that in four of the six years cattle grazing had a negative effect on rat habitat. Opponents of grazing have argued that the results of this survey could be transferable over the mountain to the Sulphur Canyon and Selby Ranch allotments. First, we question the results of the study, and secondly we question the assumption that the results of the study would be duplicated on the other side of the Caliente Mountains where the temperature, soil, and exposure to sun are different.

Response: The Carrizo grazing monitoring study that took place between 1997 and 2002, though not yet published, analyzed thousands of pieces of data using a number of models, giving statistical strength to the results. BLM acknowledges, however, that there are limitations to the study (see Section 3.2, subsection on Summary of the Carrizo Plain Grazing Monitoring Study) and believes that a separate study is needed to assess the effects of grazing in the mountainous regions of both the Caliente and Temblor Ranges (see Section 2.15.1.2 Livestock Grazing, Goals, Objectives and Management Actions).

Comment Number: CBD-4

Comment: This area is home to a number of rare and endangered animals, made that way by unplanned farming developments nearby. I think it's important to consider the type of habitat you're looking at and if there actually exists other, untouched habitats that house these same animals as well.

Response: BLM monitoring and studies include undisturbed habitats as well as previously farmed areas.

5.8.4.5 Biological Resources – Environmental Consequences – Vegetation

Comment Number: 1-1, 1-2, 2-1

Comment: Commenter is concerned about the issue of weeds being introduced through the increased number of visitors. The increase in visitors will ultimately have the biggest impact on CPNM's plants and animals.

Response: The management plan does not include proposals for substantial increases in visitor facilities and use areas that would expand visitor use to additional areas. Although use levels are expected to increase at moderate levels over the life of the RMP, most of this use would be focused along Soda Lake and the rest of the Frontcountry zone. This is expected to have minor impacts to vegetation and wildlife. Also, BLM monitors public lands for new weed infestations and focuses on probable areas of introduction, such as public use corridors. This monitoring, combined with rapid response/removal of infestations and a public weed education program, will serve to minimize the potential for new weed introductions.

Comment Number: 3-5, 3-6, 35-2, 66-6

Comment: BLM should give greatest weight to review paper submitted by Dr. Paula Schiffman [Commenter #66] who finds that grazing is probably not helping the restoration of native vegetation. The two studies done at Carrizo Plain specifically address grazing and both demonstrated that grazing negatively affects plant diversity and cover, bunchgrass cover, and does not negatively impact undesirable invasive nonnative plant species. A study co-sponsored by BLM, cited in the DEIS on page 3-35, concluded that on the valley floor and lower foothills, grazing does not enhance native annual plants nor decrease exotics. Studies indicate clearly that cattle grazing, when permitted on desert lands, makes it extremely difficult for native plants to gain a foothold let alone thrive.

Response: Additional information has been added to the proposed plan alternative to identify the negative effects of grazing on vegetation. The Conservation Target Table identifies conditions when and where grazing would be used as a tool to manage vegetation structure to benefit listed animal species.

Comment Number: 33-1, 35-2

Comment: EPA is concerned about the potential impacts associated with long-term grazing in the CPNM; the results of the monitoring study do not support the general hypothesis that grazing is beneficial for native plant communities. Another commenter submitted that all studies indicate clearly that cattle grazing, when permitted on desert lands, makes it extremely difficult for native plants to gain a foothold let alone thrive.

Response: The vegetation impacts analysis in Section 4.3 described the impacts of livestock grazing to native plant communities. Literature and monitoring data from the CPNM indicate that livestock grazing is not an appropriate tool to improve native plant composition and has little value in native ecosystem restoration. However, livestock grazing is believed to be a viable tool to manage the habitat structure (height and cover of vegetation) for San Joaquin Valley threatened and endangered animals. BLM proposes to use livestock grazing for this purpose in the most important "core areas" of endangered species (animals) only when certain vegetation conditions are present and when endangered species populations warrant improving habitat conditions.

The impact analyses in Section 4.2 also recognizes the incomplete knowledge and confounding effects of livestock grazing on wildlife and listed animal species, including evaluation of recent monitoring data within the Monument. BLM has reviewed the available literature and agency monitoring data and considers that vegetation structure is an important habitat component that may affect habitat suitability for the listed animals. The effects of herbaceous cover appear to be different among the listed animal species so that a variety of management prescriptions may be required. Additionally, the amount of herbaceous/grass structure appears to have different effects from year to year. BLM has cooperated with species experts and has conducted monitoring to sort out these relationships. The application of livestock grazing proposed in the Conservation Target Table reflects current knowledge regarding vegetation structure, habitat suitability, and management prescriptions. The process of adaptive management will direct the application of livestock grazing to meet Monument objectives to maintain viable populations of the listed animal species. The impact discussion describes that application of grazing as a vegetation management tool would only be expected to be applied in any one area during 2 of 10 years during initial phase of plan implementation. If additional studies or monitoring data indicated that grazing was not meeting intended objectives, its use could be further reduced or discontinued.

Regarding the Section 15 allotments, the Monument Proclamation requires BLM to follow current agency policy in their management. Current rangeland health assessments for these allotments show that they are currently meeting Central California Rangeland Health Standards. The RMP contains more restrictive management objectives for future management of these allotments, and a reduction of forage utilization over current levels to protect the objects of the Proclamation. If future monitoring shows that grazing on these allotments at the reduced levels in the RMP conflicts with the plan objectives for the management/restoration of biological or other resources, grazing levels could be further reduced or eliminated at that time. However, elimination of grazing on the Section 15 allotments at this time would be without basis, therefore arbitrary.

Comment Number: 55-29

Comment: Erosion can be an important consequence of livestock grazing, even in arid environments, including wind erosion and raising dust from livestock movement. Dust can have significant negative impacts on plants, including reduced photosynthesis, increased water loss, reduced vegetative growth, increased disease, reduced pollen germination, and reduced seed set. Therefore, quantities and constituents of dust must be taken into consideration in the draft, especially then there are rare plant taxa involved.

Response: Chapter 4 has been updated to further describe the impacts of grazing on vegetation through dust generation, compaction, and erosion.

Comment Number: 55-30

Comment: Twenty listed, sensitive, rare, special status vascular plant taxa reported for the Monument area are recorded by CNPS as threatened or potentially threatened by livestock (including grazing, overgrazing, trampling) [commenter listed them]. Since most of the sensitive, rare, and special status vascular plant taxa are not mapped, it cannot be readily determined to what extent the distribution of all listed, sensitive, rare, and special status vascular plant taxa overlaps the areas shown on Map 2-7 and Map 2-8 as available to livestock (and thus putting these taxa at risk under Alternatives 2 and 3 and the No Action Alternative).

Response A number of these taxa are at risk from grazing, as mentioned in the revised Chapter 4 rare plants commentary. The comment is correct in noting that BLM does not have good information as to the locations of all these rare plants within the Monument. The plan includes provisions to survey and map these rare species so that better management decisions can be made and populations protected. We do know that a number of these rare species fall either within Section 15 grazing allotments or within areas proposed to be occasionally grazed to manage vegetation for animal habitat, as noted in Chapter 4.

Comment Number: 55-32

Comment: The grazing impacts of pronghorn and elk on native vegetation, soils, etc. differ substantially from nonnative livestock. The impact of herbivores on plants is a predator/prey interaction. The impacts of livestock on plants vary, depending on animal species, numbers, and management.

Response: Information on these differences is presented in Chapter 4 under impacts to vegetation from the wildlife program. As the commenter points out, there are differences in the impacts of native ungulates versus domestic livestock on vegetation. The environmental analysis in this EIS evaluates the impacts on resources from proposed Monument management objectives and implementation actions. We are proposing vegetation management utilizing domestic livestock, not native ungulates; thus, a comparison of the differing impacts of each is not necessary in this analysis. The impacts to vegetation from native ungulate population increases that may result from wildlife program restoration actions is also discussed in Chapter 4.

Comment Number: 55-37

Comment: The draft Plan makes no mention of mycorrhizae nor of potential impacts to these important plant-fungal associations.

Response: Mycorrhizae are included in Chapter 2 as a component in restoration of native vegetation. Mycorrhizae are not covered in Chapter 3 because there is no information on the mycorrhizal community on the Carrizo. Additional discussion of impacts to soils and mycorrhizae has been included in Chapter 4.

Comment Number: 80-3, 80-4

Comment: The ten species that are CNPS 1B.1 should be given highest conservation priority with proper analysis of effects of proposed actions. We strongly request that a floristic inventory be conducted and supported by the Bureau in the immediate future as an important element of an RMP.

Response: The special status plants map (Map 3-5) has been updated to reflect additional available data on rare plant locations. BLM agrees that additional inventory is required to determine potential occurrences of rare plant populations. Section 2.4 of the proposed plan alternative includes an action to “Map populations of threatened and endangered and other rare plants on the Monument. Map potential rare plant habitat.” Also, botanical surveys will be conducted prior to implementation of surface-disturbing projects.

Comment Number: 80-5, 80-6, 80-11

Comment: There is no analysis of effects to rare plants (either listed or BLM sensitive) in the Environmental Consequences section of the Draft EIS similar to those presented for sensitive animals; alternative actions need to be evaluated for effects on sensitive plant species in the same manner as those provided for sensitive animal resources. There is a failure to include an analysis of effects to the two federally listed plant species known from the Monument. Using the limited information presented in the DEIR in the maps appendix it appears that grazing would be allowed on federally listed sensitive plant populations without any analysis of effects in the document.

Response: Additional detail has been added to the proposed RMP to clarify the environmental impacts on botanical resources. Federal regulations (40 CFR 1501.2) state that the level of detail in the EIS must be sufficient to support reasoned conclusions by comparing the amount and degree of change (effects) caused by the proposed action and alternatives. The detail of the analysis is specific to the resource and related issues. The level of analysis for botanical resources is considered sufficient to support the conclusions of the RMP. Impacts to rare plants from livestock grazing under each alternative are found in Section 4.3. The discussion of these effects was contained in the draft RMP but was in a section of general text that was difficult to locate. The proposed RMP has been revised so that the effects discussions for these species are now in a separate section (see Section 4.3, subsection on Impacts to Rare Plants). The proposed plan has been updated to include additional information on special status species that occur within the CPNM, and to provide additional details on the effects of grazing on vegetation.

Comment Number: 85-3

Comment: The temporary effects of disturbance, whether from livestock or other selected causes, are viewed as if they are also negative in the long term, whether or not there is solid proof of this. The statement in Section 4.3.2 that “Data on bunchgrass indicate that green season grazing is of limited use as a management tool and that, generally, the effect is negative (Christian et al., in prep.)” is indicative of this tunnel vision. Stands of bunchgrass such as nodding needlegrass (*Nasella cernua*) and purple needlegrass (*Nasella pulchra*) have survived well in widespread areas of the Central Coast which have been grazed for over 200 years, yet this evidence is ignored in favor of some unpublished results. Christian’s research isn’t even summarized. What was measured -- stand density, plant composition, plant vigor, seed production, root mass, etc.? Are other more positive grazing treatments feasible? This research is too pertinent to not be included and discussed in a plan with such a long-term impact on grazing management. It needs to be open to public and peer review and comment before this plan is implemented. Disturbance of many kinds is normal on California rangelands and disturbance from herds of grazing wildlife probably would have been most severe when the forage was green. Green plants are high in palatability and moisture and the pools and riparian areas would have provided drinking water for the elk and pronghorn during spring months. Water would have been very limited during the dry season.

Response: The RMP analysis relies on the best available information. Although BLM’s policy is to give priority to the use of published peer-reviewed studies, all available information (including field observations) is considered in determining plan decisions and completing impact analysis. The plan recognizes the controversy around the use of various management tools to restore native vegetation and wildlife habitat within the CPNM, and allows for the continued use of grazing as a management tool as long as monitoring shows that it is achieving RMP objectives.

The Central Coast is a very different ecosystem from the arid Carrizo Plain, and study results from the coast are not applicable for the Carrizo. The Christian et al. analyses of the Carrizo study are presented following Vegetation Management in Section 3.2 (Results of the Carrizo Grazing Study). The study and Christian et al.'s analyses have been the focus of numerous meetings and discussions by BLM, TNC, CDFG, and USFWS biologists, as well as other scientists. The study has also been discussed at Carrizo Resource Advisory Committee meetings, to which members of the public are invited.

Comment Number: 85-4

Comment: In Section 4.3.4.2, it is stated that “Actions taken to increase the number and distribution of native ungulates should, in general, benefit vegetation; however, there may be negative effects to some localized resources. Plants may be trampled, riparian areas degraded, and populations of rare plants impacted by elk and pronghorn, depending on foraging behavior, numbers of animals, and area use patterns. Monitoring should help determine the effects of increasing native ungulate populations on vegetation.” So native animals are given the benefit of the doubt without supporting research, while it is assumed from unexplained research that livestock are considered to have limited benefit or negative effect. No definitions of benefit by wildlife or limited benefit and negative effect by livestock are given in this section. The plan also says that problems with native ungulates can be solved with management and monitoring, but no such suggestions are mentioned for livestock. How would the grazing habits of native grazers differ significantly from properly managed cattle or sheep? It may be more effective and cost-efficient in many cases to use livestock rather than elk or pronghorn as management tools. Improper livestock grazing can be harmful to rangeland health. But it can also be beneficial, as your plan sometimes indicates but only in a condescending way that is overshadowed by negative comments.

Response: The RMP analysis acknowledges the impacts of both cattle and native wildlife on native vegetation. The Monument Proclamation directs BLM to manage the CPNM for the benefit of native vegetation and wildlife species. Therefore, wildlife discussions are framed by a different context (since they are part of the Monument ecosystem) than nonnative livestock, which are either used as a management tool or authorized as an allowable use on different parts of the Monument.

Comment Number: 85-5

Comment: Another statement in Section 4.3.2 reveals the complexity of assuming that vegetation and animals should be returned to pre-European settlement days, which seems to be the undertone of this plan. The authors admit, in their discussion of incomplete information about historic vegetation, that the giant kangaroo rat (and hence the San Joaquin Kit Fox?) may be in greater densities today due to the abundance of introduced bromes and filarees that serve as food resources. So, what do introduced plants (and animals) have to do to be given a less-biased status? It seems that the basics of plant population dynamics on California annual rangelands are being overlooked or only grudgingly recognized. I have a pretty good idea of what your values and goals are for native plants which have endured for a very long time – sort of an affirmative action program. But what do you see as your values and goals for nonnative plants, such as bromes and filarees, which are likely to endure for a very long time in spite of livestock control and prescribed fires? Shouldn't they be treated as an important part of your vegetation plan rather than just weeds that have some incidental values? There are important reasons that a number of introduced range plant species survive well on California rangelands and are viewed favorably by most range managers. Many of the plants that are valuable livestock forage plants also provide

food and cover for species of wildlife mammals (as mentioned above), birds, and insects. The abundant seed production of introduced annual plants, which feeds the wildlife, also accounts for plant reestablishment after seasonal or longer periods of drought. And this leads to soil protection from water runoff, dust control, organic matter buildup and, for some species, abundant displays of flowers. The vast majority of vegetation on the Carrizo Plain, whether measured by plant numbers or mass, is made up of Mediterranean species which have evolved with livestock grazing. This dominance of nonnative plants may well continue regardless of native plant restoration efforts. The important connection between introduced plants and livestock deserves more attention than it is given on page 4-123 – or did I miss it? (This plan no doubt follows governmental format requirements, but that makes it difficult to find, evaluate, and comment on the scattered sections that pertain to a specific subject such as grazing.)

Response: Additional detail has been added regarding impacts of livestock grazing on vegetation in the proposed RMP. Additional detail regarding the interactions of livestock and nonnative vegetation is also provided within the wildlife section (see Section 4.2.5.1, Livestock Grazing, No Action Alternative).

Comment Number: 85-6

Comment: Although it is natural for sheep and cattle to avoid less palatable plants and select the more palatable ones, it is an over-simplification to state as on page 4-123 that undesirable plants tend to increase under a grazing regime. The effectiveness of grazing in reducing yellowstar thistle, for example, is often observed from highways where thistles are much thicker along the roadsides than on the opposite side of the fences. University of California Cooperative Extension research (DiTomaso) has shown that intensive, short-term grazing of yellowstar plants when they are in the bolting stage can reduce seed production and future stand density. Again, it depends on how the grazing is managed.

Response: The proposed plan alternative allows for continued use of grazing for vegetation management. This would include the reduction/management of noxious weeds. Impacts of grazing on nonnative vegetation are also discussed in the wildlife section of the RMP (from the perspective of habitat management).

Comment Number: 93-1

Comment: Regarding grazing cattle and native herds: cattle do not migrate as do elk and other native species. As a result, small areas are overgrazed as opposed to a small impact over a large area due to migratory grazing.

Response: There are differences between native and nonnative grazers, and even among members of each group. The livestock grazing proposed in the RMP would be monitored and, if unanticipated unacceptable impacts occur, if grazing use causes an unacceptable pattern of utilization, or the grazing use is found to be incompatible with Monument objectives, the grazing would be modified or discontinued.

5.8.5 Fire and Fuels Management

Comment Number: 74-1, 74-2

Comment: CAL FIRE/San Luis Obispo County Fire Department agrees that Alternative 2 would provide adequate access and protect many areas from the possibility of potential fire starts, and

likes the fact that a vegetative management program is part of the plan to allow for further fire protection.

Response: BLM is committed to continue interagency cooperation with CALFIRE in order to meet the agencies mutual goals to provide fire protection for the CPNM. The agencies will continue to share information regarding access routes and other pre-fire planning issues so that suppression activities are efficient and provide the greatest level of protection to cultural and natural resources in the CPNM. The CPNM will continue to include fuel management objectives within the overall adaptive management framework to address both habitat restoration goals, as well as fuel reduction needs. Fuel reduction activities will be focused adjacent to structures and other improvements, as well as along major travel corridors to reduce the number of human-caused ignitions in the CPNM.

Comment Number: 84-2

Comment: The use of "controlled" fire management should come secondary (if at all).

Response: "Controlled" fire, or prescribed burning, is one management tool that can be used to facilitate restoration and/or protection of native species habitat. CPNM managers will continue to utilize the adaptive management framework to test the application of fire as a habitat management tool and refine its use over time.

5.8.6 Air Quality

Comment Number: 13-16

Comment: Impacts from prescribed burning to the already compromised San Joaquin air basin should be taken into consideration.

Response: See Section 3.4 for a discussion of the air basins affected by prescribed burning activities in the CPNM, including the San Joaquin air basin. BLM coordinates with both the San Luis Obispo and San Joaquin Air Pollution Control Districts (APCDs) regarding smoke management concerns. As described in Section 4.5, burning is conducted under the guidance of the air pollution control district and under weather conditions conducive to the dispersion of emissions. Past experience burning in lighter, grassy fuels has shown that smoke emissions disperse readily and are of limited time and duration.

Comment Number: 46-75

Comment: San Luis Obispo County is in non-attainment for ozone and PM₁₀. For any new emission sources that are allowed, it is important for the DEIS to adequately evaluate the cumulative impacts of these sources when combined with the existing non-attainment status. The DEIS does not satisfy those standards, but merely states that effects to air quality will be limited and will have minor impacts.

Response: The RMP describes BLM's proposed management actions that may affect air quality, including wildland and prescribed fire, and various public and resource uses of the CPNM (Section 4.5). Impacts to air quality associated with these management actions are analyzed in Section 4.5, including cumulative impacts. A qualitative description for these impacts is considered to be sufficient for RMP analysis, since impacting activities are regulated by regional air pollution control districts under federal Clean Air Act requirements and cumulative effects are

considered in issuance of permits and conducting new source reviews. Additional site-specific impacts would be evaluated/mitigated during project implementation. For example, prescribed burns would only be conducted in coordination with the San Luis Obispo County APCD so that they do not contribute to PM₁₀ or regional haze or other smoke impacts. The RMP discusses cumulative effects of oil and gas development in the CPNM.

Comment Number: 46-76

Comment: The cumulative impacts analysis must take into account additional air emissions from existing and reasonably foreseeable future oil exploration and drilling activities, including the use of roads, since dust is one of the primary sources of air pollution originating from public lands on the Monument.

Response: BLM's discretionary authority for oil and gas development on existing leases and private mineral estate is limited to:

- 1) Enforcement of existing lease stipulations, and
- 2) Preventing unnecessary and undue degradation of public lands from private mineral estate development. A qualitative description for cumulative impacts is considered to be sufficient for RMP analysis, since impacting activities are regulated by regional air pollution control districts under federal Clean Air Act requirements and cumulative effects are considered in issuance of permits and conducting new source reviews. Additional site-specific impacts would be evaluated/mitigated during project implementation.

The RMP does incorporate actions to minimize impacts to air quality. To reduce fugitive dust and particulate matter emissions, proposed actions include the use of aggregate, gravel base, or the application of chemical binders on main roads in the CPNM. Implementation of proposed management actions under the air quality program (Section 2.6) would reduce particulate matter and improve overall air quality in the CPNM. In addition, mitigation measures (BMPs) to reduce particulate emissions will be implemented. These BMPs include using existing roads to the greatest extent practicable and using dust control methods such as the application of water and pre-soaking. Oil and gas SOPs and BMPs are included as Appendices O and P.

BLM requires that any lessee/operator is responsible for ensuring proper permits are obtained with the appropriate air regulatory agencies, and that operations are in compliance with mobile and stationary source guidelines. Details about oil and gas operator permit requirements have been added to the proposed plan (Section 4.5 Impact Analysis for Air Quality). These operator permit requirements apply to all oil and gas development and operations in the CPNM and outside the Monument boundaries. Stringent industry regulations and state implementation plans (SIPs) aim at reaching attainment of state and federal air quality standards which will contribute to an overall improvement of air quality (Section 4.5).

For consideration of cumulative effects to air quality on the CPNM, the assessment area includes the San Luis Obispo APCD and a small portion of Kern County that occurs in the San Joaquin Valley APCD (Section 4.5). The majority of the CPNM is within San Luis Obispo County, with a very small portion on the eastern boundary in Kern County. Neither county regards the CPNM as a source or concentration area for air pollution, due to its extremely low population density, little industry, and only a few major transportation corridors (Section 3.4). Currently there are insufficient air quality monitoring data available to classify attainment status for federal standards in San Luis Obispo County for ozone, PM₁₀, and PM_{2.5}. The plan recognizes there are two primary sources of unregulated air pollution that can originate on public lands in the CPNM: smoke from wildland fires and dust generated from road use, maintenance, and rehabilitation.

Other emissions sources on the CPNM with the potential to contribute to air pollution are regulated by the air districts, including prescribed burning (Section 4.5).

5.8.7 Soils

Comment Number: 13-66, 13-69

Comment: The effects of climate change will damage the functioning of soil and its ability to support native vegetation. BLM should consider limiting motorized vehicle use seasonally and after storm events when soil erosion is often most severe and should consider closing specific motorized vehicle routes if severe erosion patterns develop.

Response: BLM acknowledges that drier conditions for the CPNM would contribute to less vegetative growth overall (Section 3.8). Climate change may also lead to a shift in vegetative zones and an overall desertification, resulting in increased soil erosion. The analysis in the Draft RMP EIS assumes that global climate change will make the planning area warmer and drier during the projected 20-year plan implementation period.

It is important to note that under the Monument Proclamation, no off-road motorized or mechanized travel is allowed.

Recreational uses allowed on the CPNM include hiking, horseback riding, and mechanized/motorized vehicle travel on designated roads only. BLM recognizes that such approved uses have the potential to create negligible to moderate localized disturbance and compaction impacts to soils. Effects of travel management on soils include devegetation, erosion, rutting, and compaction by vehicle use on roads. These effects on soils are greater if roads are steep and/or muddy. Consistent with soil resource program objectives and management actions (Section 2.7), as erosion problems are identified they will be evaluated and corrective actions will be implemented as needed. Management actions common to all action alternatives include temporary road closure(s) during wet periods and after washouts to minimize road damage and the development of a travel information program (Section 2.18.). Under the proposed plan alternative, a road maintenance plan will be completed, aimed at resource protection (refer to Section 4.6 Travel Management). Furthermore, under the proposed plan alternative, soils will benefit from actions taken to reduce illegal off-road travel. These actions are designed to reduce the potential impacts of erosion and to offer soil protection and conservation on the CPNM.

Comment Number: 46-77, 46-78, 46-79

Comment: The DEIS should evaluate the impacts of oil spills from past, present, and future oil exploration activities, and the likelihood of future spills. If the referenced spill prevention and control plans are to be incorporated by reference into the DEIS, then BLM must comply with 40 CFR 1502.2 (briefly cite it and describe its contents); the DEIS should also describe whether the referenced spill prevention plans have been effective. The DEIS should describe and analyze the extent of past spills in and around the Monument to provide baseline data for the impact analysis for soils.

Response: The California Department of Oil and Gas requires an Oil Spill Contingency Plan as standard operating procedures for all operators. These plans are maintained by the operators and include such components as identification of personnel and resources available for containment and cleanup, a map showing water course and sensitive resources, spill stopping procedures, and designation of locations for waste removal. The plans were discussed as a matter of standard

operating procedure and no specific plan is incorporated by reference into this analysis. Any spill on BLM lands requires full cleanup and removal. Appendix Y, Bureau of Land Management Spill Reporting and Cleanup Guidelines has been added to the proposed plan to describe spill reporting and cleanup requirements.

BLM records show that no reportable spills have occurred on public lands within existing leases in the CPNM. Additional analysis of past, present, and future spills related to oil exploration and development is beyond the scope of this plan. BLM's discretion over private mineral estate development is limited to the prevention of unnecessary and undue degradation. Potential impacts and mitigating measures would be identified and analyzed upon receipt of a proposal to use BLM surface lands.

In areas within the CPNM where wells, facilities, and/or leases have been abandoned, BLM would require the removal of contaminated soils during site reclamation/restoration.

All federal leases are subject to compliance with BLM and Office of Emergency Services spill reporting requirements. The BLM/Bakersfield Field Office Standard Operating Procedures for Oil and Gas Undesirable Events applies to any existing and future oil and gas development within the CPNM and outside Monument boundaries.

Comment Number: 55-33

Comment: Livestock generally increase bare ground and soil erosion [commenter cited and summarized studies]. Livestock have been found to significantly alter almost every aspect of soil structure and function, including soil porosity, chemistry, microbiology, nutrient cycles, productivity, and erosion rates. Most studies have shown that livestock grazing increases soil compaction, erosion, and short-term nutrient availability, while it tends to reduce long-term nutrient and organic matter levels [additional details and citations provided].

Response: The impacts cited in the comment are addressed in the Chapter 4 analysis.

Comment Number: 55-38

Comment: Among the goals of the draft Plan is to conserve sensitive soils such as those supporting biological soils crusts. However, the draft Plan provides no information concerning the distribution nor composition of the biological soils crusts in the Monument area, nor does it provide substantial discussion on the impacts of the proposed Alternatives [commenter described numerous relevant studies].

Response: Although crusts are discussed in a number of locations in the document, there is little information presented about their composition and distribution. This stems from the current lack of available information; however, the plan identifies crust communities as a target for future surveys and inventory. In the revised document, there is a preliminary list of crust organisms in Chapter 3's table of non-vascular plants, which includes lichens and cyanobacteria (Sec. 3.2.3.4 Plant Communities, Biological Soil Crusts, *A Preliminary List of Non-Vascular Plants Present on the Monument*). Crusts are discussed in Chapter 4 (impacts), not in its own section, but throughout the vegetation section. There is a discussion of the damage to crust communities from actions that disturb soils. There is also discussion within the Kern primrose sphinx moth section because crusts are an important component of the moth's habitat.

5.8.8 Water

Comment Number: 13-51

Comment: The Draft RMP fails to take a hard look at the potential issues that may arise concerning water rights during the term of the proposed RMP, stating only that there are “no known existing water rights issues.” However, issues may arise regarding surface water developments associated with grazing (see Comment 13-64 in this section) and no change of use should be authorized or supported except for a change in use from livestock to use for native flora and fauna or possibly for wildlife water supplementation.

Response: The Monument Proclamation explicitly reserves a federal water right subject to valid existing rights:

There is hereby reserved, as of the date of this Proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this Monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this Proclamation.

Current management goals, objectives, and actions are similar to those in the Proposed Alternative, including provisions for protection and restoration of springs and maintenance of water sources for wildlife (Section 4.7). In support of Water Resource Program goals and objectives, BLM will protect a quantity of water sufficient to fulfill the purposes for which the Monument was established (Section 2.8). Management actions under the proposed RMP include that water be provided for livestock, wildlife, and administrative use from wells rather than from natural spring and/or surface waters, where it is determined that these uses are detrimental to the spring and/or surface waters. Management activities and use authorizations will be conducted in accordance with the Central California Standards and Guidelines for Rangeland Health (Section 4.7).

Comment Number: 13-52, 13-54, 13-55

Comment: No comprehensive list of springs and seeps is provided, nor are there any Proper Functioning Condition reports; the Draft RMP notes that 15 springs have been development from livestock and are also available for wildlife but does not provide the necessary level of detail for meaningful review or evaluation. The RMP should provide more specific goals and targets for all proposed water resources improvements in the RMP including its proposal to shift impacts away from springs; to the extent that such measures are focused on restoring the natural conditions of springs and are not used to support continued or expanded livestock grazing, we support these proposals. Wildlife water supplementation should not be used simply to increase hunting opportunities where, as here, there are risks that artificially increasing populations of so-called “game” species will detrimentally impact other native wildlife, including by increasing competition for scarce native plant forage; any new site-specific installations of water developments should require additional environmental review including public notice and comment. The DRMP is too vague to support expansion of water developments for upland game birds

Response: Please refer to Section 3.6 Water Resources for detail on the status of natural waters on the CPNM. Inventory records show approximately 40 springs within the Monument, with the

majority located in the Caliente Mountains (see Map 3-9). Of these, 11 are recorded as public water reserves and are on file at the BLM Bakersfield Field Office.

Fifteen springs have been developed for livestock use and some of these are associated with stock ponds. Under current management, only two of these 15 springs are utilized for livestock grazing. The majority of water developments for livestock grazing are derived from well sources. In support of the Water Resource Program goals and objectives, BLM will protect a quantity of water sufficient to fulfill the purposes for which the Monument was established (Section 2.8). Water will be provided for livestock, wildlife, and administrative use from wells rather than from natural springs and/or surface waters, as needed to protect the springs. This determination would be based on the assessment of livestock grazing and adjusted according to the Central California Rangeland Health Standards and Guidelines (Appendix E). Site-specific NEPA analysis will be conducted for any new water developments.

BLM acknowledges that available data for water quality in springs is limited (Section 4.7). The proposed plan alternative provides more specific goals and objectives for surface water and call for inventory and monitoring of springs, evaluation of the need for habitat protection, and protections by fencing, as necessary. A management objective to restore to proper functioning condition or better is a goal and target for natural water sources. Please refer to Section 4.7 for beneficial impacts to water resources from implementing the water resources program. Other management actions under the proposed plan alternative include monitoring and removing noxious weeds from wetlands, and using native plants for restoration in wetland areas. Effects of such actions will be beneficial, ranging from short- to long-term, and will be localized by nature of the resource.

New water developments for upland game birds could potentially have a negligible to minor, localized, long-term impact on the surface or groundwater sources use (Section 4.7). A management action has been added to the Water Resources Section which indicates that any spring restoration and/or expansion of water developments would be subject to site-specific NEPA analysis (Section 2.8.3 Management Actions, *Action WTR-3(I)*).

Comment Number: 13-56, 46-80, 46-81, 46-82

Comment: The Draft RMP fails to provide the necessary information regarding the existing and potential future ground water use by oil and gas development, noting only that such use has a high potential to occur and that it would cause cumulative impacts to water resources. BLM must analyze potential groundwater contamination from oil exploration and drilling. The cumulative impacts analysis defers all analysis of groundwater issues to the site-specific stage; these impacts must be analyzed now, in the RMP EIS.

Response: BLM acknowledges in the Draft RMP EIS that information on the amount of groundwater in storage and trends in groundwater levels is lacking, and data for groundwater quality are limited (Section 4.7 Incomplete Information). The potential water use associated with private mineral estate development is discussed under cumulative impacts (Section 4.7). BLM would evaluate any private mineral estate proposals for potential impacts to groundwater quality or quantity and associated impacts to other Monument resources at the time projects are proposed. Current available data on groundwater amounts and trends are insufficient to analyze potential effects and the RMP calls for establishment of a monitoring program.

One goal of the water resource program is to maintain groundwater quantity and quality throughout the portion of the Carrizo Plain Groundwater Basin within the CPNM (Section 2.8). A

program objective is to establish a baseline database of existing water wells, trends in groundwater quantity and quality for the Carrizo Plain Groundwater Basin within the Monument (Section 2.8). Proposed management actions in support of the water resource program goals and objectives include the inventory, mapping, and characterization of all existing water wells within the CPNM (Section 4.7). Upon inventory of existing wells, BLM may determine if any wells in the CPNM are suitable for water level and water quality monitoring.

Comment Number: 13-55, 13-57, 46-83

Comment: Water improvements should only be approved after site specific NEPA analysis is completed, including a public comment period. BLM must analyze the direct, indirect, and cumulative impacts to water quality and evaluate alternatives accordingly. The DEIS analysis of groundwater impacts states that current data are unavailable, but does not comply with NEPA guidelines regarding incomplete and unavailable information (40 CFR 1502.22).

Response: The CPNM RMP is being prepared to ensure consistency with the Monument Proclamation. Based on the declaration of a federal reserve water right in the Monument Proclamation, actions would be implemented to protect water resources. Water resource goals include protecting a quantity of water sufficient to fulfill the purposes for which the Monument was established (Section 2.8). Other program objectives include maintaining and enhancing surface and groundwater, and protecting water resources such as springs, seeps, and vernal pools (Section 2.8). BLM recognizes the scarcity, importance, and value of water resources on the CPNM; water resources are critical to wildlife and other Monument resources. Under current management and the proposed plan alternative, all goals and actions for the water resource program are designed to benefit water resources (Section 4.7). Effects of program actions will range from short- to long-term, and will be localized, by nature of the resource and its distribution on the CPNM (Section 4.7). The effects of implementing other programs on the CPNM water resources would be analyzed, limited, and mitigated to minimize impacts to water quality.

Pursuant to NEPA, BLM would only approve water improvements on the CPNM subsequent to site-specific analysis. A management action has been added to the Water Resources program that indicates that any spring restoration and/or expansion of water developments would be subject to site-specific NEPA analysis (Section 2.8.3 Management Actions, *Action WTR-3(I)*).

Comment Number: 13-64

Comment: BLM must ensure that water rights that may arguably have been established through the use of water for livestock are transferred to the U.S. for the benefit of Monument resources; these rights should be allowed to be transferred off the Monument.

Response: The Monument Proclamation establishes a federal reserved water right for a quantity of water necessary to protect objects of the Proclamation. This right would be junior to any existing rights adjudicated under California law. BLM would also be required to manage existing federal water rights to meet the direction of the Proclamation, subject to valid existing rights.

Comment Number: 89-8

Comment: The south side of the Calientes has very limited water and a good deal of the available water is private water pumped and piped several miles by the current grazing lease base property owners for the benefit of livestock and cattle. The land owner has notified BLM that

without a continued grazing program those lands that benefit from private water are in danger of no longer receiving this annual contribution of water, time, and resources from the adjacent landowner.

Response: Under the proposed plan alternative, livestock grazing would continue to occur on the Section 15 Grazing Allotments at levels that do not impact objects of the Proclamation (Section 4.6).

Comment Number: 89-9

Comment: A spring box piped to a water trough could provide fresh water for wildlife and livestock. Livestock could be fenced out of the riparian area to prevent water being fouled.

Response: The RMP includes direction for managing existing water sources, including fencing of springs to protect from livestock impacts.

Comment Number: 89-14

Comment: We encourage BLM to give concentrated attention to the improvement of water sources that can improve livestock distribution and have the potential to increase wildlife populations.

Response: Thank you for your comment.

Comment Number: WS-5

Comment: I am particularly concerned about the ponds in the spring that encourage duck migration.

Response: It is unclear what the commenter's specific concern is; however, the RMP includes actions to protect Soda Lake or other seasonal lakes/vernal pools within the Monument.

5.8.9 Climate and Climate Change

Comment Number: 9-6, 9-7, 13-63, 13-67, 13-68, 48-5, 94-5

Comment: While there is some discussion of climate change, it is insufficient to meet the requirements of NEPA. It fails to accurately identify the baseline environmental setting or adequately analyze the impacts of the proposed management action and the alternatives on climate change. Before approving any plan, BLM must undertake a more thorough analysis of both aspects of the climate change issue (impacts of the alternatives on climate change, and baseline impacts of global warming on the Monument).

BLM must prioritize management for climate change by (1) committing to specific management actions now based on preliminary analysis of climate change impacts, (2) conduct further analysis on the impacts of climate change on the Monument's resources and objects, (3) conduct ongoing monitoring for the impacts of climate change, and (4) act on monitoring information and amend management strategies accordingly.

Response: Rising greenhouse gas (GHG) levels are likely contributing to global climate change. The plan addresses the "baseline environmental setting" when it recognizes that climate change may result in warmer, drier conditions, and potentially more extreme weather events on the

CPNM (Section 4.8). There are no localized models to predict in any greater detail than described above the anticipated Monument-specific manifestations of climate change. The assessment of GHG emissions and climate change remains in its formative phase. In addition, while the proposed plan alternative may involve some future contribution of GHGs, these contributions would not have a noticeable or measurable effect, independently or cumulatively, on a phenomenon occurring at the global scale believed to be due to more than a century of human activities. There are currently no localized models available to predict GHGs from management proposed in the RMP.

To the extent possible given available information, the plan describes anticipated impacts on GHGs resulting from actions in the RMP. Please refer to Section 4.8, Impacts of RMP Related to Global Climate Change. The analysis in the DRMP/EIS assumes that global climate change will make the planning area warmer and drier during the projected 20-year plan implementation period. Impacts from several aspects of RMP implementation would be infeasible to measure and any estimates would be speculative (Section 4.8). The impact analyses for certain resources (such as cultural, wildlife, and vegetation) are discussed at a general level based on the (lack of) available information. Quantities of GHG emissions generated by use, protection, and maintenance of the CPNM under the proposed plan alternative are anticipated to be equal to or less than those generated under the existing plan (No Action). The plan acknowledges that activities including motorized recreation use, livestock grazing, and oil and gas development may have emissions that could contribute to climate change:

- It is important to note that under the Monument Proclamation no off-road motorized or mechanized travel is allowed. Total miles of route designations are less than under the existing plan (Section 2.18). The RMP does recognize that management activities under the proposed plan alternative are anticipated to attract continued visitation for motorized and non-motorized recreation activities (Section 4.8). Public access to the Monument will result in continued GHG emissions as Monument visitation increases.
- A reduction of livestock grazing levels may increase the long-term quality or quantity of vegetation. However, it is assumed that livestock grazing reductions on the Monument would be offset by increases elsewhere in the region (Section 4.8).
- Under all alternatives, vegetation management (restoration of native plant communities) would improve the carbon storage capacity of Monument ecosystems (Section 4.8).
- Analyses of impacts from oil and gas development on the Monument occur throughout the RMP/EIS and are described in each affected resource section. Oil and gas development and exploration would continue to occur under all alternatives, limited to existing leases and private mineral estate (Section 4.8). The plan acknowledges that oil and gas development and exploration activities produce emissions that may contribute to climate change. Management of production levels is outside of the discretionary authority of BLM and beyond the scope of the RMP. All lease actions are subject to lease stipulations, conditions of approval, and various other requirements including SOPs and BMPs, and implementation guidelines. Oil and gas SOPs and BMPs are included as Appendices O and P. Analysis of site-specific impacts of oil and gas development and exploration on GHGs and Monument resources will be completed at the leasing and/or application stages.

Please note additional information has been added to the Affected Environment for climate change (Section 3.8 Climate) and Environmental Consequences (Section 4.8 Impacts of RMP Related to Global Climate Change). A climate change objective (Section 2.6.1.2 Objectives, *Objective AIR-2(P)*) and management action (Section 2.6.1.3 Management Actions, *Action AIR-2(I)*) have been added to the air quality program common to all alternatives. These additions

represent a commitment by BLM to consider the impacts of management actions and program activities on climate change and the effects of climate change on Monument resources.

Comment Number: 9-8, 13-71, 48-6, 94-6

Comment: BLM must disclose and analyze the contributions of the existing oil and gas development on global warming and all impacts should be minimized or off-set going forward. The statement that oil and gas production in the Monument has no effect because other sources would be substituted if no production occurs at CPNM misses the point of NEPA reviews and shows a profound lack of understanding of the needed analysis regarding global warming. All greenhouse gas contributions should be analyzed from wells to wheels.

Response: The plan acknowledges that oil and gas development and exploration activities produce emissions that may contribute to climate change (Section 4.8). Analyses of impacts from oil and gas development on the Monument occur throughout the RMP/EIS and are described in each affected resource and program section. Prior to permitting any new oil and gas operations, development, or exploration, site-specific NEPA analysis of impacts, including climate change, would be conducted.

BLM's discretion is limited to imposing reasonable restrictions on the use of federal surface and existing lease authorities to ensure that the "objects of the Proclamation" are protected from unnecessary harm and degradation. All lease actions are subject to lease stipulations, conditions of approval, and various other requirements including SOPs and BMPs, and implementation guidelines. Oil and gas SOPs and BMPs are included as Appendices O and P. Other strategies for managing the impacts of climate change include the continued restoration of native plant communities, the conversion of administrative facilities to alternative renewable energy sources, and improving mileage of vehicles based on national fleet management policies (Section 4.8). Vegetation management would improve the carbon storage capability of Monument ecosystems in all alternatives and these strategies will result in a net reduction of GHG emissions.

Please note additional information has been added to the Affected Environment for climate change (Section 3.8 Climate) and Environmental Consequences (Section 4.8, Impacts of RMP Related to Global Climate Change). A climate change objective (Section 2.6.1.2 Objectives, *Objective AIR-2(P)*) and management action (Section 2.6.1.3 Management Actions, *Action AIR-2(I)*) have been added to the air quality program common to all alternatives. These additions represent a commitment by BLM to consider the impacts of management actions and program activities on climate change and the effects of climate change on Monument resources.

Comment Number: 9-9

Comment: BLM must disclose and analyze the likelihood of any new oil and gas production within the Monument and the impacts those projects would have on global warming. BLM should have analyzed at least one alternative that eliminates all future oil and gas exploration within the Monument and set forth the steps that would need to be taken to ensure that outcome in the future.

Response: Please see Section 1.5. The Monument Proclamation requires BLM to recognize valid existing rights. This includes private mineral estate and existing federal oil and gas leases. Otherwise, the Monument is withdrawn from all forms of mineral entry. Based on this direction, oil and gas production on private mineral estate and existing federal leases is beyond the

discretionary authority of BLM and therefore an alternative that considers no future exploration is outside the scope of RMP analysis. (Also see climate change impacts in Section 4.8.)

5.8.10 Geology / Paleontology

Comment Number: 12-17, 12-18, 12-19

Comment: Using existing reports by U.C., L.A. County Museum, and Academy of Sciences sources would go a long way in pinpointing areas and strata of significance in locating Miocene marine fossils of significance. These may be outcrops of the same formation as occurs at Dome Springs where a diverse terrestrial fauna are found. Another element not described is the existence of late Pleistocene mega fauna on the plain. Some years back Ice Age bones were found. I believe Dr. Harry Firestien of Cal Poly S.L.O. may have these bones or know of their whereabouts.

Response: The Affected Environment section of the proposed RMP provides a general background to the resources present on the Monument that may be affected by future actions. A detailed discussion of the fossil record of the Monument is beyond the scope of the proposed RMP.

Comment Number: 12-20, 12-21, 12-22, 12-23, 12-24, 12-25

Comment: These fossils (see Comments 12-17/18/19) or a cast thereof would be a valuable addition to the educational exhibits on the Monument. Please keep this paleontological resource in mind. I suggest some investigation by core drilling a series of holes to establish and study the archaic shore boundaries. These ancient shorelines might delineate a trove of mega fauna fossils. Paleo soil pollen studies might shed light on our most recent past and shed light on the global warming issue. Be aware that this significant resource exists probably at a relatively shallow depth on Monument land. The San Andreas Fault should be of primary focus for education and exploration. The mid fault area is as important as the northern and southern zone, where researched has focused. I would suggest some subterranean investigation. Also I would enhance the ability for the public to see such areas as the offset “Creek” area and sag ponds.

Response: Thank you for your comment. RMP goals and objectives include provisions for the enhancement of educational and research opportunities for the important geological and paleontological features on the Monument, including the San Andreas Fault. The plan would allow for the specific research and inventories noted by the commenter, as long as they could be conducted in a manner that is consistent with protecting objects of the Proclamation.

Comment Number: 71-30

Comment: Geological and paleontological permits should be issued with information regarding the potential for damage to cultural sites. There should be no collecting in or around cultural sites without a BLM staff monitor.

Response: BLM paleontological survey and collection permits are authorized by the cultural resources staff. It is standard cultural program procedure to conduct an inventory prior to any ground surface-disturbing activity. Paleontological and geological projects would be authorized under a permit with the stipulation to avoid the disturbance or collection of prehistoric or historical resources.

5.8.11 Cultural Resources

5.8.11.1 Cultural Resources – Alternatives

Comment Number: 12-2, 12-7, 38-5, 38-6, 38-7, 49-1, 64-5, 84-8

Comment: I would hate to see Painted Rock off limits. The other rock art sites should be protected from the general public. The RMP should commit to a specific plan for severely restricting visitation of Painted Rock to ensure this sacred area of the indigenous people is protected. The RMP should enforce rules to prohibit unauthorized visitors to Painted Rock. Tours are the most effective means of managing visitors to the site, and if there are self-guided tours, the people leading those tours should submit a detailed proposal for their visit. It is important to make access easy for those who have spiritual connections or genuine educational reasons, and more difficult for casual visitors who may not understand the sites. Painted Rock and other Native American artifacts should be, as proposed under Alternative 1, closed off to the general public, and under the control of the Managing Partners together with Native American groups, associations etc.

Response: The proposed plan alternative provides protection while allowing controlled access by the public to the rock art site at Painted Rock. The impacts flow chart in Appendix X provides for an adaptive management strategy based upon the level of impact, followed by appropriate mitigation strategies which may include closure of the site. Through the close cooperation of the CPNM Native American Advisory Committee, BLM Law Enforcement, and BLM Cultural Resource Staff, BLM will contribute to both the protection and preservation of the site while maintaining the opportunities for public access. Several other rock art sites on the Monument presently have restricted forms of visitation.

The RMP cites (Section 2.11) the *American Indian Religious Freedom Act* of 1978 and Executive Order 13007, Indian Sacred Sites (1996). These regulations require that BLM consider Native American religious values and access to sacred sites. One of the goals (Section 2.11) of the cultural program is to provide opportunities for Native American traditional cultural practice and access. This is manifest in management actions (Section 2.11) under an objective to ensure opportunities for Native American resource use and access. Under the proposed plan alternative, from July 16-February 28, self-guided access to Painted Rock will require a BLM permit. For the remainder of the year, the site will be closed with the exception of guided tours offered by the Goodwin Center from April 1 to May 30. BLM will employ an adaptive management strategy for protecting the site. If monitoring shows that impacts are occurring with the issuance of self-guided permits, then the permit program would be discontinued and access limited to guided tours only. BLM has worked closely with the CPNM Native American Advisory Council in the formulation of this plan for the management of Painted Rock.

Comment Number: 12-8

Comment: Responsible research at the rock art sites would be appropriate.

Response: The proposed plan alternative identifies the enhancement of research opportunities directed toward understanding the cultural sites on the Monument (Section 3.10).

Comment Number: 12-9, 65-2

Comment: Detailed photo documentation of the rock art on the Monument needs to be completed as soon as possible due to visible degradation of the paintings over time, with special attention paid to the paintings at Painted Rock.

Response: The RMP states under Goals, Objectives, and Management Actions Common to All Action Alternatives for Cultural Resources that rock art sites threatened by natural conditions and human-caused impacts will be recorded and assessed for possible conservation treatment. Plans have been made for a condition assessment and complete recording of the paintings at Painted Rock. Detailed recording and condition assessment projects have recently been completed for other rock art sites on the Monument.

Comment Number: 12-16

Comment: The government should control cultural resources management (CRM), not private CRM enterprises. They are often paid by the contractor. It has become a racket on the Central Coast. Areas of significance are ignored, shrunken, or classed as isolates. Firms that do not acquiesce to contractors are blackballed. Please take my words seriously, as there are significant paleo and archaeo resources on the Russell Ranch. Please use my tax dollars to protect my land. Private CRM has over the years become compromised to the point they are inappropriate.

Response: We understand your concern regarding the quality of cultural resource projects on the Monument. All archaeological field projects conducted on BLM lands are permitted and regulated by BLM. Private contractors as well as other investigators are required to obtain a BLM Cultural Resource Use Permit from the State Office and a Fieldwork Authorization from the appropriate BLM field office. Applicants for Fieldwork Authorizations on the Monument, as elsewhere on BLM lands, must provide project proposals that are reviewed prior to approval. All field projects are closely monitored and the project final report is reviewed by BLM cultural resources staff for content and accuracy.

Comment Number: 13-34, 27-10, 27-11, 38-4, 39-5, 40-3, 48-8, 71-2, 71-20, 71-22, 75-5, 75-6, 81-5

Comment: BLM should complete a cultural resources management plan within two years that would more precisely spell out cultural resource methods and techniques, standards for elements such as resource evaluation and report preparation, and other key management practices. This is mentioned in the "All Alternatives" section on cultural resources but no details are provided. There should be a specific outline of how, when, and by whom monitoring will be accomplished. If such a plan is not part of the RMP, then the RMP should specify the date by which such a plan would be prepared and that it would be available for public comment before implementation. The RMP should commit to producing a Cultural Resources Management Plan for the Monument that includes a detailed plan for enforcement and monitoring, a thorough discussion of damages inflicted from grazing and off-road vehicle use and plans to alleviate these problems, and a specific plan for monitoring impacts of visitation on Painted Rock to ensure that self-registration and self-guided tours are the most effective means of managing visitors to the site. Protect fragile evidence of pre-historic and historic peoples via a Cultural Resources Management Plan that controls and studies effects of grazing, off-road vehicles, and visitation. Establish and implement a comprehensive plan for the surveillance, monitoring, inspection, evaluation, and emergency treatment of cultural resources. Place a high priority on the development, funding, and execution of the plan, as this would probably be the best approach for reducing adverse impacts to cultural resources within the Monument.

Response: The proposed plan alternative states (Section 2.11) that specific plans addressing the management of cultural sites on the Monument will be completed in the future. This will include a rock art preservation plan, a project plan for restoring, stabilizing, or reconstructing NRHP-eligible and non-eligible historical structures, and an interpretive plan for developing public use. In addition, one of the management actions describes the implementation of survey strategies based on models for probability of site occurrence. BLM agrees that specific strategies for the management of cultural resources beyond those generally prescribed in the proposed plan alternative will be required and that it would be beneficial to combine these into an action based cultural resource management plan. Documents related to the Visitation Permit plan for Painted Rock have been added as Appendix X of the PRMP/FEIS. These include an example of the visitation permit with stipulations and impact and timeline flowcharts. References to site monitoring are presented there.

Comment Number: 37-1

Comment: The National Trust for Historic Preservation commends BLM for preparing a draft RMP that affords a high degree of protection to the objects of historic interest and proposes appropriate access and use restrictions, and for involving several Indian tribes extensively and making commitments to ensure continued tribal involvement.

Response: Thank you for your comment.

Comment Number: 37-3

Comment: The Draft RMP prioritizes the restoration of the Monument's "natural" landscape without fully considering the loss of objects from the historic ranching and farming eras, and improperly emphasizes the removal of objects of historic interest from the Monument. None of the alternatives satisfies the requirements or intent of the Proclamation, which does not provide BLM with the authority to enhance or restore "natural" landscapes when doing so would harm protected objects of historic interest. BLM must develop management prescriptions that would result in the retention rather than the removal of historic structures, "artifacts" and other protected objects that pose no threat to public health and safety. An approach that allowed some objects to remain in place in natural states of decay while actively restoring, preserving, and/or interpreting others would seem to meet the intent of the Proclamation.

Response: The Monument Proclamation requires a management strategy that balances the preservation requirements of both the natural and historical settings on the Monument. BLM has added a more complete description of the basis for selected historical object removal to Section 2.11.2.6 (Additional Objectives and Actions Specific to the proposed plan alternative (Alternative 2), Ranching and Farming Machinery and Equipment) of the proposed plan. These edits should clarify the intent of the proposed plan alternative which has as one of its goals to protect and preserve significant prehistoric and historic resources.

Comment Number: 37-5, 95-1

Comment: BLM failed to include management prescriptions that will allow the State of California or other interested parties to undertake the necessary efforts to stabilize and preserve the Caliente Mountain World War II Lookout Tower. Such prescriptions could include (1) a commitment from BLM that if the State of California transferred ownership of the Tower and state trust land to the U.S., then BLM would not manage the area for wilderness characteristics

but for the preservation of the Tower, and/or (2) a recognition that if BLM acquired management authority over the Tower and state trust land, then it would allow motorized and mechanized use to and within the acquired are for the limited purpose of stabilizing and restoring the Tower. Given recent Federal court cases, including ones in California, it may not be possible to maintain the Caliente Mountain World War II Lookout if included in wilderness. If doing so continues to be part of the plan, such a disclosure of fact should occur.

Response: BLM agrees that the World War II Lookout Tower is a significant cultural resource and Chapter 2 includes the following action: “Pursue acquisition or cooperative management partnership with the state property located atop Caliente Mountain Peak, including the Caliente Mountain World War II lookout tower for the primary purpose of preserving the wooden structure through stabilization or restoration.” The tower is currently located on state property and is accessed by a road that was “cherry stemmed” from the WSA (that is, outside the WSA). Therefore, management or restoration is not impacted by the current WSA designation. Furthermore, the Caliente Mountain WSA was designated under a study/EIS directed by FLPMA. BLM is not permitted to change boundaries on existing WSAs until Congress considers them for potential wilderness designation.

Comment Number: 37-6

Comment: The Draft RMP fails to explain how BLM intends to implement the requirements of Section 14 of the *Archaeological Resources Protection Act*, which requires a plan and schedule for “surveying lands that are likely to contain the most scientifically valuable archaeological resources,” compliance with which is required through the resource management planning process by BLM’s Manual and Handbook. BLM should prioritize surveys of areas where livestock typically congregate or trail, and along travel routes designated as open for motorized or mechanized use.

Response: The RMP identifies as a management action in Section 2.11 that BLM will implement intensive and mixed sample inventory strategies to establish a predictive model revealing the low, moderate or high probability zones for prehistoric and historic resources on the CPNM. This has already been partially achieved with the recent development of a GIS predictive model for site occurrence on the Monument. Under the BLM State Protocol Agreement Amendment for Supplemental Procedures for Livestock Grazing Permit/Lease Renewals, BLM is required to assess potential effects to cultural resources from impacts by cattle as part of the grazing authorization renewal process. Watering and salting locations, trailing routes, and loafing areas are surveyed for the presence of cultural sites and adjustments are made to range improvements to protect sites if necessary. The RMP contains a management action (Section 2.11) that states that BLM shall identify and assess impacts to any NRHP properties located within or contiguous to existing public or administrative roads and that BLM shall employ realignment, closure of road segments, road capping, or some other form of preservation where site conservation is an issue.

Comment Number: 37-9

Comment: Because the draft RMP authorizes uses (grazing, restoration to a state of naturalness) in the Monument that are inconsistent with the protection of the objects identified in the Proclamation (historic artifacts), it does not comply with FLPMA or the Proclamation.

Response: The Proclamation requires BLM to develop a management plan that addresses implementation of the Proclamation. Inherent in any planning effort is the development of objectives and actions to balance potentially conflicting values. The proposed plan alternative

includes measures to protect and restore significant cultural resource values while also providing for protection and restoration of natural systems and allowing compatible public uses.

Comment Number: 71-3

Comment: BLM should review conditions of surface visibility for past inventory efforts and determine whether or not some blocks should be subject to re-survey. Future field surveys should be scheduled for the time of year when there is adequate surface visibility.

Response: Following standard BLM cultural resource management procedures, prior to employing data from past survey projects, these inventories are assessed for the reliability of their coverage and applicability for the project being proposed. If the previous survey is judged to be insufficient, the area of potential effect will be reassessed for the presence of cultural resources.

Comment Number: 71-4

Comment: Future inventories should increase the inventory sample size and improve understanding of the types of cultural resources present and the levels of sensitivity within the upland and valley landscape zones. Survey strategies should make use of information from the proposed spring and water inventory and also focus on the shores of the Pleistocene shorelines of Soda Lake. Locations along intermittent streams, around freshwater seeps, and near sag ponds should not be overlooked as potential locations for archaeological sites, as these may have been more reliable water sources in the past when climatic conditions were different than today.

Response: BLM agrees that future inventory of the CPNM will greatly add to our understanding of the prehistoric occupation of the Carrizo. The RMP states (Section 2.11) that an important management action shall be the pursuit of research questions pertinent to the ethnographic and prehistoric resources on the Monument, and that the implementation of intensive and mixed sample inventory strategies to establish a predictive model revealing the low, moderate, or high probability zones for prehistoric and historic resources on the CPNM is an important component of this. A GIS predictive model for site distribution on the Carrizo has been recently developed. This model has been used to test hypotheses regarding the spatial patterning of population distribution through time on the Carrizo relative to changing water source locations from the Middle to Late Periods. This management action also identifies the understanding the potential human occupation of the Pleistocene shoreline of Soda Lake as an important research issue.

Comment Number: 71-5, 71-26, 71-28, 71-29

Comment: The RMP should mandate archaeological site testing as appropriate for assessing eligibility to the National Register of Historic Places and Use Allocation designation. Historical sites should be accorded the same level of protection as prehistoric sites and site monitors should be present during historical structure removal. Reaffirm the need for subsurface testing to determine the eligibility sites in Section 2.11.2.6 and elsewhere, where appropriate. BLM should support a modest effort to produce accurate dates for a range of archaeological site types within the Monument. Reference should be made in Section 3.10.4.2 and elsewhere to the important role of test excavation in the determination of site type, evaluation for eligibility, and assessment of potential effects.

Response: Under the current BLM State Protocol with the SHPO and 36 CFR 800, excavation is considered to be an adverse effect to an eligible cultural property. While test excavation is an important tool in assessing important site characteristics, the destructive nature of excavation

often makes it undesirable unless specific information is needed to determine the effects of a proposed action. The RMP employs an approach that more often assumes eligibility on the basis of surface characteristics. This results in the optimum level of preservation to the archaeological sites on the Monument. A similarly conservative approach was also employed in the assignment of use categories (Section 3.10) for the sites within the Rock Art Discontiguous district and the NHL as well as elsewhere on the Monument. Only those sites that had been managed for interpretive functions in the past were assigned to public use, while the remainder of NRHP-eligible sites was categorized based on conservation values. Historical sites on the Monument will receive the same level of preservation emphasis as prehistoric sites. During actions involving removal of ineligible historical structures on the Monument, project plans will emphasize minimal ground surface disturbance to reduce impacts to potential archaeological deposits. Cultural resource staff monitors will be present to insure that unforeseen deposits are not disturbed during this process.

Comment Number: 71-7, 71-27

Comment: Locate early rock art photographs and sketches. Produce digital copies and enhance the images, where appropriate, to produce the most accurate representations of the original rock art panels. Both CCIC and BLM should inventory all Monument-related cultural documents within their respective archives, compare their inventories, and provide for mutual exchange of missing records, to ensure that duplicate copies are available in the event of loss, damage, or destruction at one of the archives.

Response: The proposed plan alternative identifies as a management action the compilation of historic documents and photographs associated with the CPNM. Any further document enhancements are not limited by any management actions in the proposed plan alternative.

Comment Number: 71-8

Comment: Consider increasing the closure area for hunting around certain rock art sites from $\frac{1}{4}$ mile to a $\frac{1}{2}$ or 1 mile to more effectively protect sites from gunfire or recognition by hunters.

Response: BLM has determined that $\frac{1}{4}$ mile provides adequate protection to sites from impacts by hunting, and sensitive areas, such as the entire Painted Rock Exclusion Zone, are precluded from firearm discharge.

Comment Number: 71-9

Comment: Take care in the design of structures to protect rock art panels from bird excrement so that they do not result in adverse effects to the visual qualities of the surrounding rock surface.

Response: The design of any strategy to mitigate this impact will include considerations of effects on visual qualities.

Comment Number: 71-10

Comment: Provide for at least an annual inspection of selected rock art sites to assess the potential for damage from animals, plants, and other organic growth. Schedule trimming or removal animal nests, vegetation, or other organic growth as needed to protect the site.

Response: As noted in a number of management actions in the RMP, regular condition assessments of rock art sites on the CPNM will be completed. Encroachment by vegetation into areas that may impact the art will be noted and steps will be taken to protect the paintings.

Comment Number: 71-11

Comment: Implement measures to avoid, rather than limit, drops of fire retardant (including water) on rock art sites.

Response: The text (Section 2.5, Fire and Fuels Management, Goals, Objectives and Management Actions Common to All Alternatives) of the proposed plan alternative has been revised to state that that BLM will “avoid,” rather than “limit,” the use of fire retardant drops on rock outcrops to prevent damage to sensitive resources including rock art. BLM cultural resource staff is closely involved with the fire suppression planning effort to help ensure that impacts to cultural sites are minimized. In addition, attempts are made to provide defensible space around rock art sites on the Monument by clearing flammable vegetation. This helps insure that retardant or water drops will be unnecessary in those areas in close proximity to the sites.

Comment Number: 71-21

Comment: Provide the appropriate level of training for each person involved in carrying out the cultural resources management plan.

Response: As stated in the California State Protocol Agreement with the SHPO, BLM is required to comply with the Secretary of the Interior’s Professional Qualifications Standards and Guidelines or the educational and experience standards set forth in BLM Manual Series 8150.12.B.2. This means that cultural resource professionals working on BLM lands must demonstrate a level of experience and education that meets or exceeds these standards. All other BLM personnel, contractors, volunteers and others authorized to assist with cultural resources program would receive appropriate training and/or work under the direction of a cultural resource professional meeting the training requirements outlined above.

Comment Number: 71-23

Comment: Page ES-7, Item No. 3 says that Alternative 2 would emphasize preserving historic ranching buildings and structures in the Monument. There is no real justification for this emphasis. Since prehistoric resources are either world class or largely intact, and most historic sites do not appear to be extremely significant, the priorities appear to be reversed. Clarify the reasons for emphasizing historic resources over prehistoric and program funds with equal distribution between these two resources.

Response: The portion of the Executive Summary relating to cultural resources has been edited to reflect the existing balance of emphasis regarding the management and preservation of prehistoric and historical resources present in the proposed plan.

Comment Number: 71-25

Comment: Invasive plants should be considered for their potential historical significance and should be documented prior to their removal. Consider retaining some specimens of trees and shrubbery in their historic setting for interpretive purposes.

Response: As noted in Section 4.10 (subsection on Impacts to Cultural Resources from Other Programs- Vegetation), the removal of invasive plants could impact 25 percent of the 41 recorded historical sites on the Monument. It is indicated here that these actions would be implemented pursuant to federal regulations (Section 106 of the NHPA). As a result, standard procedures would include the determination of the plant's significance as a contributor to the site's eligibility. As part of this assessment; a record of the plant's potential historical role and location within the site context would be completed. Additionally, Alternatives 2 and 3 indicate that once any invasive nonnative plants are removed, consideration would be given to replacement with an acceptable native or non-invasive nonnative plant to restore the historic landscape.

Comment Number: 71-32

Comment: Archaeological or historic monitors should be present when structures are removed. Section 4.10.6.2 states there would be negligible to moderate impacts to National Register-eligible historic resources from removal of artificial water features and livestock fences. Regardless of eligibility, removal operations in and adjacent to archaeological sites should be monitored by an archaeologist and/or Native American.

Response: It is BLM policy that project monitoring during ground surface-disturbing activities will be required when appropriate. BLM recognizes that, during the removal of structures that have been determined to be unsalvageable and a public safety hazard, the integrity of the underlying historical archaeological site must be preserved. Native American consultation is required for any project on the Monument that may affect cultural sites of interest to local Native Americans. During this process, a determination is made whether to include Native American monitoring of a specific project.

Comment Number: 88-1

Comment: All action alternatives prohibit all forms of commercial photography, which seems to restrict research photography to accredited professional organizations with approved permits; but places no limits on photography by members of the general public. As written, this proposed action is ambiguous and unclear. Is a permit required for all research or academic purposes? Are permits only available to accredited institutions? Are credentialed but otherwise independent researchers thereby precluded from photography? This is an extraordinary and unprecedented action, and there is no management or conservation justification for restricting photography at these sites in this fashion—as the lack of restriction on photography by the general public itself demonstrates. Further, while the control and permitting (but not prohibition) of commercial photography is common, no other federal agency or agency unit prohibits rock art photography in this manner [commenter cites examples]. Inclusion of this management action in the final RMP, and its future implementation, almost certainly will result in legal challenge. Please be advised that federal case law has been consistent in supporting multiple use, including commercial multiple use, on sacred sites. The proposed management restriction on photography serves no management purpose, represents an extra-regulatory restriction on archaeological research, and will not survive the litigation that it will very likely generate.

Response: BLM has the authority under Sections 302, 303 and 310 of FLPMA to regulate commercial use of public lands. This includes commercial photography and filming (43 CFR 2920). As a result, the management action in the proposed plan alternative that prohibits the use of photography for commercial purposes is consistent with BLM policy regulating public use. The text of the proposed plan in Section 2.11.1.1 (Cultural Resource, Goals, Objectives and

Management Actions Common to All Action Alternatives, Allowable Use CUL-2) has been revised to clarify the extent of photography limitation at Painted Rock.

Comment Number: 88-2

Comment: Alternative 1 allows rock art to deteriorate due to natural processes, without intervention or stabilization. Inasmuch as it is the duty of BLM to manage and protect these sites, Alternative 1 is unacceptable on this basis, and should not be adopted.

Response: We agree that Alternative 2 as carried forward in the proposed plan alternative better addresses preservation of the sites due to allowances for potential conservation intervention.

Comment Number: 88-3, 88-4

Comment: I concur with the continued closure of the Sulphur Springs site (CA-SLO-100); however, it is essential that pro-active protective measures be taken to ensure its preservation: fencing should be constructed so that all site components (a large midden deposit, a main cave area, and a smaller pictograph locus a few hundred meters to the north) are equally protected. The Saucito site (CA-SLO-103) should be administratively closed, fenced, and signed, to ensure its long-term protection, and targeted for additional patrol.

Response: The RMP states in Section 2.11 (Objectives and Management Actions Common to All Alternatives) that any NRHP cultural property on the Monument would be subject to emergency closure or access restrictions for the purposes of site preservation, pursuant to federal regulations. This would apply to the site at CA-SLO-103 as deemed appropriate.

Comment Number: 88-5

Comment: The outlined actions for rock art protection under Alternative 2 are essential to the long-term protection of the Carrizo NRHP district sites, and I concur with and support this proposed management program.

Response: Thank you for your comment. The incorporation of management actions toward the preservation of the NRHP district is an important goal of the RMP.

Comment Number: 88-6

Comment: Alternative 2 (Preferred): Historic Ranching - Per federal guidelines, documentation of the historical structures should be completed to HABS/HAER standards.

Response: As part of future historical site inventory projects, historical structures will be recorded to meet the required standards for assessing eligibility while completing as thorough a form of documentation as current structural integrity allows. RMP management actions in Section 2.11 indicate that all historic structures will be evaluated and recorded as part of the Section 106 process. HABS/HAER would be employed when that level of documentation is warranted.

Comment Number: 88-7

Comment: As an editorial comment, the word "reconstruct" should be struck from the following statement, in order to reflect the fact that any structures that require reconstruction by definition lack integrity, and therefore do not meet the criteria for eligibility in the NRHP: "Restore,

rehabilitate, stabilize, or reconstruct historic ranching and farming buildings and structures that are eligible for the NRHP.

Response: BLM agrees that reconstructed buildings or structures are not eligible for the NRHP. BLM has edited the proposed plan alternative action (Section 2.11.2, Additional Objectives and Actions Specific to the proposed plan alternative (Alternative 2), Historic Ranching and Farming Buildings and Structures) that states reconstruction would be considered when specific buildings or structures are no longer extant but were once within the boundary of a Historic District, pursuant to the State Protocol or 36 CFR 68.

5.8.11.2 Cultural Resources – Affected Environment

Comment Number: 13-35

Comment: BLM needs to more accurately and completely assess the damages that have occurred to cultural resources resulting from illegal ORV use and grazing.

Response: Chapter 3 includes a discussion of current conditions of cultural resources, including known impacts from past/present uses. As stated in the proposed plan, impacts to cultural sites by vehicles should be minimal. All vehicle traffic in the Monument is limited to existing roads, and the proposed plan states that during regular site monitoring impacts from vehicle use will be considered (Section 2.11) and mitigation measures such as road closure, rerouting, or capping will be implemented (Section 4.10). The proposed plan states that any impacts or potential impacts to NRHP properties from grazing would be assessed and livestock would be excluded from all or part of the pasture areas containing cultural sites (Section 2.11). These impacts would be assessed on a regular basis during site monitoring and as part of BLM/SHPO Procedures for Grazing Permits/Lease Renewal actions, which require inventory for the presence of cultural sites in areas that are being or may be impacted by cattle use. If any cultural sites are discovered that are being affected by cattle, range improvements are modified to protect the sites (Section 4.10).

Comment Number: 46-85

Comment: The DEIS should contain a discussion about whether the BLM/SHPO State Protocol has sufficiently protected such sites from existing oil and gas exploration and development.

Response: As indicated in the proposed plan, the management of cultural resources on the CPNM during oil and gas actions will be conducted through Section 106 compliance procedures, guided by the BLM California State Protocol. At the project level, inventory, identification, eligibility assessments, and effects determination will be performed, along with appropriate Native American consultation. Mitigation of any adverse affects to eligible cultural properties is coordinated through SHPO consultation. With oil and gas activities, as with any action that may impact cultural sites, site preservation through avoidance is always the preferred alternative. The nature of most oil and gas actions easily allows for project redesign in the case of any cultural sites found within the project area. The Bakersfield BLM Field Office, which manages the CPNM commonly, conducts cultural resource compliance projects for oil and gas actions and through this avoidance policy rarely proceeds to the mitigation process resulting in a high degree of preservation for cultural sites. Text has been added to the proposed plan (Section 4.10, Impacts to Cultural Resources From Other Programs, Minerals) to include this more detailed description of the Section 106/Protocol process for managing cultural resources for the oil and gas program.

5.8.11.3 Cultural Resources – Environmental Consequences

Comment Number: 37-4, 37-5

Comment: BLM did not take a “hard look” at the impacts of managing areas in the Monument as wilderness on the Caliente Mountain World War II Lookout Tower. By implementing the management prescriptions associated with management as wilderness, BLM may effectively bar the State of California or other interested parties from accessing the Tower with motorized and mechanized equipment, which may be necessary to stabilize and preserve the Tower. Federal case law recognizes that wilderness designations can impair historic properties by prohibiting preservation efforts that require the use of motorized and mechanized equipment.

Response: BLM agrees that the World War II Lookout Tower is a significant cultural resource and Chapter 2 includes the following action: “Pursue acquisition or cooperative management partnership with the state property located atop Caliente Mountain Peak, including the Caliente Mountain World War II lookout tower for the primary purpose of preserving the wooden structure through stabilization or restoration.” The tower is currently located on state property and is accessed by a road that was “cherry stemmed” from the WSA (that is, outside the WSA). Therefore, management or restoration is not impacted by the current WSA designation. Furthermore, the Caliente Mountain WSA was designated under a study/EIS directed by FLPMA. BLM is not permitted to change boundaries on existing WSAs until Congress considers them for potential wilderness designation.

Comment Number: 46-84

Comment: Additional language should be incorporated into the DEIS (page 4-189) to comply with NEPA regulations regarding incorporation by reference of BLM/SHPO State Protocol and compliance with Section 106 of the NHPA.

Response: The proposed plan cites as guiding documents for Sections 106 and 110 of the NHPA, the BLM National Programmatic Agreement with the Advisory Council of Historic Preservation, and the National Conference of State Historic Preservation Officers and the State Protocol Agreement among the California State Director of BLM, the California SHPO, and the Nevada SHPO (Section 2.11). These agreements define how BLM shall conduct compliance with Sections 106 and 110, including procedures for inventory, eligibility evaluation, and effects determination. Thresholds for SHPO consultation are also identified. These documents can be obtained through web access at http://www.blm.gov/wo/st/en/prog/more/CRM/policy_and_guidance.html.

Comment Number: 71-6

Comment: Clarify what is meant by the proposed action in 4.10.5.1.2(2) which reads “Excavations and data collection would be implemented in fashion to avoid impacts with sites associated with *Native American Graves Protection and Repatriation Act* (for example, burials and sacred objects).” I would recommend further adoption of an excavation treatment option such as the one briefly described in the paragraph preceding the first recommendation.

Response: Under NAGPRA, BLM is required to develop an action plan in consultation with the Tribe affiliated with the particular site that has NAGPRA issues. These issues include the discovery of human remains, artifacts, or sacred objects associated with a burial, or other items of cultural patrimony to the tribe. Should such a situation occur in the Monument, a NAGPRA

action plan would be developed. A reference to NAGPRA has been added to the list of primary guidance for developing cultural resource management planning decisions (Section 1.9, Related Plans and Policies Guiding Area Management; Section 2.11, Cultural Resources, list identifying primary guidance).

Comment Number: 71-14

Comment: Expand the analysis in the document to reflect that the WSA/Other Lands Program would have a potentially positive or beneficial effect on cultural resources.

Response: The WSA/Other Lands program has been determined by BLM to have a neutral effect on cultural resources (see Chapter 4).

Comment Number: 71-31

Comment: Section 4.10.4.2 and elsewhere indicates that prescribed burns and other methods to eradicate nonnative plants and improve habitat would have no impact on cultural resources because of the use of standard cultural procedures. My presumption is that these include that the burn plots would be intensively surveyed for archaeological sites prior to the burn. Is this correct?

Response: The California BLM follows guidelines provided in the State Protocol Amendment Supplemental Procedures for the Protection of Cultural Resources from Prescribed Burn Effects. This supplement directs BLM to complete a pre-burn cultural resource inventory and management strategy to guide inventory based upon sensitivity for at-risk resources (including structures, rock art sites, others); these resources will be protected from fire exposure during the prescribed burn. All proposed ground surface areas (control lines, staging areas, others) are intensively surveyed. A site-specific NEPA document is also completed prior to implementation of prescribed burns. During this analysis, the cultural resource specialist will outline needed mitigation measures, usually avoidance, to ensure cultural resources are protected during prescribed burning activities. BLM cultural resource staff work in close cooperation with fire personnel during the planning, implementation and clean-up associated with all prescribed burn activities on public lands.

5.8.12 Visual Resources

Comment Number: 22-10, 22-11, 22-12, 28-7, 66-16, 82-7

Comment: The most obvious features evident to visitors are the mile on mile of fencing and the numerous cattleguards associated with livestock grazing on the allotment. The RMP contains no analysis of any alternative mechanism that would allow both livestock control of vegetation and removal of these ubiquitous, oppressive visual impairments; minimize the number and miles of fences. Make sure all needed fences address visual resources management; use lay down seasonal fences in areas. Fence removal would enhance the Carrizo's undeveloped character and the sense of vast open space that are so valued by visitors. BLM should propose the removal of some of the barbed wire fences, corrals, and tanks in the Monument. Include a proposed fence/corral/tank removal map for each alternative.

Response: The RMP allows for the creation, modification, maintenance, or removal of fences and other livestock management facilities. Please see Section 2.15. Fences will continue to be removed, relocated, or modified to address wildlife and visual concerns. Fencing left in place will be only the minimum needed to preserve historical integrity, or to support resource management

and protection. Also, see Visual Resources Management in Section 2.12, “Complete visual contrast ratings for existing roads and facilities, and identify opportunities to reduce visual impacts through modifications such as painting water tanks, removing unneeded facilities.”

Comment Number: 28-5

Comment: Maintain very high standards in all activities. The vast visual resources are one of Carrizo’s unique features.

Response: BLM recognizes the significance of the vast open landscapes of the CPNM and their sensitivity to cultural modifications. The RMP includes objectives for restoring the visual integrity of the CPNM through restoration efforts, and for mitigating impacts from future management activities and authorized uses.

Comment Number: 46-86

Comment: The DEIS provides no citation for the proposition that tire tracks would disappear in only one growing season (page 4-209). In fact, in arid landscapes like the Monument, tire tracks and other ground disturbance is still visible many years, sometimes even decades, after the disturbance occurs.

Response: The impact estimate is based on field observations within the CPNM by BLM personnel trained in visual resources management, and not from published documents. The ability of the CPNM valley floor to revert to a naturally appearing condition is evidenced by the many dry-land farms that were cultivated for many years and have reverted to a naturally appearing landscape. BLM’s Visual Resource Management program requires an analysis of conditions and impacts as they would appear to the casual observer, so observations by trained field personnel are considered appropriate for impact analysis.

Comment Number: 46-87

Comment: The duration of off-road tire tracks will last even longer if such areas encourage unauthorized ORV users to travel off-road (page 2-254). The DEIS must evaluate the additional impacts of this unauthorized travel [on visual resources], and must also propose mitigation measures to reduce or eliminate the likelihood of off-road travel.

Response: The proposed plan alternative incorporates a component of Alternative 1 of the Draft RMP EIS that permits only street-licensed vehicles on BLM-managed roads. The proposed plan alternative also includes provisions for law enforcement and public information programs (and future closures under an adaptive management approach as outlined in Chapter 2). These actions will serve to reduce impacts to visual and other resources from unauthorized vehicle use.

Comment Number: 82-5

Comment: BLM should propose the removal of the MU Ranch structures. Combine any functionality in these structures with the new visitors’ center at the south end of the Monument.

Response: Comment noted. At this time, BLM is not proposing the removal of the MU Ranch structures. Also, currently, no visitor center is planned at the south end of the Monument; however, the RMP would not preclude consideration of additional information locations if demand indicates the need.

Comment Number: 82-6

Comment: BLM should propose the removal of the poles/risers associated with the buried communication cable just east of Soda Lake Road.

Response: The RMP calls for BLM to pursue relinquishment for unnecessary rights-of-way. This would include the right-of-way and associated poles from the underground cable referenced by the commenter.

Comment Number: 82-8

Comment: Propose the removal of the old Traver Ranch house on the west side of Soda Lake Road; it is an eyesore, is unnatural habitat for bats, will continue to deteriorate, and is an attractive nuisance to the public. Alternative 2 should include an analysis of it for any historic values, and propose its removal.

Response: The removal of the Traver house would reduce visual intrusions on the landscape. However, the structure serves as habitat for bats, so is not specifically identified for removal. If the structure is determined to no longer serve as bat habitat, it could be considered for removal at that time under the RMP.

Comment Number: 82-9

Comment: BLM should propose the conversion of the Goodwin Education Center to solar power. Currently there is a large power line that bisects the Monument to provide power to the Goodwin Education Center, Saucito Ranch, and Chimineas Ranch. Several years ago, PG&E offered to provide solar panels to BLM to replace the power line.

Response: A management action is included in the administrative facilities section of the plan (Section 2.17) to retrofit these facilities with alternative energy so that the power line can be removed.

Comment Number: 89-13

Comment: We are the property owner who borders the CPNM for at least 8 miles on the south side. Several hundred acres of our property is inside the Monument and it would cause undue hardship and multiple problems for BLM and us if fences needed to be built to delineate private property from public property within the Monument. At this point, for the most part, our private property is undistinguishable from public property.

Response: Comment noted. No fences are proposed solely to delineate BLM property from private property. Fencing would only be placed in areas where it serves to implement an objective of the plan (such as protecting Monument resources from grazing or vehicle trespass).

5.8.13 WSAs and Lands with Wilderness Characteristics

Comment Number: 3-2, 3-3, 13-3, 13-5, 20-2, 23-1, 27-1, 36-1, 38-3, 39-1, 47-3, 48-2, 63-3, 64-1, 69-1, 71-15, 75-1, 81-1, 86-1, 90-1

Comment: The highest priority should be protection of wilderness character in the areas shown in Map 2-5 as proposed in Alternative 1. Please include a wilderness recommendation for these 65,218 acres in the final plan. These areas should be closed to ORV traffic. All lands found to have wilderness characteristics should be managed to protect and enhance those characteristics, as in one of the alternatives [Alternative 1]. The final plan should recommend wilderness designation for the Agua Caliente WSA and the units that citizen groups have identified in the Caliente and Temblor ranges. Consider increasing the size of the area to be managed as wilderness. BLM should recognize the substantial economic benefits derived from protecting lands with wilderness characteristics, and manage all of its wilderness-quality lands to promote these economic benefits. In Section 2.13, we would prefer Alternative Two to state “Manage the Caliente Mountain WSA, so as not to impair the area’s suitability for preservation as wilderness, and the Temblor Unit for wilderness characteristics, so as not to impair its natural characteristics.” This wording provides more protection for the Caliente Mountain WSA, which once scarred, will take decades to restore itself, and will remove it from consideration for wilderness designation. The wilderness areas proposed in Alternative 1 should be closed to ORV traffic, so the vehicles will do no damage to the wilderness qualities or wildlife habitat value. All the primitive areas designated in Alternative 1 should be adopted; include the areas in the central plain as well as those in the Temblors and Calientes. Protection of this nature is within the purview of BLM and need not be rigidly subject to criteria named in the *Wilderness Act* of 1964.

Response: Based on comments that areas of the valley floor should be considered for management for wilderness character, BLM has reviewed the existing inventory and reconsidered the area that includes Soda Lake and adjoining lands to the north (and west of Simmler Road). These lands, totaling 5,334 acres, have been added to the proposed plan alternative to be managed for wilderness character. In addition, 7,921 acres east of Simmler Road have been included in the proposed plan alternative for management for wilderness character. A total of 13,254 acres has been added to the acreage to be managed for wilderness character and included in the primitive management zone. The remaining acreage has not been recommended for management for wilderness character in the proposed RMP. These lands meet the minimum inventory criteria, but it was determined that they do not provide for naturalness, outstanding opportunities for solitude or other wilderness qualities at a level that merits their inclusion with the other units. The Caliente WSA is managed under BLM’s Interim Management Policy for Lands under Wilderness Review. Any change to this management direction is beyond the scope of the RMP.

Comment Number: 13-4, 44-1, 44-2, 44-3

Comment: BLM should not only protect all the wilderness-quality lands in the Monument, but also actively restore these areas to enhance wilderness characteristics. We would like to see BLM focus on enhancing and restoring wilderness by closing roads, removing fences and other facilities, and reestablishing natural vegetation.

Response: The plan includes objectives and actions for BLM to actively enhancing aspects of wilderness character by removing unneeded structures and facilities, and restoring naturalness to areas impacted by past land uses.

Comment Number: 13-6

Comment: BLM can and should [commenter cited recent cases] designate new WSAs in this planning process; BLM's current policy does not justify excluding creation of new WSAs from consideration in one or more management alternatives.

Response: The RMP is following current BLM national policy that provides for consideration of management for wilderness characteristics under RMP direction. If national guidance is updated to provide for establishment of formal WSAs or other specific allocations, the plan would be updated accordingly.

5.8.14 Livestock Grazing

5.8.14.1 Livestock Grazing – Alternatives

Comment Number: 3-4, 13-14, 27-6

Comment: BLM should limit the term of leases to coincide with the finalization of the Monument RMP (such as for a period of three years) and specifically provide that the leases will only be renewed if a study shows that ongoing grazing will benefit the Monument objects. BLM should absolutely reject the notion of locking in a continuation of grazing with long-term leases, as it was being practiced before the Monument was established in 2001. Leases in the mountains should not be issued with 10-year renewal terms.

Response: The timing of renewals for Section 15 grazing leases was based on a congressionally mandated deadline. Please see Section 1.5.4 Grazing Lease Renewals. BLM grazing regulations at 43 CFR 4130.2 (d) prescribe 10-year leases except in limited circumstances. Since the terms and conditions of each grazing lease may be modified if grazing is causing unacceptable impacts or it is not in conformance with the land use plan objectives (as described in the response to Comment 3-8 et al. on this page below), reducing the term length of the lease is not required to meet plan objectives.

Comment Number: 3-7

Comment: BLM should select Alternative 1, eliminating grazing, which might be modified to include selective prescription grazing (see Bitter Creek National Wildlife Refuge prescribed grazing program from USFWS).

Response: The proposed plan alternative provides an opportunity to accomplish this if leases are voluntarily relinquished. However, requiring relinquishment without a justification was dismissed as an option because it conflicts with BLM policy, federal grazing regulations, and the Monument Proclamation, and therefore would be considered an arbitrary action. See Section 2.2.3.2 Livestock Grazing.

Comment Number: 3-8, 13-14, 27-8, 49-5

Comment: If existing lessees at Carrizo are unwilling to harmonize their grazing with the needs of the Monument, BLM should look for others who are willing to do so. Grazing should be done with little damage to the land: the fees will help BLM; have them sign contracts to be voided by BLM if the situation arise that damage is been done. Studies should determine the effects of

grazing on native species in these foothill and mountain areas, and renewals should be tied to the results of these studies.

Response: Renewals of federal grazing permits and leases are actions that are subject to a separate site-specific NEPA process. If grazing is causing unacceptable impacts identified through studies or otherwise, the federal grazing regulations allow BLM to make changes to grazing leases (43 CFR 4110.3-2(b)). When monitoring or field observations show grazing use or patterns of use are not consistent with the provisions of Subpart 4180 (rangeland health), or grazing use is otherwise causing an unacceptable level or pattern of utilization, or when use exceeds the livestock carrying capacity as determined through monitoring, ecological site inventory or other acceptable methods, the authorized officer shall reduce permitted grazing use or otherwise modify management practices. Additionally, grazing leases must be in conformance with the RMP objectives. BLM may modify terms and conditions of such leases when grazing use or management practices are not in conformance with these RMP objectives. Additional studies and monitoring would be implemented under the proposed plan alternative and the results of those studies will be used in assessments of future lease renewals and associated modifications to ensure that they meet RMP objectives.

Comment Number: 3-9, 10-3, 12-10, 33-7

Comment: If BLM Bakersfield Field Office needs added authority to get rid of the leases, you should request it from State Director or Director. Buyouts supported by third-party nonprofit organizations should be an option. Please investigate how this is being done at Cascade-Siskiyou National Monument in Oregon. As a matter of consistent Bureau-wide policy, members of the BLM Bakersfield staff should review steps being taken to eliminate cattle grazing in the Cascade-Siskiyou National Monument, also established by Presidential Proclamation during the Clinton Administration. The FRMP/FEIS should consider other mechanisms to reduce or eliminate livestock grazing in those areas where adverse impacts occur, either through administrative action pursuant to current management authority or by buying out grazing interests and retiring the associated grazing allotments. It is important to treat the ranchers in as fair and equitable manner; possible cattle grazing could be phased out through a buyout program.

Response: A federal “buyout” program for grazing interests currently does not exist except where authorized for specific locations. Private entities may “buy out” grazing lessees by either acquiring their base properties and then relinquishing the lease themselves, or by paying lessees to relinquish their grazing preference in the lease. The proposed plan alternative (Section 2.15.2.2 Livestock Grazing, Allowable Uses) encourages relinquishments and addresses forage re-allocation through a decision that restricts future grazing. Grazing would either be limited to levels needed to benefit biological resources, or future grazing would be eliminated entirely.

The Proclamation establishing the Cascade-Siskiyou National Monument has specific language regarding studying the impacts of livestock grazing and retiring grazing allotments should grazing be found incompatible with the protection of the objects of biological interest. The Proclamation establishing the CPNM does not provide this direction, and directs BLM to manage the grazing program under existing agency authorities. The added authority referenced by the commenter dealt with retiring any donated leases to conform to their Proclamation.

See also response to Comment 10-1 et al. in this section on page 5-89.

Comment Number: 9-5, 55-4, 55-27, 55-28, 66-2, 66-3, 66-8

Comment: I cannot recommend the preferred Alternative (Alternative 2) because the proposed livestock grazing is not supported by best available science. The best available science conducted at the Monument indicates that livestock grazing is not required to promote management goals [Commenter summarized relevant studies]. Given the level of ecological uncertainty and the need to maintain management flexibility, it is troubling that BLM continues to advocate for grazing in the CPNM. The integration of livestock grazing for conservation purposes into Alternative #2 is curious because the DRMP specifically acknowledges that, thus far, there is no scientific evidence indicating that grazing accomplishes management objectives at the CPNM. It is my very clear recollection that when the CPNM's Science Advisory Team met there was broad consensus about the general inappropriateness of livestock grazing in much of the Carrizo Plain. Domestic livestock must be treated as alien taxa. Inclusion of alien taxa (including livestock) in must be treated as a significant ecological alteration from the natural state, and negative impacts on native plants and animals, on soils and soil organisms, and on all other aspects of the ecosystems must be anticipated and minimized. This can only be done if management decisions are made based on knowledge of the impacted flora, fauna, and ecosystems, and on a management program firmly grounded in the best available science.

Response: The impact analyses in Section 4.2 Impact Analysis for Biological Resources – Wildlife, recognize the incomplete knowledge and confounding effects of livestock grazing on wildlife and listed animal species, including evaluation of recent monitoring data within the Monument. BLM has reviewed the available literature and agency monitoring data and considers that vegetation structure is an important habitat component that may affect habitat suitability for the listed animals. The effects of herbaceous cover appear to be different among the listed animal species so that a variety of management prescriptions may be required. Additionally, the amount of herbaceous/grass structure appears to have different effects from year to year. BLM has cooperated with species experts and has conducted monitoring to sort out these relationships. The application of livestock grazing proposed in the Conservation Target Table reflects current knowledge regarding vegetation structure, habitat suitability, and management prescriptions. The process of adaptive management will direct the application of livestock grazing to meet Monument objectives to maintain viable populations of the listed animal species.

The RMP acknowledges the scientific controversy over the impacts and benefits of use of grazing as a habitat restoration tool and incorporates an adaptive management program to continue monitoring and adjusting the use of various habitat management tools within the CPNM.

The Caliente and Temblor Ranges are included in Section 15 grazing allotments. For these grazing allotments, the RMP follows existing BLM policy as directed under the Proclamation. The RMP establishes reduced grazing levels and more restrictive land health objectives than current management in order to protect the objects of the Proclamation, including special status plant species. Currently, no monitoring information is available to indicate specific impacts to rare plants. If monitoring indicates that grazing of these allotments is in conflict with the RMP objectives, the grazing authorization would be modified or discontinued at that time. Any decision to cancel these existing Section 15 leases without specific monitoring data or sufficient cause would be considered a violation of the federal grazing regulations.

Historically grazing has been used as the predominant tool for vegetation management in the planning area, and has also been the focus of more controversy during the planning process. Therefore the plan contains more background information and discussion regarding its use to achieve plan objectives. However, the objectives all receive primary consideration during

implementation of the plan, and only those tools that serve to meet objectives will continue to be used. If additional studies show that grazing is not beneficial then its use would be further reduced or eliminated. However, based on present information, the proposed plan alternative allows for its use along with other tools such as prescribed fire, since there is information that shows that it can benefit special status wildlife species under specific conditions.

Comment Number: 10-1, 11-1, 17-1, 25-1, 26-3, 28-8, 35-1, 35-3, 38-1, 42-1, 45-1, 70-2, 70-3, 78-4, 83-1, 84-3, 94-3

Comment: BLM should proceed with Alternative 2, but with no livestock grazing within the Monument boundaries for any reason; grazing should be available to native species, not livestock. I support no grazing on BLM lands. Grazing should NOT be permitted in this National Monument. Perhaps there could be an Alternative 2.1, one that would include all the good reasoning in Alternate 2, but with a phase-out strategy for domestic livestock grazing. The RMP must reflect the necessity of eliminating grazing from the Monument sooner, rather than later, and utilize management tools that will provide for a long term solution to habitat restoration and protection. Phase out grazing, there is not enough to share with the remaining wildlife. As concerned citizens we ask that your organization would do the right thing by disallowing grazing by cattle on the CPNM.

How can grazing this landscape protect and enhance indigenous species and natural communities? Grazing on this landscape must be minimized and or stopped altogether until such time as it can be determined that grazing is beneficial to the habitat. Your plans 2 and 3 allow for some 170,000 acres of grazing, including the entire valley floor, while only protecting only 30,000+ acres. How does this protect and enhance indigenous species and natural communities? While under the conservatorship of the Nature Conservancy, Carrizo prospered and the aesthetic was enhanced. The Valley was knee high in grasses, fiddleneck and other flora, and a more natural habitat ensued. Since the declaration as National Monument and the takeover from the Conservancy, grazing has returned in spades, the Carrizo is now, once again, grazed to nubbins. The once lush and prosperous grassland is no more. The Valley is grazed to the very dirt. This you intend to continue. To who's benefit, the shareholders? NO, to the benefit of the lucky few who profit from grazing public lands for reduced fees.

The proposed plan would leave in place the entire grazing infrastructure on the CPNM: fences, water tanks, spring diversions, loading chutes and corrals, etc. Not only are they a blight on the landscape, but also they disrupt habitat and wildlife movement. Now is the time to retire all of the free-use permits and the Section 15 leases and close the CPNM to grazing in this RMP planning process. The evidence is strong that grazing harms Monument objects and there is very little (if any) evidence of a benefit. Further studies only delay the inevitable, and Monument resources are harmed as a result

Response: The Proclamation establishing the Monument states, "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument." The Caliente and Temblor Ranges are included in Section 15 grazing allotments totaling 55,900 acres. For these grazing allotments, the RMP follows existing BLM policy as directed under the Proclamation. The RMP establishes reduced grazing levels and more restrictive land health objectives than current management in order to protect the objects of the Proclamation, including special status plant species. Currently, no monitoring information is available to indicate specific impacts to rare plants. If monitoring indicates that grazing of these allotments is in conflict with the RMP objectives, the grazing authorization would be modified or

discontinued at that time. Any decision to cancel these existing (Section 15) leases without specific monitoring data or sufficient cause would be considered a violation of the federal grazing regulations. Note that Alternative 2 allows for grazing leases currently issued under Section 15 of the *Taylor Grazing Act* to be voluntarily relinquished by the leaseholders. If relinquished, the leases would not be reissued for domestic livestock forage use, but only allowed as a tool to meet the habitat management actions under the RMP.

The RMP also allows 117,500 acres of the planning area to be available for use of livestock as a vegetation management tool to restore wildlife habitat. The RMP acknowledges the scientific controversy over the impacts and benefits of use of grazing as a habitat restoration tool and incorporates an adaptive management program to continue monitoring and adjusting the use of various habitat management tools within the CPNM. The proposed plan alternative calls for reduced use of grazing as a tool, with any one area being grazed two years out of 10 during initial plan implementation. If monitoring shows that this use as a tool is not achieving plan objectives, grazing would be further reduced or eliminated under the plan. Historically grazing has been used as the predominant tool for vegetation management in the planning area, and has also been the focus of more controversy during the planning process. Therefore the plan contains more background information and discussion regarding its use to achieve plan objectives. However, the objectives all receive primary consideration during implementation of the plan, and only those tools that serve to meet objectives will continue to be used. While the goal for biological resources is to emphasize an increase of native and indigenous species, the populations of tule elk and pronghorn on the Monument, there are too few to be an effective habitat management tool for endangered species habitat management. For that reason, livestock are used as a management tool. Parts of the CPNM, while naturally appearing, have been heavily impacted by past land uses. For example, much of the valley floor was cultivated as recently as the 1980s. This has increased the presence of nonnative species such as Mediterranean grasses to levels that can be detrimental to certain animal species and that cannot be effectively grazed by native ungulates alone.

Under the proposed plan alternative, the majority of the Monument will only be subject to livestock grazing when it is prescribed to benefit important biological resources and is considered to be the best available management tool. In addition, monitoring and additional studies would be implemented under the plan to address conflicts arising from livestock grazing on Section 15 leases. Grazing leases on these Section 15 leases may be relinquished in the meantime. See also response to Comment 89-11 on page 5-103 in this section.

BLM has analyzed the effects of livestock grazing on wildlife under all the alternatives in Section 4.2 Impact Analysis for Biological Resources -- Wildlife. BLM has proposed that prescribed livestock grazing, as described in the Conservation Target Table, is being considered as a habitat management tool to accomplish endangered species (animal) management objectives. Specifically, livestock grazing would be used to manage herbaceous habitat structure for some of the listed animal species. While livestock grazing has been shown to have negative impacts to native plant community composition and function (Section 4.3 Impacts to Biological Resources -- Vegetation), wildlife managers believe that livestock grazing is a viable tool to remove high biomass structure that reduces habitat quality for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, San Joaquin kit fox, and mountain plover. Habitat management using grazing is proposed to be used when vegetation biomass, primarily nonnative grasses, exceeds levels identified in the Conservation Target Table and when giant kangaroo rat populations are very low. In the core areas of blunt-nosed leopard lizards, livestock grazing would likely be used more frequently to maintain a more open vegetation structure favored by this species. Wildlife managers may apply livestock grazing when there are high amounts of

nonnative grass structure in an effort to maintain viable populations of these species. Elimination of livestock grazing as a habitat management tool could severely hamper efforts to maintain suitable habitat and viable populations in these “safety net” core areas. Livestock grazing would not be applied in the vegetation management area of the Monument where it is not used as a tool to meet specific Monument objectives.

Comment Number: 13-11, 27-3

Comment: Scientific evidence contradicts that livestock grazing should be used as a vegetation management tool on the valley floor. We urge BLM to consider changing the 117,500 acres allocated by Alternative 2 for this approach to instead be unavailable for any livestock grazing. Grazing allotments on the valley floor should be withdrawn.

Response: The RMP allows 117,500 acres of the planning area to be available for use of livestock as a vegetation management tool to restore wildlife habitat. The RMP acknowledges the scientific controversy over the impacts and benefits of use of grazing as a habitat restoration tool and incorporates an adaptive management program to continue monitoring and adjusting the use of various habitat management tools within the CPNM. The proposed plan alternative calls for reduced use of grazing as a tool, with any one area being grazed two years out of 10 during initial plan implementation. If monitoring shows that this use as a tool is not achieving plan objectives, grazing would be further reduced or eliminated under the plan. Historically, grazing has been used as the predominant tool for vegetation management in the planning area, and has also been the focus of more controversy during the planning process. Therefore, the plan contains more background information and discussion regarding its use to achieve plan objectives. However, the objectives all receive primary consideration during implementation of the plan, and only those tools that serve to meet objectives will continue to be used.

While the goal for biological resources is to emphasize an increase of native and indigenous species, the populations of tule elk and pronghorn on the Monument, there are too few to be an effective habitat management tool for endangered species habitat management. For that reason, livestock are used as a management tool. Parts of the CPNM, while naturally appearing, have been heavily impacted by past land uses. For example, much of the valley floor was cultivated as recently as the 1980s. This has increased the presence of nonnative species such as Mediterranean grasses to levels that can be detrimental to certain animal species and that cannot be effectively grazed by native ungulates alone.

Comment Number: 13-12, 21-3, 23-4, 36-3, 38-2, 40-2, 47-4, 48-3, 63-4, 64-3, 66-21, 69-2, 86-4, 90-2

Comment: Where BLM can determine that livestock grazing will benefit Monument objects, limiting this use to vegetation management and clarifying that the Monument lands will be generally “available” for grazing is more consistent with the Proclamation; the RMP must specify differences in the classification of lands, standards for determining whether vegetation management is needed and if grazing is the appropriate tool, and terms and authorities under which grazing will be managed since 10-year leases are not appropriate. BLM should allow livestock grazing only if it will benefit the ecosystem. Livestock grazing should be limited to cases where it is prescribed for restoration of native vegetation. Allotments 00044 and 00031 in the Caliente Mountains should be shut down to restore natural conditions. Unless or until BLM grazing can be shown to be consistent with protecting the Monument objects, BLM should halt any commitments to long-term grazing on the CPNM.

If grazing is to continue, it should be done only on an explicitly experimental basis and clear justifications should be provided. Input from the CPNM Science Advisory Team should be sought during development and evaluation of monitoring/evaluation plans, and findings can then be used to inform management decisions and direct future research.

The final plan should eliminate all grazing except in specific areas where it is needed to remove exotic plants as part of a science-based program to restore the native grassland ecosystem.

Response: Please see Section 2.2.3.2 Livestock Grazing for discussion of why use of grazing only as a vegetation management tool throughout the entire planning area was not carried forward for analysis. Grazing for vegetation management purposes/habitat restoration would be allowed only in the areas where it is potentially appropriate, outside of existing Section 15 leases (117,500 acres under the proposed plan alternative). The plan allocates grazing in those areas as “available for livestock grazing, but only for purposes of vegetation management” and it is these areas that BLM proposes to apply livestock grazing only for the purpose of meeting the goals and objectives for the objects identified in the Proclamation. Studies will be designed to assess both the efficacy of grazing as a tool, and the impacts to objects of the Monument; management will adapt in response to those studies. Additionally, see response to Comment 13-13 on page 5-93 in this section.

BLM may cancel a Section 15 grazing lease (leases that currently include 55,700 acres of the planning area), as a response to a lessee’s failure to comply with grazing regulations, may initiate cancellation when needed because the land is passing from BLM administration, or may cancel a grazing lease as needed to avoid authorizing conflicting use activities that are incapable of being simultaneously accommodated or carried out while achieving land use plan objectives. To discontinue grazing within the Sulphur Canyon and Selby Ranch allotments (#31 and #44), BLM must document impacts caused from grazing and determine that no level or management of grazing could meet the goals of the land use plan. BLM currently does not have information that grazing in these allotments does not meet the goals and objectives of the proposed plan alternative. Section 2.15.1.2 Livestock Grazing, Objectives and Management Actions proposes an action in all alternatives to determine impacts from livestock grazing as they relate to the new objectives under this RMP.

BLM and the managing partners are developing the Conservation Target Table (Appendix C) to identify objectives, management guidelines, thresholds, and desired outcomes for carefully managing grazing as a habitat management tool. Specific triggers to apply livestock grazing as a tool are included. Unless these triggers are met, grazing would not be used. Thus, grazing would be applied in a careful manner and would be monitored to evaluate effectiveness in meeting Monument objectives.

The Conservation Target Table identifies some aspects of livestock grazing in need of testing and evaluation. Adaptive management includes further analysis of existing monitoring data, peer review of data analyzed to date, and analysis of ongoing studies. This scientific information will be used to evaluate whether livestock grazing meets the Monument Proclamation and plan objectives. Grazing-related studies conducted on the species and natural communities found within the Monument will be applied within the adaptive management framework. This information will be used to determine management prescriptions and apply management actions to meet plan objectives, including a “no livestock grazing” prescription.

The vegetation impacts analysis in Section 4.3 Impacts to Biological Resources -- Vegetation describes the impacts of livestock grazing to native plant communities. Literature and monitoring

data from the CPNM indicate that livestock grazing is not an appropriate tool to improve native plant composition and has little value in native ecosystem restoration. However, livestock grazing is believed to be a viable tool to manage the habitat structure (height and cover of vegetation) for San Joaquin Valley threatened and endangered animals. BLM proposes to use livestock grazing for this purpose in the most important “core areas” of endangered species (animals) only when certain vegetation conditions are present and when endangered species populations warrant improving habitat conditions. The plan includes monitoring and adaptive management studies to evaluate this management tool and will adjust prescriptions as needed to meet Monument objectives.

Comment Number: 13-13, 15-2

Comment: BLM must consider whether and how grazing can support the changed management mandate for these lands imposed by the Proclamation. Concerned about grazing.

Response: Grazing use at the levels and under the conditions considered in all alternatives of the draft plan is consistent with the Proclamation establishing the Monument. The following goal in Section 2.15.1.1 applies to all alternatives: “Manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes forage, or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation.”

Comment Number: 13-30

Comment: BLM must ensure the biological resources are not compromised by grazing and evaluate the potential benefits for restoring habitat that can only be achieved by reducing lands available for grazing.

Response: The Chapter 4 analysis of Alternative 1 analyzes the effects of implementing a no-grazing alternative on the resources within the planning area. See also response to Comments 9-5 et al. on page 5-88 in this section.

Comment Number: 13-36, 37-2, 71-16, 71-17, 71-18, 71-19

Comment: BLM must adopt an alternative that actively reduces the impacts to cultural resources from grazing. The Draft RMP would manage livestock grazing in a way that would impact some of the Monument’s objects of historic interest. At a minimum, BLM must consider excluding livestock grazing entirely from areas of the Monument where historic objects identified for protection are known to exist, such as the Carrizo Plain Rock Art National Register District and proposed NHL. BLM should also consider excluding livestock from areas that have not been surveyed but where BLM reasonably believes that projected objects may exist. These exclusions should remain in place until BLM has surveyed them and determined that livestock grazing may recommence without causing harm to those objects. Work toward a reduction in acreage grazed and intensity of grazing that would reduce impacts to cultural resources. Allow pastures to be grazed for only short periods of time; employ “flash grazing” where sensitive archaeological resources are present. Set out a monitoring plan for the condition of pastures where such resources are present and vulnerable, and remove cattle at the first sign of overgrazing, with monitoring accomplished by archaeologists rather than range conservationists. Close pastures or construct exclusion fences around resources where damage from grazing persists. Staff archaeologists should work closely with range conservationists regarding grazing.

Response: The proposed plan alternative states that any impacts or potential impacts to NRHP properties from grazing would be assessed and livestock would be excluded from all or part of the pasture areas containing cultural sites (Section 2.11.1.2 Cultural Resources, Objectives and Management Actions). These impacts would be assessed on a regular basis during site monitoring and as part of BLM/SHPO Procedures for Grazing Permits/Lease Renewal actions, which require inventory for the presence of cultural sites in areas that are being or may be impacted by cattle use. If any cultural sites are discovered that are being affected by cattle, range improvements are modified to protect the sites (Section 4.10 Impact Analysis for Cultural Resources).

BLM has excluded livestock in areas with sensitive cultural resources where impacts are observed. See the following goal in Section 2.15.1.1 for all alternatives, “Manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes forage, or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation.”

Management actions are prescribed that address the monitoring, recordation, assessments, and treatment of threats to cultural resources, as well as the potential exclusion of grazing from sensitive sites.

Archaeologists will continue to work closely with range specialists to inform them of the need to manage grazing in ways that avoid or minimize impacts to cultural resources.

Comment Number: 13-70

Comment: Climate change is expected to increase drought years and reduce forage, and cattle contribute to climate change through emissions. Management actions include eliminating grazing as a vegetation management tool and other specific limitations as forage decreases.

Response: The impact analysis in the RMP/EIS assumes that global climate change will make the planning area warmer and drier during the projected 20-year plan implementation period (Section 4.8 Impacts of RMP Related to Global Climate Change). BLM acknowledges that drier conditions for the CPNM would contribute to less vegetative growth overall (Section 3.8 Climate). Under the proposed plan alternative, grazing may be used as a vegetation management tool in some areas and will continue on the Section 15 allotments. Over the life of the plan implementation period, levels of forage will continue to be monitored and adaptive management will be utilized to alter management as needed to protect Monument objects and resources. An increase in the number and frequency of drought years on the CPNM would lead to a reduction in available forage and grazing would likely be utilized less frequently as a vegetation management tool. Grazing may also be temporarily reduced on the Section 15 allotments if annual conditions lead to reduced forage.

Please note additional information has been added to the Affected Environment for climate change (Section 3.8 Climate) and Environmental Consequences (Section 4.8 Impacts of RMP Related to Global Climate Change). A climate change objective and management action (Section 2.6.1 Air Quality, Goal, Objectives, and Management Actions Common to All Action Alternatives) have been added to the air quality program, common to all alternatives. These additions represent a commitment by BLM to consider the impacts of management actions and program activities on climate change and the effects of climate change on Monument resources.

Comment Number: 14-1

Comment: Installation of water developments for livestock has been a terrible mistake. The remoteness from water has always been the limiting factor in the control of grazing pressure. Recent BLM, CDFG, and TNC actions have improved the area. There is a long way to go to bring it back to what it was at the turn of the century.

Response: Thank you for your comment.

Comment Number: 18-1, 53-1

Comment: Because the DEIS does not provide a scientific basis for the changing grazing management in the North Temblor Allotment from existing standards (No Action Alternative) to the Preferred Alternative, it is improper to deprive Bidart Bros. of its right to utilize forage by changing the management criteria.

Response: Changes to grazing management practices or guidelines do not require scientifically proven studies to be implemented. BLM may change terms and conditions of grazing leases when the use or related management practices are not meeting management objectives (43 CFR 4130.3-3). BLM believes that proposed changes in grazing management practices will better provide for the resources and values BLM is charged with managing and protecting under the Monument Proclamation than the No Action Alternative.

Also see Section 2.3 Use of Adaptive Management Process, on the process and use of adaptive management.

BLM grazing leases convey no right, title, or interest held by the United States in any lands or resources (43 CFR 4130.2 (c)). The impacts to livestock operations and economic impacts from the proposed management were considered in Chapter 4; see Sections 4.13 Impact Analysis for Livestock Grazing and 4.18 Impacts to Social and Economic Conditions.

Comment Number: 18-2, 18-3, 18-4, 18-5

Comment: The proposed doubling of annual forage levels (to 1,000 lbs/acre) required for grazing in Section 15 pastures are not necessary to manage annual biomass to protect soils from erosion and replenish soil nutrients. Scientists have studied the effect of RDM manipulation in the California grassland, including the Temblor Range, and demonstrated that requiring higher levels of RDM would not result in an equivalent increase in the amount of forage production. Scientists argue that the focus should be on maintaining sufficient plant cover. In the Conservation Target Table it states that less than 500 pounds per acre of herbaceous biomass is optimal for blunt-nosed leopard lizard, and Section 4.2 states that an open habitat structure is believed to be critical. Even if RDM management is the answer, the standards and monitoring under the 1996 plan were not implemented until the 2007-2008 grazing season; review of only one full season cannot establish that the levels adopted in the plan are sufficient to meet the objectives. There is no scientific basis for this drastic increase. The proposed doubling of annual forage levels required for grazing in Section 15 pastures will deprive Bidart Bros. of substantial grazing resources without scientific support. This change will amount to a deprivation of property without due process of law in violation of the Fifth Amendment of the U.S. Constitution.

Response: Proposed changes in levels of RDM were not only proposed for soil health, but are also compatible with levels proposed for giant kangaroo rat and blunt-nosed leopard lizard.

The Conservation Target Table describes a desired value for RDM in annual grassland-dominated areas as 500 lbs/acre at the beginning of the growing season for soil protection and nutrient replenishment. This value was determined by increasing the levels suggested in the literature cited in the comment, which was for purposes of forage production alone, to one that also supported other rangeland health parameters. Monitoring of monthly natural mulch reductions in the Carrizo indicated that RDM deteriorated throughout the summer. Thus, the livestock removal criterion was developed to help prevent mulch levels from dropping below the desired 500 lbs/acre in approximately October-November. Furthermore, studies on giant kangaroo rat found that these species tend to be best supported by RDM below 1,600 lbs/acre and blunt-nosed leopard lizard were supported best when RDM was less than 1,000 lbs/acre and optimal at 500 lbs/acre. Thus, areas that support giant kangaroo rat and blunt-nosed leopard lizard have different desired values for RDM as seen in the Conservation Target Table.

Comment Number: 18-6

Comment: Increasing the level of RDM required to be present prior to grazing may limit, or entirely prevent, livestock grazing on the North Temblor Allotment, but will not result in a corresponding benefit to the CPNM, and deprives lease holders of significant grazing rights.

Response: The Conservation Target Table identifies grazing management guidelines to allow livestock grazing in blunt-nosed leopard lizard core areas when RDM measures are above 1,000 pounds per acre and to remove livestock when levels are below 500 pounds per acre. This level of vegetation structure was identified and analyzed as a level that would meet Monument objectives to maintain suitable habitat and viable populations for blunt-nosed leopard lizards.

Comment Number: 18-7

Comment: Any plan or alternative that completely eliminates grazing or permits only low-intensity grazing will subvert the goal of maintaining a biodiverse grassland.

Response: Comment noted. The impacts of no grazing are discussed in Alternative 1.

Comment Number: 18-8

Comment: The study by Kimball and Schiffman should not be given much weight because it did not observe plant responses to actual cattle grazing, but instead used clipping. Scientists have found that on low rainfall sites, the effects of grazing versus clipping diverge. Therefore, there is no reliable evidence regarding the effects of grazing on native plants; until such time, the only evidence available establishes that grazing has a positive effect on plant biodiversity.

Response: In the absence of reliable data or in the presence of disputed or contrary results or conclusions, managers must use best available information and adaptive management to further their mission. This plan places a priority on collecting information and supporting studies and research as outlined in Section 2.21 Research Management.

Comment Number: 18-9

Comment: Grazing has a positive effect on those endangered species present in the Temblor Range allotments, as indicated in Section 4.2 of the DEIS, with effects ranging from negligible to major beneficial impacts under either the No Action Alternative or the Preferred Alternative.

Therefore, the paramount goal of enhancing populations of these endangered species will not be served by the grazing management changes the Preferred Alternative proposes for the North Temblor Allotment.

Response: The Conservation Target Table identifies grazing management guidelines to allow livestock grazing in blunt-nosed leopard lizard core areas when RDM measures are above 1,000 pounds per acre and to remove livestock when levels are below 500 pounds per acre. This level of vegetation structure will meet Monument objectives to maintain suitable habitat and viable populations for blunt-nosed leopard lizards.

Comment Number: 20-1

Comment: We applaud the new grazing policy as stated in Alternative 2. Using grazing as a tool on behalf of both native flora and fauna is a big step forward in bringing the actions of BLM into line with its stated mission for the CPNM.

Response: Thank you for your comment.

Comment Number: 22-3, 22-5

Comment: BLM needs to make a determination of what lands on the Monument will be available for livestock grazing within the Monument in the light of what it knows is sound science. It cannot simply punt this mandate to some future implementation decision that will be addressed on a case-by-case basis.

The DRMP provides no science-based rationale for treating availability to livestock in the Caliente and Temblor Mountains differently than the Carrizo and Elkhorn Plains. Issuing grazing permits under a different subpart of the regulations is an administrative difference. As the DRMP states, BLM may cancel a grazing lease as needed to avoid authorizing conflicting land use activities.

Response: The RMP does make the determination on which lands will be available or unavailable for livestock grazing. See Livestock Grazing, Allowable Uses in Sections 2.15.2.2 for Alternative 2, Section 2.15.3.2 for Alternative 1, Section 2.15.4.2 for Alternative 3, and Section 2.15.5.2 for No Action. These allocations were made based on BLM's Land Use Planning Handbook, H-1601-1, Appendix C, page 14, which states that lands available or unavailable for livestock grazing are identified considering the following factors:

1. Other uses for the land;
2. terrain characteristics;
3. soil, vegetation, and watershed characteristics;
4. the presence of undesirable vegetation, including significant invasive weed infestations; and
5. the presence of other resources that may require special management or protection, such as special status species, special recreation management areas, or ACECs.

Considering those factors and Monument-specific information, the proposed plan has identified lands where plan objectives could not be achieved under any level or management of livestock use as "unavailable for livestock grazing." Remaining lands were identified as being "available for livestock grazing," but given the unique resources and administrative circumstances in the Carrizo, those lands were further categorized into lands available for livestock grazing (including the areas where livestock use is allowed to utilize available forage) and those lands available for

livestock grazing but only as a vegetation management tool to meet objectives other than the production of livestock forage. Management strategies differ in the two available categories as described in Sections 2.15 Livestock Grazing Alternatives and 3.14 Livestock Grazing Affected Environment. In areas designated as “available for livestock grazing” livestock use is allowed to utilize available forage and are currently authorized with Section 15 grazing leases. In areas designated as “available for livestock grazing, but only for the purpose of vegetation management,” livestock are applied as a tool to meet objectives other than the production of livestock forage and are currently authorized with free use grazing permits.

Comment Number: 22-6

Comment: The DRMP does not clearly explain what is meant by the “targeted” livestock grazing for vegetation management. This would require that the livestock preferentially eat the targeted plant species, while avoiding all others. BLM should provide evidence that the “targeted” plants can actually be controlled by grazing. It would require intensive monitoring (for which the RDM monitoring program would be insufficient) and rapid removal when objectives are met and before damage occurs to nontarget plant taxa. BLM must analyze the costs of ensuring that livestock used in targeted grazing do not contribute to further resource impacts and ensure that it will be able to fully provide for future support for this expensive program.

Response: “Targeted grazing” and associated impacts were described in Chapters 2 and 4 under biological resources. The text in these sections has been updated to clarify the intent of using grazing as a management tool. Chapter 4 also includes an analysis of economic impacts of implementing each alternative. However, BLM implementation costs are not addressed in detail in RMPs, but are covered subsequently in business plans.

Comment Number: 22-7

Comment: We concur with Dr. Painter’s conclusion [Commenter #55] that a better monitoring technique on the Monument than residual dry matter would be a combination of multiple parameters including stubble height and actual level of utilization.

Response: The Conservation Target Table describes multiple factors to measure and monitor that are used to determine the health of target species. RDM is used in a few, but mostly species population parameters are indicated. BLM is not using RDM to monitor the amount of available forage or utilization by livestock. RDM is being measured as an indicator of habitat suitability for a handful of species and as a measure of the level of soil protection available.

Comment Number: 22-8

Comment: Use of woody plants by livestock should be viewed as an indication that there is insufficient herbaceous feed available; thus, 20% utilization of shrubs should be considered excessive.

Response: The commenter references and questions the adequacy of a guideline from Appendix E, the Central California Guidelines for Grazing Management to meet goals of the Monument. Section 2.15.1.2 lists the objective to manage livestock grazing to meet or exceed the Standards for Rangeland Health, and further says to apply the relevant Guidelines for Grazing Management from Appendix E to achieve that objective. Section 2.15.2.3 says to also apply the relevant guidelines for the CPNM in the Conservation Target Table. The guidelines in each document are not required to be applied, but are the proposed tools used to meet plan goals and objectives.

Should managers find utilization is the appropriate measure to see if we are meeting our goals in the Monument, the relevant guidelines may be applied. Native shrub and flora health parameters are addressed in the Conservation Target Table and will continue to be monitored. Should managers determine those guidelines aren't relevant to meeting the objective, BLM will use adaptive management to develop that tool and apply it.

Comment Number: 24-1

Comment: I am solidly in favor of a reasonable amount of cattle grazing in the CPNM. It does not appear to me that there is enough grazing to endanger any plant life. On the contrary, it has been found to be beneficial to the natural management of said species to encourage grazing.

Response: Thank you for your comment.

Comment Number: 27-4

Comment: The studies underway to assess the effects of grazing by cattle and kangaroo rats should be allowed to continue in the specific pastures now used for the studies; at the conclusion of the studies or in eight years, whichever comes first, these pastures would be withdrawn from grazing.

Response: Results from ongoing studies will be incorporated into management decisions within the Conservation Target Table and pasture management matrix. BLM and managing partners will make future management decisions for study pastures based on study results and consistent with Monument objectives. If current or future studies show that grazing on valley floor (vegetation management) pastures is detrimental to target wildlife species, grazing would be discontinued as it would not be meeting plan objectives.

Comment Number: 27-5, 27-7

Comment: Grazing in the foothills and mountains would be managed differently because there are no studies of effects on the native species there, there is considerably more rainfall at the higher elevations, views are shorter so visual resources are less affected by range improvements, and ORV use and abuse is more difficult than in the plains. Studies must be instituted to determine the effects of grazing upon native species in these foothill and mountain areas.

Response: The plan lists a management action to initiate such a study or studies in Section 2.15.1.2 Livestock Grazing, Objectives and Management Actions.

Comment Number: 30-3, 39-3, 39-4, 64-4

Comment: Permit grazing only if it can be demonstrated with high quality and accepted science to be consistent with the Proclamation's requirement to protect native species and ecosystems. Unless or until grazing can be shown to be consistent with protecting the Monument objects, BLM should limit any commitments to long-term grazing on the Carrizo Plain National Monument.

Response: See response for Comment 13-13 et al. in this section above. Also see Section 2.3 Use of Adaptive Management Process, on the process and use of adaptive management. The Conservation Target Table identifies some aspects of livestock grazing in need of testing and evaluation. Adaptive management includes further analysis of existing monitoring data, peer

review of data analyzed to date, and analysis of ongoing studies. This scientific information will be used to evaluate whether livestock grazing meets the Monument Proclamation and plan objectives. Grazing-related studies conducted on the species and natural communities found within the Monument will be applied within the adaptive management framework. This information will be used to determine management prescriptions and apply management actions to meet plan objectives, including a “no livestock grazing” prescription.

Comment Number: 33-2

Comment: EPA recommends that the Final RMP and Final EIS include additional information on adaptive management strategies and tools that may be implemented in conjunction with grazing activities.

Response: The proposed plan includes additional information on the use of grazing under an adaptive management approach. The Conservation Target Table serves as the foundation of adaptive management and incorporates the objectives of the RMP into a framework of more specific implementation targets and actions. Section 2.3 Use of Adaptive Management Process, describes how the adaptive management process would be implemented and the use of the Conservation Target Table. The discussion acknowledges that the Conservation Target Table is a “work in progress” and describes how it would be updated in a manner consistent with NEPA and BLM planning requirements. BLM agrees that a more specific baseline and monitoring plan is critical to effective implementation of an adaptive management process. Text has been added to the plan to identify that a monitoring plan to implement the Conservation Target Table will be developed during early stages of RMP implementation. This would also ensure that threats to biological resources from the use of various habitat restoration actions (including grazing) would be identified and management actions would be implemented and evaluated as they relate to plan objectives. Text on this topic has been added in Section 2.3 Use of Adaptive Management Process.

Comment Number: 33-3

Comment: EPA encourages BLM to consider suspending, reducing, or eliminating livestock grazing to the extent possible.

Response: These would all be viable options where unacceptable impacts are documented. See also response to Comment 3-8 et al. on page 5-86 in this section.

Comment Number: 33-6

Comment: Should any allotments be classified as impaired, EPA recommends that BLM give further consideration to suspending grazing use until Rangeland health is restored.

Response: See response to Comment 3-8 et al. on page 5-86 in this section. Additionally, the grazing regulations at 43 CFR 4180.1 require BLM to take appropriate action no later than the start of the next grazing year upon determining that existing livestock grazing management needs to be modified. BLM is mandated to ensure the fundamentals of rangeland health are being achieved or that the resources are making significant progress toward achievement.

Comment Number: 39-2, 64-2, 75-2, 81-2

Comment: We appreciate BLM's preferred alternative recognizing the need to protect Monument objects and the demonstrated risks from grazing by setting a goal to use grazing only for vegetative management. We hope to see this recognition and commitment strengthened in the final plan so that this goal can be achieved.

Response: Thank you for your comment.

Comment Number: 39-3, 44-5, 48-3, 64-3, 66-13, 75-3, 81-3

Comment: The results from a grazing study on the valley floor of the Monument, taken in conjunction with the existing body of scientific research, should underscore the importance of maintaining maximum flexibility in managing grazing on the Monument. Unless or until grazing can be shown to be consistent with protecting the Monument objects, BLM should limit any commitments to long-term grazing. We understand that there is good, scientific evidence that grazing livestock in a dry area which will likely become drier with climate change is detrimental to the rare and endangered wildlife. The level of unjustified attention given to grazing in Alternative 2 undervalues Carrizo's wilderness qualities and may close the door to future management flexibility that ungrazed land could offer.

Response: Maintaining flexibility is a goal in selecting the proposed plan alternative. Application of the proposed goals and objectives, and the grazing management guidelines of the Conservation Target Table in particular, are expected to minimize any conflicts. The goal in Section 2.15 applies to all alternatives: manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes forage; or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation. See also response to Comments 3-4 and 3-8 et al. on page 5-86 in this section.

Comment Number: 55-1

Comment: I strongly disagree with the preferred option of allowing livestock grazing, even as a vegetation management tool, in any area that contains listed, sensitive, rare, special status plant taxa that are considered by reputable groups (e.g., USFWS, CNPS, Center for Biological Diversity) to be negatively impacted by livestock activities, especially where scientific studies have documented these negative impacts. As presented in the draft Plan, BLM has not demonstrated that they can protect these plant taxa or their habitats from the detrimental effects of livestock, especially those taxa that are not acknowledged in the draft Plan and those that are not mapped.

Response: The RMP acknowledges the uncertainties regarding grazing, and calls for its use as a tool only under specific circumstances. The plan also calls for continued studies/monitoring to determine through an adaptive management approach, what, if any level of grazing is necessary in the long term to achieve wildlife habitat restoration objectives. Finally, the RMP analysis recognizes that there are tradeoffs – management that is beneficial for certain species will be detrimental to others, and includes measures to reduce negative impacts to CPNM rare plant populations from livestock in areas where grazing is used as a tool for wildlife habitat restoration. The establishment of core areas for management of sensitive wildlife species will help target use of habitat restoration tools. For the Section 15 grazing allotments, the RMP follows existing BLM policy as directed by the Proclamation. The RMP establishes reduced grazing levels and more

restrictive land health objectives than current management to protect the objects of the Proclamation, including special status plant species. If monitoring indicates that grazing of these allotments is in conflict with the RMP objectives, the grazing authorization would be modified or discontinued at that time. Any decision to cancel these existing (Section 15) leases without specific monitoring data or sufficient cause would be a violation of the federal grazing regulations.

Comment Number: 55-34

Comment: Livestock grazing is among the anthropogenic factors that have altered the role of fire in western North America. Post-fire livestock grazing can delay recovery of burned areas, and should not be permitted in burned areas until vegetation recovery has occurred.

Response: See Section 3.2, General Botanical Setting, for information in the RMP/EIS on grazing as a factor in the role of fire. All burned areas will be assessed for emergency stabilization and rehabilitation needs (see Section 2.5 Fire and Fuels Management). Exclusion of grazing from burned areas is consistent with emergency stabilization and rehabilitation policy (BLM Handbook H-1742-1) and is outlined in the Central California Guidelines for Livestock Grazing Management, as follows:

Guideline 10: Periods of rest from livestock grazing or other avoidable disturbances should be provided during/after episodic events (e.g., flood, fire, drought) and during critical times of plant growth needed to achieve proper functioning conditions, recovery of vegetation, or desired plant community. (See Appendix E.) Post burn monitoring results, following both wildfire and prescribed fire, will provide the basis for decisions regarding future management activities in burned areas, including the application of grazing, based on the adaptive management framework outlined in the CPNM plan.

Comment Number: 66-10

Comment: Despite solid evidence to the contrary, the Carrizo Plain's managers insist on perpetuating lore about the value of livestock grazing as a vegetation management tool. Because this ideology is so thoroughly integrated into Alternative 2, it is clear that grazing is perceived as much more than an option that should be kept on the table for the future. Only 33,100 acres will be unavailable for any livestock grazing, but the DRMP does not provide a logical rationale for differentiating between the two categories of land available for grazing (available vs. available only for vegetation management).

Response: See response to Comment 22-3 et al. on page 5-97 in this section.

Comment Number: 89-6

Comment: As the base property owner of allotments 00031 and 00044, and as the owner of many hundreds of acres within the Monument, it is of great importance that we work in conjunction with BLM, if BLM wants to achieve the most advantageous environmental conditions in the greatest area.

Response: BLM recognizes the benefits of working with our neighbors to collaborate on mutually desirable goals of healthy ecosystems that support the mission of the Monument. We are dedicated to this effort as is shown in our many public meetings, advisory committees, and

consultations with affected parties as we develop this proposed plan and future actions. Private property inholders are a critical part of the success of this effort.

Comment Number: 89-7

Comment: We are in agreement with the preferred action to support livestock grazing as an allowable use of livestock forage within the boundaries of the Selby Ranch and Sulphur Canyon grazing allotments.

Response: Thank you for your comment.

Comment Number: 89-11

Comment: It has also been asserted that it is necessary to show that continued grazing needs to support protection of Monument objects. There is no such requirement and there, furthermore, is no valid evidence that grazing has damaged Monument objects.

Response: Discontinuation of grazing was analyzed under Alternative 1. Based on our analysis of all the impacts of the various actions in each alternative, Alternative 2 has been selected for the proposed RMP. This alternative allows for continued grazing of Section 15 leases as long as monitoring indicates that this does not conflict with other management objectives. On the vegetation management pastures, grazing would only be used in very specific circumstances to meet objectives for habitat restoration. Grazing may be discontinued in some cases if the grazing lease is relinquished, or if evidence accumulates that grazing is damaging objects of the Proclamation.

Comment Number: CBD-1

Comment: Livestock grazing is a poor substitute for native herbivory (e.g., by elk or pronghorn) in grasslands, and if implemented, it MUST be done with a full, indefinitely long future commitment to intensive monitoring and flexible management of the livestock, in terms of allotments, timing, sites, and infrastructure (e.g., fencing). The hazard of removing livestock where they've already effected type conversion of habitat lies in the likelihood of subsequent nonnative plant species invasions in some areas - this should be assessed in a very detailed site-specific basis.

Response: Comment noted. The RMP includes a commitment to develop a monitoring plan as an initial priority of plan implementation.

Comment Number: WS-1

Comment: I think you need to reestablish year round grazing. It is grazing for the last hundred years that kept the grasslands in good condition. It has taken a much turn for the worse since removing grazing. Book learned Biologists don't know this country like locals that have lived and worked for decades.

Response: Comment noted.

5.8.14.2 Livestock Grazing – Affected Environment

Comment Number: 33-4

Comment: EPA recommends that the FRMP/FEIS discuss the results of the Rangeland health assessments and describe the criteria used to determine if the areas are properly functioning.

Response: See Section 3.14 Livestock Grazing and Appendix L Rangeland Health Assessment and Determination Form - Bakersfield.

Comment Number: 33-5

Comment: The FRMP/FEIS should display the percentage of actual grazing use that has occurred during the past five years for each allotment.

Response: See Appendix N which lists actual grazing use by pastures in allotments within the vegetation management units since 1989. Current actual use data for the 2007-2008 grazing season have been added to the appendix. Actual grazing use is only collected on the North Temblor allotment of the Section 15 grazing allotments. Those data are not compiled in a format to be able to include in this level of a plan; however, if needed, it can be shared with outside parties. The authorized use levels on Section 15 allotments are listed in Table 3.14-1 and in the Grazing Implementation Table in Appendix R.

Comment Number: 85-2

Comment: There appears to be a lack of understanding and recognition of the past and potential contributions of the surrounding ranching industry to the overall Carrizo Plain environment (inside and outside of the Monument).

Response: The contributions of the ranching industry to the character of the Monument, as evidenced by historic ranches and artifacts, are specifically mentioned in the Proclamation and addressed in the cultural resources sections. The section on Social and Economic Conditions (3.21) describes current contributions of industry and groups to economies and communities. Section 3.21.1.2 Communities of Interest further describes communities of interest and specifically details ranchers and farmers as well as grazing leaseholders. Employment sectors including agricultural were detailed for each county. Market and commodity values were described with livestock grazing and ranching being of particular importance to the region. Specific information on grazing fees and contributions is also included, as well as assessments of county possessory interest taxes.

5.8.14.3 Livestock Grazing – Environmental Consequences

Comment Number: 55-36

Comment: BLM needs to consider the impacts of specific grazing characteristics, including focus of animal activities around scattered sites that provide the only available water, optimum grazing radius, avoidance of steep slopes, and need for shelter, and the impact of these parameters on stocking rates.

Response: Although the current Conservation Target Table uses RDM as one measure to initiate management action, this plan does not restrict BLM to the RDM method. RDM is a measure with

which BLM is familiar and was used extensively in the grazing study. For most BLM lands, RDM measurements are used to inform grazing decisions by estimating the production of forage. The commentator is correct in that RDM does not provide information on the composition and diversity of native vegetation. In management discussions with the Carrizo partners (TNC, CDFG) and in the formulation of the Conservation Target Table, the problems with RDM were noted and a desire expressed to develop more biologically appropriate measurements. As adaptive management, this is an ongoing process and it is expected that more useful metrics can be developed to access and manage specific biological resources.

Comment Number: 64-4, 75-4, 81-4

Comment: BLM should analyze the impacts of livestock grazing to plant and animal species and ecosystems in the mountains of the Monument.

Response: The CPNM managing partners are initiating a study to evaluate livestock grazing in the mountainous subregions of the Monument. Specific resource questions and hypotheses will be identified and tested that will inform management to benefit native species and ecosystems. This information will be applied within the adaptive management decision-making process proposed in the plan.

Comment Number: 89-3

Comment: Assuming that livestock grazing on allotments 00031 and 00044 remains an allowable use, it will not preclude BLM from further management of the property, nor will it reduce BLM authority to close an area of the allotment to grazing use or take other measures to protect resources if needed. BLM will maintain its responsibility. Grazing leases are not free and rent is paid.

Response: That is correct. The federal grazing regulations at 43 CFR 4100 provide BLM direction to administer grazing leases in a manner that promotes healthy sustainable rangeland ecosystems and accelerates restoration and improvement of public rangelands to properly functioning conditions.

5.8.15 Recreation

Comment Number: 12-1

Comment: Certainly the Monument was set up to create sustainable integrity of a fragile ecotome as well as the public's use. There should be an equitable balance here. To overly restrict public access would be to diminish the component of personal experience that hopefully would equate into a better understanding and appreciation of wild places. Taking a "hands off" approach to this issue would eliminate a broad band of the public.

Response: The proposed plan alternative provides this balance by placing some imitations on the types and locations of permitted public use while still encouraging access and providing opportunities for enjoying objects of the Proclamation.

Comment Number: 12-3

Comment: You might consider taking a couple of docent-led vehicular visitations per year to the Caliente Ridge.

Response: The proposed RMP establishes an objective for providing additional environmental education opportunities. Guided trips to areas such as Caliente Ridge could be included as a program contingent on public interest and staffing levels.

Comment Number: 12-4

Comment: You should make a portion of the fault area accessible, possibly the offset area.

Response: There is currently an interpretive trail at Wallace Creek to allow the public to view the offset of the fault. This site would continue to be available under the proposed RMP.

Comment Number: 12-5

Comment: Trailage should be enhanced, possible utilizing the young people from the C.C.C.

Response: The use of the California Conservation Corps (CCC) or other organizations is an implementation action and is outside the scope of this plan. However, BLM routinely works with the CCC on projects and will consider their use in the CPNM.

Comment Number: 12-6, 21-1, 26-4, 27-13, 27-14, 27-15, 27-16, 49-3, 63-6, 69-5, 71-13, 84-2, 92-1

Comment: Hunting, whether game or otherwise, disrupts the natural scheme of the environment. Any hunting on the Monument is beyond any rationale of ecological integrity. Hunting has a direct, not secondary, effect on our faunal environment. Please do anything you can to stop any hunting on any land the Monument has influence over. I will never be able to reconcile how it is that collecting a rock on Monument land is a crime but blowing away a quail or elk is O.K. The concept of allowing hunting is abhorrent. There are increases in the number of hunters that frequent the Monument and the amount of illegal target shooting, poaching, and the off-road violations that accompany the hunting is increasing; there are also an ever growing number of visitors that refer to the CPNM as a "park" and come to use the CPNM for activities that are not compatible with hunting - as these two groups continue to grow in numbers, the possibility for conflicts and even potential loss of life grows. Much like grazing, the time frame of the plan does not deal with this as adequately as needed. Steps should be taken now to limit, or phase out, hunting from the national Monument. If CDFG no longer was an overseer of the site, hunting would be banned and deer and elk could roam without someone killing them. Hunting should come secondary in importance at CPNM, if at all. Protect Carrizo from hunting and target shooting.

CDFG should prohibit varmint shooting in the Monument; squirrels and coyotes are part of the naturally functioning ecosystem protected by the Proclamation. The only hunting permitted should be for game animals or birds that have a defined and limited season. To enforce this, there should be no gun fired unless person has a license (and perhaps tag) for game animal in season; it is difficult to cite target shooters who claim they were shooting ground squirrels. Feral pigs could be subject to hunts if their numbers became a problem. We favor a ban on target shooting and a prohibition of hunting except for game species in season; too much gunplay would hamper public enjoyment of the area and jeopardize the endangered wildlife for which the Monument was established. Impacts from hunting on cultural resources should be closely monitored, and BLM should adjust the hunting program including, if necessary, gradual reduction or elimination of hunting.

Response: The proposed RMP would eliminate the hunting of non-game species (varmint hunting) within the CPNM. The hunting of game species would continue with limits placed on harvest levels by CDFG to ensure that wildlife population levels are maintained. BLM and CDFG will continue to educate hunters and other users of the CPNM to minimize potential conflicts during established hunting seasons.

Comment Number: 12-20

Comment: These fossils (see Comments 12-17/18/19) or a caste thereof would be a valuable addition to the educational exhibits on the Monument.

Response: The proposed RMP includes objectives to interpret objects of the Proclamation including paleontological features. The education center will continue to be a focus of interpretation at the CPNM and the addition of paleontological exhibits would serve to implement plan objectives.

Comment Number: 13-42, 13-43, 42-3, 83-5

Comment: BLM should address the relationship between CDFG hunting targets and the Conservation Target Table population ranges for pronghorn and tule elk. The RMP should establish a plan for ensuring that hunting does not interfere with protecting Monument objects, including game species. How could any population be expected to grow and prosper if 18 out of 139 male pronghorn are killed through hunting (a benefit to a few)? Hunting of pronghorn and elk should not occur on the CPNM until target populations in the RMP are exceeded; you would think this would be obvious, but apparently it is not.

Response: The Conservation Target Table is the foundation of adaptive management to be used to implement management objectives identified in the RMP. As one of the managing partners, CDFG has committed to ensuring any actions such as hunting targets, herd objectives, or other game-related issues will be compatible with the protection of the objects under the Proclamation. Although the RMP establishes population objectives, the determination of hunting targets remains under the jurisdiction of CDFG and the California Game Commission and is subject to state Game Commission procedures for approval.

Comment Number: 13-44

Comment: The RMP should prohibit the use of lead bullets to protect condors.

Response: The state of California has passed a law banning the use of lead bullets in California condor habitat, which includes all lands within the planning area.

Comment Number: 27-12

Comment: A good/improved web site should provide a prominent link to requirements for all visitors with camping regulations, travel restrictions, hunting and shooting prohibitions, as well as areas and dates of closure; this should also be posted at kiosks and at visitor center. When confronted about a violation of regulations, no one should be able to pretend that “I didn’t know.”

Response: BLM recognizes the importance of providing quality visitor information and the RMP includes an action to develop a comprehensive communications program for the CPNM. This would include improving web-based information.

Comment Number: 27-17, 27-18, 27-19, 63-6, 69-5

Comment: Camping should be limited to 14 days. Section 2.16.6.3 should state that no target shooting is permitted. Section 2.16.6.4 should state that permits are required for groups exceeding 20 persons.

Response: The aspects of the no action alternative that were pointed out pertaining to camping stays, target shooting, and recreation permits will be brought forward in the supplementary rules in the proposed RMP. The proposed RMP would eliminate the hunting of non-game species within the CPNM.

Comment Number: 27-20

Comment: The final RMP ought to be clear about permit needs for fires, barbeques, charcoal grills, and cooking stoves at public campgrounds vs. backcountry sites, especially during portion of year when Visitor Center is closed and it becomes very inconvenient to get one; need for permit for a gas stove in one of the large camping areas seems unclear.

Response: Campfire permits are not required for fires within developed camping areas in BLM-constructed fire rings or grills, or for the use of camp stoves in these same locations. Permits are required for use of stoves, grills, or fires in other locations. Public information regarding fire permit requirements describes where they are needed.

Comment Number: 49-4

Comment: Maybe a small camp area could be allowed at the Visitor Center.

Response: BLM currently maintains 2 campgrounds in close proximity to the education center (approximately 3.5 miles). Visitor demand at this time does not call for additional facilities.

Comment Number: 49-6

Comment: Set up a toll booth to collect a per-car charge when the wildflowers are in bloom and use the money to maintain the Carrizo.

Response: BLM can consider charging fees where appropriate under the *Federal Lands Recreation Enhancement Act* of 2005 (FLREA). At this time no entry fees are envisioned for the CPNM. The main access roads through the Monument are county public roads and not under BLM's jurisdiction. This RMP would not preclude the charging of site fees in the future if they meet the requirements of FLREA.

Comment Number: 83-4

Comment: I urge that more be done to encourage hunters to pick up after themselves (spent shells, beer cans, etc.); the use of 3- and 4-wheeled ATVs by hunters and others should be banned because too often they are driven off of established dirt roads. The DRMP/DEIS needs to include a provision to close hunting on the CPNM if problems with hunters continue, or if the CDFG fails to adopt hunting regulations that are protective of CPNM resources.

Response: BLM works with the CDFG to manage hunting use on the CPNM. The RMP includes an action to eliminate varmint (non-game) hunting on the Monument. If future monitoring indicates that game hunting is impacting Monument resources, additional hunting limitations would be considered.

Comment Number: 66-27, 71-12, 71-13, 83-3

Comment: I urge that more be done to encourage hunters to pick up after themselves (spent shells, beer cans, etc.). Ensure that all recreational users receive information on the protection of cultural resources, the consequences of intentionally or inadvertently removing artifacts or damaging sites, and the presence of enforcement patrols and site monitors. Hunters should be required to obtain permits that require their agreement not to collect artifacts or otherwise damage cultural resources. Impacts from hunting on cultural resources should be closely monitored, and BLM should adjust the hunting program including, if necessary, gradual reduction or elimination of hunting. Lead and micro-trash pose problems for condors and other species – BLM needs to do a better job of informing hunters what is expected of them if they are to hunt here; I suggest better signage, handouts, and enforceable policies in the RMP; and would be nice to conduct hunter outreach programs in SLO and Kern Counties.

Response: BLM recognizes the importance of providing opportunities for the public to visit the CPNM while limiting their impacts on objects of the Proclamation. The recreation program includes education objectives with a use ethics component.

The RMP states in Section 4.10 that activities associated with inadvertent disturbance by recreational visitors, which includes hunters, are generally dispersed and do not require permitting and that discovered impacts would be mitigated on a case-by case basis. Forms of mitigation could include emergency closure of sensitive or affected areas, as stated in Section 2.11. Text was added to Section 4.10 indicating that additional signage will be posted at information kiosks, Monument entrances and other appropriate locations inform visitors of *Archaeological Resources Protection Act* regulations and violation consequences.

Comment Number: 82-4

Comment: Propose a visitor's center at the south end of the Monument, somewhere near Hwy. 166 (while retaining the Goodwin Education Center); this is the most-traveled road near the Monument, and the entry point for most visitors.

Response: The current visitor center is located near the most popular locations on the Monument. BLM is working with gateway communities to provide additional information services for visitors entering the Monument. At this time no visitor center is planned at the south end of the Monument. However, the RMP would not preclude consideration of additional information locations if demand indicates the need.

Comment Number: 84-5

Comment: The present "primitive" camping grounds should remain so, to maintain the wilderness quality.

Response: The areas that are open to dispersed camping will remain open unless there is damage to resources due to the camping. In that case, BLM would limit dispersed camping as stated in the recreation section of Alternative 2.

Comment Number: 87-1

Comment: The RMP/EIS should analyze the need for off road recreational opportunity in the planning area. BLM's management direction is for multiple use, including ORV recreation. There have been significant reductions in ORV recreational opportunity in Central California and the Bakersfield District manages only a tiny fraction of its lands for OHV recreation. The CPNM set aside 246,000 acres for resource conservation and preservation of wilderness characteristics; only limited opportunities for vehicular travel on designated routes within the Monument remain.

Response: The Monument Proclamation prohibits the use of vehicles off of existing roads. The Bakersfield RMP, currently under development, is considering the need for additional off-highway vehicle recreation opportunities on public lands in the region.

Comment Number: 87-2, 87-3

Comment: The effects of reduced off road vehicle opportunity should be described in the document as part of the direct and indirect effects analysis. Displacement of off road recreation to adjacent areas should be considered as part of the cumulative effects analysis.

Response: Chapter 4 describes the effects of implementing the recreation management goals of the RMP, including impacts on regional opportunities. The Bakersfield RMP, currently under development, includes an alternative for providing OHV riding opportunities to the east of the CPNM.

Comment Number: CBD-3, WS-2

Comment: Invest in some added guides and facilities that will attract more tourists. When I went there, there was nothing more than a little shack that was supposed to be a visitor's center. Even though I was there at the hours it was posted to be open, it was closed, with no sign or explanation whatsoever. With all due respect, I don't think your bureau really knows what to do with this place. It should be transferred over to the NPS, who know how to use this land to attract visitors who value to conserve, not exploit, the land. The way it is managed should be to encourage visitor use, too. BLM can focus on maintaining access by not closing roads, and other facilities, and reestablishing natural vegetation.

Response: Comment noted. The CPNM is managed to protect objects of the Proclamation while providing compatible recreation opportunities. Public comments generally support retaining low-key rustic facilities within the Monument. This general view is reflected in the proposed plan alternative, which does not propose significant facility expansion. BLM volunteers do provide guided tours to areas such as Painted Rock, and the proposed plan alternative calls for providing additional environmental education opportunities.

5.8.16 Travel Management

Comment Number: 3-3, 3-14, 3-15, 9-11, 16-1, 20-3, 21-2, 23-2, 26-1, 28-6, 30-1, 36-4, 43-1, 47-3, 48-7, 63-2, 64-7, 65-1, 67-1, 69-3, 70-4, 86-2, 90-3, 92-1, 94-7

Comment: The wilderness areas proposed in Alternative 1 should be closed to ORV traffic, so the vehicles will do no damage to the wilderness qualities or wildlife habitat values. Reduce the road network to a level that meets the needs of the public and BLM's needs for management.

BLM should have analyzed an alternative that would eliminate all ORV use to protect resources from their impacts, many of which are disclosed in the Draft RMP/EIS. I hope the roads will be closed, especially to ORVs. We prefer Alternative 1, which states that only street licensed vehicles would be allowed in back and front country zones; no green or red sticker vehicles would be allowed [commenter summarized range of potential impacts]; in our opinion, OHVs are incompatible with the mission of the CPNM. The idea that roads are necessary is wrong. Roads and ORV routes should be cut back to those necessary for public access, as in the national parks; the Caliente Mountains road should be reserved for administrative use only, and all routes in the “primitive zones” should be closed to ORVs to protect their wilderness character. I am an avid motorcyclist, but the Carrizo Plain is NOT the place for off-road vehicle use, due to impacts that include damage to sensitive habitat, which signage and law enforcement are not sufficient to address; OHV use within the National Monument is not consistent with direction laid out by the Presidential Proclamation. Reduce the number and miles of roads in Carrizo and prohibit all non street legal vehicles; no open areas for ATVs. The road into Caliente Mountains should be closed to public traffic. “Open” routes in primitive zones shown in Map 2-3 should be closed to motorized and mechanical vehicles.

Response: The Monument Proclamation states that BLM “shall prohibit all motorized and mechanized vehicle use off-road, except for emergency and authorized administrative purposes.” Since the Proclamation already eliminates vehicle use off-road, this issue has already been addressed. The Proclamation also states that BLM shall “prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this Proclamation.” The travel management section of the RMP analyzed a range of alternatives that varied the both the road mileage open to public access and the types of vehicles permitted. An alternative that closed all BLM roads to all vehicles was not addressed as the existing alternatives are interpreted to meet the direction of the Proclamation which is clear in limiting but not excluding vehicles from the Monument. Alternative 1, which only allowed street-licensed vehicles on Monument roads, has been carried forward as the proposed plan alternative (with a minor allowance for continued green sticker vehicle use along the northeast boundary).

The Caliente Mountain WSA and all lands to be managed for wilderness character under the RMP would be closed to public motorized vehicle use. See Appendix H, Management of Lands with Wilderness Character.

BLM completed a travel management survey during the early stages of the RMP process that included looking at maps, aerial photography, and ground truthing. The existing routes were considered in developing each of the plan alternatives, which provide travel networks for public access while protecting important natural and cultural resource values. Input received during the comment period on the Draft RMP resulted in several changes to the route network for the proposed RMP, which is shown on Map 2-3. BLM feels that the proposed network balances public access with protection of the objects of the Proclamation.

The planning team feels that the route network in Alternative 2 (with minor corrections and adjustments based on public comments) best meets the need for protecting objects of the Proclamation while providing public access for enjoying Monument resources.

Based on public concerns, the planning team reconsidered the alternatives regarding whether non-street-legal vehicles are an appropriate use that should continue to be permitted on BLM roads within the Monument. Based on these concerns, the recreation management goals in the Monument, and the potential for increased vehicle use off of existing roads as public use grows, Alternative 1 was selected for the proposed plan alternative regarding the type of vehicle use

permitted in the Monument: only street-legal vehicles will be permitted on the BLM road network.

One exception to this requirement will be the Temblor Ridge Road where ATVs and other green and red sticker vehicles will continue to be permitted. The Bakersfield RMP, which affects public lands adjoining the CPNM, is proposing an area to the north of the Monument that will be available for touring in green-red sticker vehicles. Allowing use on the Temblor Ridge Road will permit these visitors to view the Monument from the ridgeline. Street licensed four-wheel drive vehicles and motorcycles will be permitted to use BLM roads under the proposed plan alternative. Also, the RMP will allow for use of green-red sticker vehicles on the BLM road network by visitors with disabilities (under BLM permit).

BLM will continue to monitor use of vehicle routes (ways) within WSA to ensure that their use conforms to the Interim Management Policy for Lands under Wilderness Review. All roads within the WSA and within the areas to be managed for wilderness character are closed to public access under the proposed RMP –Also see Appendix H, Management of Lands with Wilderness Character. There are exceptions for emergency and certain administrative/permitted use.

Comment Number: 5-2, 5-3, 5-4

Comment: Ensure that at least the 124 miles of road remain open to vehicular traffic, both street-legal and red/green sticker – please keep the public informed, and all the roads and trails open; there is enough wilderness that is virtually not accessible by motorized vehicles. Motorized transport is the only method of transport for many people, whose personal physical limitations are now enhanced by ATVs. Volunteers will increase “policing” the areas where “stay on the trail” violators are if those types of events become issues.

Response: Although the proposed plan alternative does not allow for non-street licensed vehicles (green-red sticker vehicles), an exception is allowed for visitors with physical limitations, who will be allowed to access the BLM road network under permit.

Comment Number: 13-7, 13-8, 13-9, 13-10

Comment: The RMP must acknowledge the possible damage from permitting public motorized access in the Caliente WSA and the benefits to wilderness values from limiting such access. BLM must monitor the WSA to ensure illegal motorized routes are not being created and maintained by users. Closure and restoration of all motorized ways in the Caliente WSA is most consistent with the IMP and with protection of the other natural and cultural resources in the CPNM. For the roads that will be maintained, the RMP should show a compelling reason as to why it is necessary for the way to be open, even if it is solely for administrative purposes.

Response: As stated in Section 2.2, “Limited use roads located within areas to be managed for wilderness character will be used for administrative purposes only when non-motorized access is not feasible for specific projects (such as repairs that require heavy tools and materials). Closed routes will be rehabilitated or converted into non-mechanized trails.” BLM will monitor both WSAs and areas managed for wilderness character. If user-created roads and trails are discovered, they will be closed and rehabilitated.

Comment Number: 13-17, 27-9

Comment: The RMP must set out reasons for allowing use of motorized vehicles by the holders of grazing leases, an explanation of how it is consistent with the Proclamation, a monitoring plan for ensuring that Monument objects are being protected, and detailed descriptions of the conditions in which motorized use is envisioned – this is especially true if BLM contemplates permitting motorized use off designated roads for herding or maintenance of fences and other utilities. The plan needs to specify a policy regarding use of ATVs to travel cross-country in herding of cattle, use of ATVs or other vehicles in maintaining fences, and use of ATVs on visible mountain trails not listed in the travel designation plan.

Response: Vehicle use by permittees will be managed to conform to the objectives of the RMP. Grazing permits and other authorizations will include specific stipulations that limit vehicle use to the minimum necessary to implement the authorized uses. Site-specific analyses, including requirements for conformance to the RMP, are beyond the scope of this plan and would be completed during the authorization process.

Comment Number: 13-36

Comment: BLM must adopt an alternative that actively reduces the impacts to cultural resources from illegal ORV use.

Response: As stated in the proposed plan, impacts to cultural sites by vehicles are expected to be minimal. All vehicle traffic in the Monument is limited to existing roads, and the proposed plan states that during regular site monitoring, impacts from vehicle use will be considered (Section 2.11) and mitigation measures such as road closure, rerouting or capping will be implemented (Section 4.10).

Comment Number: 13-38, 13-66, 90-3

Comment: BLM must adopt an alternative that will support wildlife viability as required by the Proclamation, in terms of addressing travel management's landscape-wide impacts from roads and fences. The effects of climate change will damage the functioning of soil and its ability to support native vegetation. BLM should consider limiting motorized vehicle use seasonally and after storm events when solid erosion is often most severe and should consider closing specific motorized vehicle routes if severe erosion patterns develop. ORVs should be prohibited in all Primitive zones and in important wildlife habitat areas; the Caliente Mountains road should be closed to public travel as it penetrates one of the largest Primitive zones on the Monument.

Response: BLM considered cultural and natural resource values and impacts when identifying the travel network. No new roads are proposed under the plan, and roads that will impact resource values will be closed. The plan also has a maintenance program and temporary closure action to minimize impacts during wet periods.

Comment Number: 13-39

Comment: BLM should provide supplemental information and analysis on the proposed travel network, including demonstrating compliance with the Proclamation and regulations, and provide a public comment before the final RMP.

Response: The proposed plan alternative identifies a specific travel network that conforms with 43 CFR 8340, which directs BLM management of off-road vehicles. Chapter 4 includes an analysis of foreseeable impacts from the designations contained in the proposed plan alternative. BLM feels that these designations and corresponding analysis meets the intent of the Proclamation.

Comment Number: 3-16, 13-41, 27-2, 27-21, 27-24, 27-27

Comment: Many of the undersigned, partner organizations, and members have spent a lot of time “ground-truthing” the maps and route designations in the Draft RMP. BLM should give special consideration to the valuable information in these specific recommendations, detailed in the comments submitted by Craig Deutsche of the Sierra Club [Commenter #27]. We support the closure recommendations submitted by Craig Deutsche [Commenter #27]. The points made by Commenter #27 include the following relevant to travel management that are not listed elsewhere:

- Internal roads in all primitive areas should be “closed” with the exception of roads absolutely required for grazing, which could be designated as “limited.”
- Many roads in the travel management plan are designated as “limited,” but no further explanation is given (by season, type of vehicle, administrative use only, other specific uses?) If these details cannot appear in the RMP, there should be a target date for completion and they should be subject to public review.
- Roads that access non-serviceable guzzlers should be closed.
- Detailed comments about route designations were submitted to BLM [by Commenter #27], along with a large map showing specific locations. In some instances, the route designation map was incorrect – the indicated road did not exist on the ground, or alternatively a very visible road existed that was not on the map. These corrections ought to be incorporated into the GIS layers for the Monument. Other comments propose changes to route designation where it would be extremely difficult to close a road in practice, where a road that appears necessary for reasonable access was marked closed, or where a road was in such poor condition that an “open” designation seemed inappropriate.

Response: Responses to specific items in Comment 27-27; these are specific comments related to a map, which has been updated to reflect commenter’s concerns where possible. However, several routes identified for closure are not reflected in the proposed plan alternative as they provide required access to power line, private lands, or other issues.

- Comments 27-27.006, .007, .009 .010, .020 - Route may be difficult to close because of the topography of the land.
Response: The open and moderate terrain makes route closure difficult without visitor compliance. BLM will use a combination of signing, visitor education, and law enforcement to reduce vehicle trespass off of existing roads.
- Comments 27-27.027, .043, .125, .193, .288, .267 - Road not on map
Response: If the road is not on the map it is not a road and will be actively rehabilitated.
- Comment 27-27.098 - Road is redundant
Response: One of the roads has access to private land so both roads will remain open.
- Comment 27-27.130 - Could not find road
Response: Road goes to a power line. It may be faint but it needs to remain for administrative purposes.

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- Comments 27-27.130, .139 - Road should have a change of designation.
Response: BLM agrees and the road will have the changed designation on the proposed plan.

BLM has decided to re-open the road on the south end of the Elkhorn Plain going up to the Temblor Ridge, and will close the road heading up to the microwave tower further north on the Temblor Ridge road.

The proposed RMP has been revised to clarify the “limited” route designation:

The vast majority of the roads within the Monument that are designated as limited are available for administrative uses, public foot, equestrian, and non-motorized traffic (such as mountain bikes). Administrative uses are defined as uses conducted by the BLM or authorized individuals to carry out the purposes of the Monument Proclamation and the actions and uses approved under this plan. No public recreation use would be permitted.

The following routes are exceptions: to the above limitations

- Any road within ¼ mile of the Washburn Administrative Site is closed to all public access except for specific events authorized by BLM.
- The road between the Goodwin Education Center and Painted Rock would remain closed to all public use from March 1st to July 15th to protect nesting birds.
- Roads (and trails) within the Caliente Mountain WSA and areas identified for management for wilderness character would be closed to motorized uses and mechanized uses such as mountain bikes.

Comment Number: 34-2

Comment: Alternative 2 will allow adequate access for general use by the public.

Response: Thank you for your comment.

Comment Number: 62-1, 62-2, 77-1, 77-2, 87-6

Comment: A trip to the Plains is at minimum an all day affair for most people. Once there, a huge beautiful expanse awaits exploration, but only by those with either a motorized vehicle or several days to spare to explore by foot or horseback. A Wilderness designation in any area will eliminate reasonable access to the majority of the public. I have seen roads and trails become overgrown because people frequent the area less often after a Wilderness designation. It is not practical for most people who want to explore the entire Monument to do so by foot or horse; it is far too vast an area – I hope that the many roads within the Monument can remain open to motorized traffic. I am writing this letter in regards to keeping as much land as possible open, for our families and friends to enjoy while enduring one of the true last outdoor activities - Off Highway Vehicle Use. Millions of OHV users pay a yearly fee in order to enjoy using their vehicle and by closing down more areas, all that is being accomplished in cramming all of us in a smaller area, causing more accidents and severe damage to the land. Raising our green and red sticker fees is one way to help generate funds for proper trail maintenance and to ensure staffing levels. We contend that Alternative 3, with 322 miles of route open to green sticker registered vehicles, preserves hunting access unaffected as specified in the Management Direction, therefore 322 miles of “open” route is the minimum mileage that should be designated.

Response: While designing the travel network for the CPNM, BLM considered the need to provide opportunities to explore the national Monument by vehicle. Roads were closed if they were redundant to other nearby routes, or if they impacted recreation, wilderness, or resource

protection objectives. Poorly designed routes that that were unsafe were also closed for the safety of visitors. 268 miles of roads remain open for visitor use under the proposed plan alternative.

The additional acreage to be managed for wilderness character will result in the closure of certain routes to public use. The RMP continues to provide access within the Backcountry Zone for licensed motorized vehicles. Also, the Bakersfield RMP, currently in development, is proposing to provide opportunities for riding and exploring (including for “green sticker” (non-street-legal) vehicles) immediately adjacent to the Monument.

Comment Number: 66-18

Comment: Carrizo’s dirt roads would require less maintenance if the heavy vehicle use associated with transporting and managing cattle no longer occurred.

Response: Comment noted.

Comment Number: 66-26

Comment: A vehicle speed limit should be posted and enforced on Soda Lake Road and possibly some of the well-traveled secondary roads. In addition to some roadside signs alerting drivers to the presence of snakes and small mammals, this could do a lot to reduce the number of road kills.

Response: Soda Lake and several other primary travel routes within the CPNM are not under BLM jurisdiction. However, an action has been added to the travel management section of the RMP to establish reduced speed limits on appropriate BLM roads and to work with the county to establish appropriate speed limits to provide for visitor safety and reduce wildlife impacts.

Comment Number: 66-27

Comment: The use of 3- and 4-wheeled ATVs by hunters and others should be banned because too often they are driven off of established dirt roads.

Response: The proposed RMP incorporates the direction contained in Alternative 1 that only allows for the use of street-legal vehicles on BLM managed roads.

Comment Number: 78-1, 78-2

Comment: The Monument should be maintained in as natural a state as possible. The roads should not be paved.

Response: The only paved road in the Monument is the northern portion of Soda Lake Road, which is a county-managed road. The proposed RMP calls for dust abatement on BLM roads and paving of very short segments to protect cultural resources, but no major paving is proposed.

Comment Number: 87-5

Comment: The RMP DEIS should include documentation of OHV trespass if it is an issue, and should state it is not an issue if there is no such evidence.

Response: BLM recognized that illegal use of vehicles off of existing roads occurs within the CPNM. The travel management actions in the RMP, combined with an increased law enforcement presence, should reduce the impacts of this illegal use.

Comment Number: 87-7

Comment: Changes should be made to the Carrizo route system to coordinate travel management planning with adjacent areas, including routes that would abruptly end at the Monument boundary, Section 15 grazing leases, and motorized access to non-motorized recreation such as hunting, horseback riding, hiking, and mountain biking.

Response: The staff of the CPNM is taking into consideration the road networks of the surrounding areas. Since the DRMP there has been coordination with the Bakersfield RMP team to make sure there is continuity with the road networks of the surrounding areas, especially with the land to the north of the Monument. The Bakersfield RMP will complement the Carrizo RMP by providing opportunities not available on lands within the CPNM.

Comment Number: 89-1

Comment: We object to the rehabilitation of the road to Morales Canyon as that is the only access to one of the best water sources and forage areas on the allotments. Since BLM personnel profess to know nothing about who authorized the installation of a barrier to the road, we suggest that barrier be removed and the road be repaired to provide access for BLM personnel, base property landowners, and holders of the grazing allotment.

Response: BLM has left Morales Canyon a limited road for administrative use, which would include lessees if they needed to access the grazing improvements in the canyon.

Comment Number: 89-4

Comment: The only through road from Highway 166 directly to the CPNM provides BLM with access as a condition of two grazing leases (Selby Ranch and Sulphur Canyon); this right to pass might be revoked if the leases were terminated.

Response: Comment noted.

5.8.17 Minerals

5.8.17.1 Minerals – Alternatives

Comment Number: 3-10, 23-3, 26-2, 30-6, 36-2, 47-1, 63-5, 69-4, 82-1, 84-7, 86-3, 90-4

Comment: We commend BLM for suggesting the acquisition of privately owned mineral rights at Carrizo, but we would beef up the proposal by including a full range of authorities, including the use of eminent domain and exchange for other leasable acreage. The plan must include steps to accelerate the acquisition of oil, gas, and mineral rights within the boundaries. BLM needs to work to buy out privately owned mineral rights and/or trade mineral rights within the Monument for rights of comparable value outside of the Monument. Since the oil price has dropped dramatically, the time seems appropriate to seek out the owners of mineral leases to attempt to gain control of these too.

Response: BLM addresses the goal of acquiring private mineral rights within the CPNM, and the authorities and circumstances under which those rights could be acquired. See Section 2.20 – Lands and Realty. The plan does not preclude the use of any acquisition authority. Eminent domain would require the approval of Congress and is an implementation strategy that would not be precluded by the plan.

Comment Number: 3-11, 13-49, 13-71, 46-1, 47-2, 86-3, 90-5

Comment: No surface disturbance should be authorized except after completion of an EIS. The RMP should establish that an EIS will be presumed to be the appropriate level of analysis for oil and gas exploration or development.

Response: BLM agrees that a very careful analysis of impacts will need to be completed for any proposed oil and gas project. The appropriate level of environmental analysis will be determined upon the receipt of a proposal using criteria outlined in the BLM NEPA Handbook (H 1790-1). Any analysis will include a determination of significance based on the Council of Environmental Quality's context and intensity criteria discussed under 40 CFR 1508.27. CEQ and BLM guidance provide very clear direction on the appropriate level of analysis based on anticipated impacts. However, without clear regulation or policy direction, or other clear basis, establishment of a presumed EIS level of analysis for CPNM oil and gas projects would be considered to be an arbitrary requirement.

Comment Number: 3-12, 3-13, 13-46, 13-47, 13-48, 13-71, 46-2, 64-6, 90-6

Comment: BLM should insist on phased development, so wildlife habitat disturbance would occur only in part of the leasehold at any time and the disturbed lands would be reclaimed before the next phase begins. Operators should be required to use widely spaced drill sites and shared facilities including access routes and pipelines. BLM has the authority to deny development or restrict the manner in which oil and gas development can occur to access private minerals within the Monument and should specifically state these restrictions in the RMP. BLM can also protect the Monument by requiring that any subsequent development be conducted from non-sensitive lands, including outside the Monument, by imposing "no surface occupancy" as a condition of approval, such that lessees could still access oil and gas by using directional drilling. BLM should incorporate additional measures into Alternative 2 to maximize protection from the adverse impacts of oil exploration and development. We support the approach in Alternative 1 of increasing the frequency of inspections, prioritizing termination of all idle leases in the Monument, and maximizing interim reclamation of redundant or unnecessary disturbed areas.

Response: BLM fully recognizes the unique values at CPNM, and is committed to protecting those values. The draft RMP/EIS fully addresses a wide range of mitigation measures to minimize surface impacts that are consistent with the operator's rights and BLM's authorities. BMPs, such as requiring multiple wells per drill pad, placing pipelines within road rights-of-way, painting facilities to blend into the surroundings, minimizing cut and fill, and others, would be employed to the extent that they were consistent with BLM authority and operators' valid existing rights, and would be evaluated for appropriateness on a case by case basis. Although several commenters suggested denying applications on federal leases and/or requests from operators on private mineral estate, that is probably not legal in the circumstances that exist at Carrizo. Court cases where that was allowed were typically in cases where there was no other way to comply with another law, or where a stipulation was attached to the lease at the time of issuance. BLM has far less discretion on private mineral estate than on federal mineral estate. "No surface use" on federal surface overlying private mineral estate can only be used where there would be a

jeopardy opinion from USFWS, or another law would be broken by allowing development, and that is not likely to be the case at CPNM. SOPs and other actions that would be taken to minimize impacts are discussed throughout Chapter 2 – Alternatives.

Some commenters (3-12, 13-48, 90-6) suggested that phased development be required. This is beyond the scope of this document, and would more appropriately be addressed at the time of a site-specific proposal. If a large-scale development was proposed where phased development could potentially be beneficial, that would be evaluated at that time.

Comment Number: 9-10, 12-14, 19-1, 29-1, 48-4, 50-1, 57-1, 61-2, 64-6, 73-1, 78-5, 79-1, 84-2, 91-1, 92-1, 94-4

Comment: BLM should analyze at least one alternative that includes phasing out existing oil and gas developments and full restoration of the sites. No drilling in Carrizo – please! This area should be protected from oil and gas drilling. BLM should take steps to ensure that no new oil and gas exploration is allowed within the Monument and that existing oil and gas developments are phased out and the areas surrounding them fully restored. There are other places to drill for oil and gas that will not destroy our beautiful lands. Please don't oil up Carrizo Plain; it's beautiful there. Do not open this valuable resource to oil and gas leases. There is something radically wrong with a land management system that would place oil rigs in CPNM; I am totally opposed and I will bet that thousands of others would be too if they only knew! Natural gas and oil interests should be held at bay and kept off the Plain. Letting oil companies raid the people's land for their profits and bottom lines is abhorrent even to consider. Please protect California's Carrizo Plain from the oil and gas interests that will take away one of our state's last wild landscapes. The RMP should also include a detailed plan for any proposed gas/oil exploration and its impact on this fragile ecosystem; no exploration should be a consideration if it negatively affects this fragile ecosystem. Mineral extraction should come secondary, if at all. I do not believe that oil production should have any place on the east side of the Calientes; this area is a Monument for preservation, not production.

Response: When the CPNM was created in 2001, it was created “subject to valid existing rights.” Those rights include the rights to “reasonable” access of private mineral estate under federal surface, and also the right to use “reasonable” federal surface on a federal oil and gas lease. Please see Section 1.5. Existing mineral leases are considered to be a valid existing right under federal law and are authorized to continue under the Monument Proclamation. Therefore, phasing out existing leases that are operating in compliance with the lease terms is beyond the scope of the RMP.

A reasonable range of alternatives is included in the RMP based on the limitations imposed by valid existing rights and the discretion that BLM has in imposing limits under the plan. The existing oil and gas leases are legal contracts that convey certain rights to access and develop the oil and gas resources, and these rights cannot be unilaterally taken away by BLM. However, BLM recognizes the significance of the resource values within the CPNM, and has taken and will continue to take very stringent protective measures to protect objects of the Proclamation and other resource values within existing leases (see SOPs in Appendices O and P). Regarding access to private mineral estate under federal surface, BLM will also take stringent protective measures to control the types of uses that are made of federal surface to access and potentially develop those private resources, consistent with the mineral owners “valid existing rights.” The “valid existing rights” that are specifically mentioned in the CPNM Proclamation dictate that BLM must provide the operator reasonable use of the surface to access their minerals. BLM will require the most stringent protective measures that are consistent with the operator's rights. In addition, the

operator will be required to fully comply with the *Endangered Species Act*, NEPA, and/or *California Environmental Quality Act* requirements; cultural, archaeological, and paleontological protective measures; and SHPO, NHPA, and other requirements to the maximum extent consistent with BLM authority and mineral owner rights. These are fully addressed throughout the draft RMP/EIS.

Regarding taking steps to “phase out” existing oil and gas development, that is also not in compliance with law, policy, regulations, and the legal contracts that BLM has with the existing operators, so is beyond the scope of actions that can be proposed under this plan. The federal leases within the CPNM are all in their “extended term,” which means, in effect, that they are valid as long as they are capable of economic production. Most of the leases are in the Russell Ranch Unit, which provides that as long as any well within the unit is capable of economic production, all leases within the unit are “held by production.” This is described in further detail in 43 CFR 3186.1 Model Unit Form, Section 20(c).

Comment Number: 12-15

Comment: I have no problem with exploration or production on the Cuyama side, as long as eco, archaeo, and paleo resources are taken into strict consideration.

Response: BLM recognizes the significance of the resource values within the CPNM, and has taken and will continue to take very stringent protective measures to protect objects of the Proclamation and other resource values within existing leases (see SOPs in Appendices O and P). BLM will require the most stringent protective measures that are consistent with the operator’s rights. In addition, the operator will be required to fully comply with the *Endangered Species Act*, NEPA, and/or *California Environmental Quality Act* requirements; cultural, archaeological, and paleontological protective measures; and SHPO, NHPA, and other requirements to the maximum extent consistent with BLM authority and mineral owner rights. These are fully addressed throughout the RMP EIS.

Comment Number: 13-50, 46-3

Comment: There are many other standards that could be incorporated into the RMP; we suggest, as a starting point, incorporating the standards and guidelines set out in the Los Padres National Forest oil drilling plan, which would still require substantial improvement to protect Monument objects.

Response: Appendix O contains the SOPs and implementation guidelines that will be applied to BLM actions and authorizations, including oil and gas. Many of these address the same issues as the information notices and mitigation measures contained in the Los Padres National Forest Oil and Gas Leasing EIS. Appendix O also contains measures that are not addressed by the Los Padres National Forest Oil and Gas Leasing EIS. Site-specific NEPA and *Endangered Species Act* consultation will be conducted prior to any oil and gas activity. Additional measures can be incorporated into the project design or authorization at that time. BLM believes that the combination of Appendix O and project level analysis provide the best protection for Monument resources.

Comment Number: 13-78 through 13-99, 46-4, 46-8 to 46-17, 46-19, 46-22 to 46-25

Comment: Commenter suggested specific changes to language in Section 2.19.1, as follows:
2.19.1.1 Goals

- Manage the exploration, ~~and~~ development, and abandonment of oil and gas...
- Work with federal, state, county, and local agencies to ensure...only reasonable uses are made to access and develop private mineral estate if such uses cannot be limited to private lands.

2.19.1.2 Objectives

- Establish [SOPs and BMPs]... In this context, reasonable access can include requiring leaseholders to access resources from off-site, requiring multiple wells per pad, and/or limiting the timing or extent of disturbance that will be permitted.
- Manage existing leases to ensure ongoing interim and timely final lease restoration of leased lands so that they are returned to natural function and conditions.
- Manage leases to minimize fragmentation of habitat (including removal of redundant roads and unused pipelines, storage tanks, and other infrastructure).
- Process permits ... and consistent with federal, state, and local laws and regulations and dependent on agency staff and resource limitations.
- Authorize geophysical activities...in a manner that maximizes protection of the objects of the Monument Proclamation.

2.19.1.3 Management Actions

- All projects will be reviewed... [SOPs] will be ~~applied~~ incorporated into existing lease terms. This review and incorporation will occur within two months of the effective date of this RMP.
- BLM inspection staff will inspect all facilities...monthly. This inventory and evaluation will be completed within six months of the effective date of this RMP.
- Conduct ~~annual~~ quarterly surface inspection on all leases...
- Conduct training... ~~Additional CPNM-specific BMPs may be developed.~~ Develop and revise CPNM-specific BMPs every five years, or more frequently as necessary to protect these management goals and sensitive resource values.
- Manage the existing oil producing acreage on the southern side of the Caliente Range to ~~maintain~~ maximize the protection of ecological processes and to assure prompt lease restoration...
- Review (in conjunction with operators) existing disturbed areas...and require reclamation of those areas determined to be redundant or no longer needed. Conduct this review within one year of the effective date of this RMP.
- Design ... to impact and fragment the least acreage practicable. *[Is there a stronger word than "practicable?"]* New/existing facilities will ~~would~~ be designed/modified to maintain...
- Ensure [BMPs] are followed. Examples include... Placing pipelines along roads and consolidating facilities ~~when feasible.~~
- Wells that not commercially developed would be reclaimed...as soon as ~~appropriate~~ possible...
- Applications for Permit to Drill... The BLM will promptly make available for public review on the internet all such applications and notices.
- For all private oilfield actions that require use of BLM surface.... any authorization would be required that ~~would~~ the operator take avoidance measures...
- BLM would ~~meet with operators to~~ determine what sort of limitations ~~could~~ should be placed on exploration and development activities to protect Monument objects... BLM would also meet with operators and other interested parties to present proposed conditions and respond to comments.
- Use of BLM surface will only be allowed if environmentally acceptable access cannot be secured through private lands, and only after evaluation in an Environmental Impact Statement that complies with the National Environmental Policy Act.

2.19.3.1 Existing Oil and Gas Leases [Alternative 2 (Preferred Alternative)]

- For all new lease actions, threatened and endangered species habitat.
- Over and above the requirements....conduct detailed lease inspections of federal oil facilities and wells ~~more often than once every three years, with a goal of at least every other year.~~
- Allow access for geophysical exploration, but with conditions of approval that ~~ensure~~ maximize protection of ~~resources~~ Monument objects....

2.19.3.3 Private Mineral Estate

- Only authorize geophysical activities that do not result in damage... All of these activities would only be permitted to the extent that BLM determines, subject to a showing based on best quality science, that Monument objects will not be harmed and can be adequately protected.

Response: The recommended modifications were made where consistent with BLM authority and operator existing rights – this allowed for most changes to be incorporated. Some of the comments would remove BLM’s discretion to require prudent and reasonable compliance with BMPs. An example was a suggestion (13-91) to require all pipelines to be placed within road rights of way, rather than requiring it where feasible. The difficulty of always requiring pipelines to be placed within road rights of way is that sometimes there is no road, or requiring placement within the right of way would result in an excessive length of construction with associated impacts and use of raw materials for little or no reduction in resource disturbance. Other suggestions were to require modifications to existing facilities, roads, and wellpads not just to new proposals. BLM is not aware of any existing problems with drainage, wildlife hazards, or other issues, but if we become aware of such problems, we will immediately work to get them corrected. Regarding visual impacts, all of the existing oilfield operations are on the southern side of the Caliente Range, outside of the Carrizo Plain and main public use areas of the Monument. However, the RMP does include actions to work with operators to reduce visual impacts.

Existing oil and gas lease terms cannot be modified. However, the SOPs in Appendices O and P will be applied to all development undertaken under an existing oil and gas lease.

Some comments (46-11, 13-85) suggested a much greater frequency of inspection, with some suggesting complete inspections as frequent as every month. The document was revised (see 2.19.2.1, Existing Oil and Gas Leases) so that in the proposed plan alternative, instead of inspections “more often than once every three years, with a goal of at least every other year,” inspections will be conducted “on a yearly basis, more often when problems are found.” This is a mature producing area with very little new activity, and complete inspections once per year are considered to be adequate based on past history. If any problem areas are discovered, the operator would be required to correct them immediately, and more frequent inspections conducted until the problem and risk is reduced.

Comment 13-95 recommended that rather than meeting with operators to discuss and develop protective practices on a collaborative basis, BLM should develop those procedures and then meet with operators and other members of the public to tell the operator what we would require. Experience has shown that BLM is much more likely to develop a workable solution when the operator is involved in a collaborative process, especially when implementation of certain actions depends on the good will of the operator to go beyond what is required.

A couple of comments (13-96, 46-22) were received suggesting that BLM not allow federal surface to be used to access private minerals underneath that surface, or placing severe restrictions on that access. First, this is beyond BLM’s legal authority and in direct conflict with

the CPNM Proclamation that specifically recognized “valid existing rights.” It is well established in the State of California, as in virtually all other states, that the mineral estate is the dominant estate. The mineral owner is entitled to reasonable access. However, as mentioned previously, BLM would have significant input into the manner in which that access would be granted. Second, it may be that using federal surface would result in fewer impacts than using nearby private surface. Third, the area where BLM is aware of interest from private mineral owners is completely surrounded by BLM surface, so the option to restrict access to private surface is not practical or beneficial, in addition to not being permissible.

Comment Number: 46-4, 46-5, 46-6, 46-7, 46-18, 46-20, 46-21, 46-26

Comment: Commenter suggested specific changes to language in Section 2.19.1, as follows:

2.19.1.1 Goals

- Manage the exploration, ~~and development, and abandonment~~ of oil and gas on existing federal leases in a manner that protects the objects of the Monument Proclamation.
- Work with federal, state, county, and local agencies to ensure...only reasonable restricted uses are made to access and develop private mineral estate if such uses cannot be limited to private lands.

2.19.1.2 Objectives

- Establish and update [SOPS] and implementation guidelines....
- Manage leases to minimize fragmentation of habitation (including removal of redundant or unused roads, pipelines, storage tanks, and other infrastructure).

2.19.1.3 Management Actions

- Wells that are not commercially developed would be reclaimed to natural contours and revegetated ~~as soon as appropriate~~ immediately....
- For all private oilfield actions that require use of BLM surface, including cross-country travel on BLM lands to reach private minerals, authorization would be required that would take avoidance measures and mitigation that would protect the objects of the Monument Proclamation. [*This sentence is grammatically confusing.*]
- BLM would meet with operators and other interested parties to ~~determine~~ discuss what ~~sort of~~ limitations ~~could~~ will be placed on exploration and development activities ~~while still to~~ meeting the legal requirements to provide “reasonable access.” This would include multiple wells per pad, seasonal restrictions, modifications to meet visual goals, denial of such activities altogether, and others.

2.19.3.3 Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)

- Only authorize geophysical activities that do not result in damage to the objects of the Monument Proclamation. Such activities would include walking out and/or the use of helicopters to deploy geophone lines. [*This language infers that using helicopters would not result in damage, nor would the actual detonation of explosives.*]

Response: The recommended modifications were made where consistent with BLM authority and operator existing rights – this allowed for most changes to be incorporated. Some of the comments would remove BLM’s discretion to require prudent and reasonable compliance with BMPs. An example was the suggestion (46-18) that all non-commercial wells must be recontoured and revegetated immediately, rather than as soon as appropriate. As the proposed text describes, restoration methods would consider timing, site-specific conditions, and other factors. If for example, a well is abandoned in June, it would serve no purpose to try to revegetate immediately because there is typically little or no rain until late fall or winter in this area, and vegetation would not survive if planted immediately.

Comment Number: NRDC-1

Comment: It is clear to me that any plan allowing resource extraction is illegal under the Proclamation establishing the Monument.

Response: The Proclamation specifically calls for BLM to recognize valid existing rights in managing the CPNM. Existing oil and gas leases and private mineral estate are considered to be valid existing rights. The plan includes direction for managing these uses within the limits of BLM's authority.

5.8.17.2 Minerals – Affected Environment

Comment Number: 46-42

Comment: The DEIS states “Approximately 53 percent of the mineral estate within the Monument is privately owned” (p. 3-93). Elsewhere in the DEIS, this figure is placed at 56 percent; see, for example, DEIS at 3-116. These figures should be consistent.

Response: The correct value is 53 percent; this has been corrected (see 3.20.1 Acquisition History and Current Land Status).

Comment Number: 46-43

Comment: Section 3.19.2 of the DEIS discusses current oil and gas production in the Monument. We propose the following changes: “The only production in the Monument, including both private and federal, is near the southwest boundary, mostly within the boundaries of the Russell Ranch unit and the Morales Canyon Field it is unknown whether there are private leases within ~~BLM~~ the Monument...”

Response: This was clarified to read “The only production in the Monument, including both private and federal, is near the southwest boundary, virtually all within the boundaries of the Russell Ranch unit, with a very small amount from the Morales Canyon Field (see Map 3-17, Producing Oil Fields in the Carrizo Plain National Monument). Private leases are not recorded with BLM, so it is unknown whether there are private leases within the Monument (other than within the Russell Ranch Unit, a federal unit that contains both private and federal leases).” (See 3.19.2 Mineral Resources within the Monument.)

Comment Number: 46-44

Comment: It would be helpful to have a firm understanding of the location and extent of private leases within the Monument boundary. Such information is required by CEQ's NEPA guidelines. This information is available, and would not only provide baseline data for the environmental analysis, but would also assist with the analysis of cumulative impacts.

Response: BLM has no authority over management of private lands within the Monument boundary. Although there is a chance there may be other oil and gas leases of which BLM is not aware, it is known there is no production from any leases that may exist. In addition, there is no indication that any other areas would be likely to be explored, nor can it be determined (beyond speculation) what the amount or location of that disturbance would be. Therefore, no reasonably foreseeable impacts can be identified that would require analysis.

5.8.17.3 Minerals – Environmental Consequences

Comment Number: 30-6

Comment: BLM needs to address the potential impacts of oil and gas drilling on split estate lands.

Response: Regarding access to private mineral estate under federal surface, BLM will also take stringent protective measures to control the types of uses that are made of federal surface to access and potentially develop those private resources, consistent with the mineral owner's "valid existing rights." The "valid existing rights" that are specifically mentioned in the CPNM Proclamation dictate that BLM must provide the operator reasonable use of the surface to access their minerals. BLM will require the most stringent protective measures that are consistent with the operator's rights. In addition, the operator will be required to fully comply with the *Endangered Species Act*, NEPA, and/or *California Environmental Quality Act* requirements; cultural, archaeological, and paleontological protective measures; and SHPO, NHPA, and other requirements to the maximum extent consistent with BLM authority and mineral owner rights. These are fully addressed throughout the RMP EIS.

Comment Number: 46-88

Comment: The DEIS describes several assumptions used for the analysis. One of these assumptions is that "most of the lands with potential for oil and gas resources are in areas where BLM owns the surface." (p. 4-259). The DEIS should include the data that BLM used to arrive at this assumption.

Response: There is only one area (outside of existing production) where any proposals have been received from mineral estate owners. This is a proposal from Vintage to shoot a single short seismic line in an area where they own a large block of minerals, T32S, R21E. Although it is far from certain that shooting a single line of seismic would result in any further proposals or additional surface disturbance, a proposal such as this would typically indicate that, at a minimum, there are potential resources of interest to an oil company in that general area. BLM owns most of the surface in that area; in fact, BLM owns nearly 90 percent of the surface throughout the CPNM. There is no other area that stands out as having any potential. The resources of private land inholdings overlaying subsurface mineral estate are also assumed to have similar resource values to the adjoining BLM parcels and are identified for acquisition by BLM (from willing sellers) under this RMP. Therefore, impacts to lands and resource values within the CPNM, and cumulative impacts, would be similar whether or not development occurs on BLM or adjoining private surface estate.

Comment Number: 46-89

Comment: The DEIS describes "incomplete information" on which BLM was unable to rely in preparing the analysis. First, BLM states that the "total acreage already disturbed due to existing oil and gas operations is unknown." This is basic information that should be readily available to BLM, and is useful for baseline data as well as the impacts analysis. This incomplete information must comply with the NEPA regulations for incomplete information at 40 CFR 1502.22.

Response: BLM closely examined aerial photos and conducted a number of onsite visits to review the existing oilfield operations and disturbed area in the CPNM. As a result of this review, BLM determined that most of the disturbance was in the area south of the Caliente Range, away

from the Carrizo Plain floor. The disturbance was mostly in drainages with steep slopes and was not in areas that were suitable habitat for the listed species in the area.

The amount of existing disturbance in the oilfield areas south of the Caliente Range is primarily in locations where the surface and minerals are not federally owned, and therefore BLM has no authority. The additional acreage that may be disturbed in the future, combined with existing disturbance, is expected to be minimal since these areas are already developed.

Comment Number: 46-90

Comment: The DEIS contains contradictory estimates on the monthly volume of oil produced in the Monument. Page 4-261 states that 1,200 to 1,500 barrels of oil are produced in the Monument each month, while page 4-288 states that the figure is 2,000 barrels of oil per month. These figures should be consistent throughout the EIS.

Response: There is no inconsistency. The first amount is federal production and the second is total production, including both federal and private. “Total” and other clarifying wording was added to the second statement to clarify the potential misunderstanding. (See 4.18.4.15 Minerals.)

Comment Number: 46-91

Comment: Section 4.16.3.1 should briefly include discussion of the Taylor Canyon area, which may not currently be a producing field, but the acreage of existing disturbance and any reasonably foreseeable future development should be noted in the DEIS.

Response: The Taylor Canyon Field is abandoned, and there is no longer any oilfield-related disturbance. Further, all the minerals in that area are federally owned, and since no new federal leases will be issued, there will be no new development in that (now abandoned) field.

Comment Number: 46-92

Comment: The language used in Section 4.16.3.1 (Impacts on Minerals from Implementing the Minerals Program) should mirror that used in the RMP goals and objectives outlined in Section 2.19. For example, Section 2.19 and Appendix P state that pipelines would follow existing roads “when feasible,” whereas p. 4-263 says that “production pipelines would be required to follow existing roads”; the DEIS must analyze the impacts when road placement may not be feasible. Neither Section 2.19 or Appendix P contain any language about encouraging operators to place multiple wells on single well pads where feasible, though p. 4-263 states that this would be the case; because the DEIS admits that this may not actually occur, the DEIS should also evaluate the impacts of needing to construct multiple pads. Other language used in Section 4.16.3.1 should correlate with Section 2.19 and Appendix P.

Response: Several changes were made to both sections that would clarify additional BMPs that the operator would be encouraged to follow. (See 2.19.1.3 and Appendix P, BMPs.) Additionally, the table of reasonably foreseeable development was clarified to state that the impacts include the small amount of pipeline disturbance that might occur when the pipelines could not be placed along roads. A statement “This takes into account that there may be a small amount of disturbance from pipelines that cannot be placed within road rights of way” was also added in Section 4.16 after Table 4.16-1 and after Table 4.16-4.

5.8.18 Lands and Realty

Comment Number: 13-58, 13-59, 13-60, 13-61

Comment: We support the approach in Alternative 1, which authorizes no new rights of way. We urge BLM to establish the Monument as a right of way exclusion area. All communication facilities not required for public safety should be eliminated or the leases not renewed. BLM should prioritize relinquishing unneeded existing rights of way in backcountry and primitive areas as in Alternative 1.

Response: BLM feels that the direction provided under Alternative 2 will protect Monument resources while allowing for certain rights-of-ways in very limited situations (for example, for scientific or research purposes, or where they serve land parcels within the Monument). The proposed plan alternative adds an additional 13,000 acres to the Primitive zone to be managed for wilderness character and identified as a right of way exclusion zone. The plan calls for pursuing relinquishment of rights of way that are no longer needed.

Comment Number: 13-62

Comment: BLM should take steps to ensure that the BLM repeater and all communication facilities in the Monument are made raptor safe.

Response: Standard management practices would be employed to make all communication facilities raptor safe

Comment Number: 13-77, 27-26, 82-1, 90-4

Comment: We strongly recommend that BLM maintain the commitment to acquisition of private inholdings and allocate the funding and resources needed to achieve this goal. The final RMP should place a greater emphasis on acquiring private inholdings; the inholdings constrain a number of management decisions, including requirements for fences and access roads, and possibilities for improving visual resources. We are interested in the continuing efforts to acquire lands within the Monument area that are privately held. We support BLM's proposal to acquire privately owned mineral rights to prevent oil and gas drilling.

Response: This is addressed in Section 2.20 Lands and Realty. BLM proposes to continue its emphasis on acquisition of inholdings from willing sellers.

Comment Number: 38-8, 84-6

Comment: We hope that BLM will make the effort for friendly condemnation by Congress to acquire the lands. The managing partners, especially BLM, should be more active in their attempts to take control of the privately owned inholdings; the small land parcels that are privately owned could well be the target for a campaign using friendly condemnation or other procurement methods.

Response: This is addressed in Section 3.20. BLM will continue to explore all available options to acquire inholdings from willing sellers, including pursuing the option of friendly condemnation.

5.8.19 Consultation and Coordination

Comment Number: 71-33

Comment: BLM has gone to great lengths to meaningfully involve Native Americans in the active management and use of CPNM. Participation has been good, but could be improved; BLM should continue its efforts to inform and involve those Native Americans who have been invited, but have not yet chosen to participate.

Response: The RMP objectives call for continued partnerships with Native American groups in managing CPNM cultural resources. BLM worked in close cooperation with the CPNM Native American Advisory Council in the writing of this document.

Comment Number: 85-8

Comment: Since Monument managers probably will not run the livestock, they need to understand the needs and contributions of the more experienced ranchers and be open to their ideas. I didn't see any sign of this concept in the plan, which means it will probably be lost in the minds of Monument planners, employees, and visitors, if it hasn't already.

Response: BLM recognizes the long history of land management of local ranchers and will continue to solicit their input and participation in managing CPNM resources.

5.8.20 Appendix C - Conservation Target Table

Comment Number: 13-19, 13-20

Comment: The table must be more specific. For example, where the management objective is to "maintain distribution and size of existing populations," the current population distribution and size should be documented. Additionally, the table must be more specific as to what actions will be taken when objectives are not being met. BLM must complete an inventory of baseline data in order to determine appropriate management actions and restoration efforts.

Response: BLM acknowledges that there are gaps in the table, as well as gaps in our knowledge of species numbers and distribution, and recognizes the importance of having that information for adaptive management. Many of the management actions for biological resources begin with monitoring and/or mapping to determine what will be baseline information. (See Section 2.4, Objectives and Management Actions.) Actions (which tool will be used when an objective is not being met) will be determined by the managing partners based on all of the information available to us about the target.

Comment Number: 13-22

Comment: Some key resources are completely excluded, including important invertebrate and plant species. The full suite of biological resources should be represented in the table with standards and monitoring requirements.

Response: BLM acknowledges that there is missing information within the table and that other targets may be added in the future (see Appendix C, Background, "...a work in progress"; "The current table is not complete..." and the section in Appendix C titled "Incorporating Changes into the Conservation Target Table"). Additionally, the intent of the managing partners was to begin

with a focus on species with special status or species that warrant management emphasis. These have been analyzed in the RMP/EIS and the table provides detail to management objectives (see Appendix C, Definitions and Explanation for Understanding the Tables, paragraph four; “The Conservation Target Table is designed to be used in conjunction with the Chapter 2, Alternatives.”). Though gaps in the table exist, management objectives in the RMP were written to allow for protection of all the resources on the Monument, even those unknown to us in the present. These species have been added to include animals discussed in the RMP: long-billed curlew, wintering raptors.

Comment Number: 13-23

Comment: The RMP must explain the scientific basis for decisions included in the table, in order to support the selection of the applicable standards used.

Response: Appendix C (Background) explains that elements in the table are developed using the best available information obtained from a number of sources including published and unpublished literature. Also, elements are reviewed by the scientific community, species experts, and others, and any new information that may trigger a change to the table (or the decisions that are reflected in the table) may be derived from studies or literature (see Appendix C, Incorporating Changes into the Conservation Target Table). Additionally, the U.S. Department of the Interior’s Adaptive Management Technical Guide recognizes there are often uncertainties and that decisions may need to occur before science provides an answer. Using this technique of management will allow us to test our decisions, reduce the uncertainty, and learn about the targets and our actions.

Comment Number: 13-24

Comment: Where data are incomplete or missing altogether, the precautionary principle should apply until the necessary information can be compiled to ensure protection of the resources; a commitment to this principle should be incorporated into the RMP and the table.

Response: Thank you for your recommendation to use the precautionary principle. BLM recognizes the importance of the many resources within the National Monument and the seriousness of their long-term conservation. There are numerous policies with which we must abide including the Proclamation, FLPMA, the *Endangered Species Act*, and our commitment to following the Adaptive Management Technical Guide for management and monitoring (see Section 2.4).

Comment Number: 13-25

Comment: Grazing should be removed from the matrix. As discussed in detail in the previous section, relevant studies confirm that livestock grazing has not been shown to be an effective management tool.

Response: Though the BLM Carrizo grazing monitoring study of 1997-2003 had results to show that grazing was not effective at decreasing exotic grasses or enhancing native flora, the mechanisms are still unknown. Additionally, the grazing study did not address impacts to other important species such as the blunt-nosed leopard lizard (see Section 3.2). It is anticipated that livestock grazing use as a tool to modify vegetation would be used only under certain conditions, in specific area(s) for a specific targeted species. The managing partners feel there is a benefit in keeping it as a tool.

Comment Number: 13-26, 13-75

Comment: Climate change impacts can be monitored using the table and management adjusted to better protect the function of this ecosystem, as discussed in more detail later in these comments; BLM should incorporate this focus and appropriate management tools into the table. Include climate change as a management goal in the Conservation Target Table.

Response: BLM recognizes that there will be changes to resources associated with climate change and that management actions may be necessary. However, we are committed to the use of adaptive management to provide us with data on the current status of resources, the monitoring of those resources, and models to help guide us with management. Text has been added to Appendix C.

Comment Number: 32-11

Comment: The cell contents under the Management Objective, Variable, Desired Value of the Variable, and Management Assumptions/Notes columns in Appendix C are confusing, absent, or incorrect [Commenter provided examples].

Response: There were errors in some of the cells of the Conservation Target Table and BLM has corrected many, including the ones listed in the comment. Text was changed in other cells to clarify the information within. As actions are taken using a systematic approach through adaptive management, more detailed information will be documented, not only in the Conservation Target Table, but any companion monitoring documents associated with our actions. BLM also recognizes the necessity to involve stakeholders, experts, scientists, and partners as a critical component and an active part of the process. BLM also added an item to monitor whether remote sensing can be used to evaluate distributions in core areas to set thresholds

Comment Number: 55-8, 55-9

Comment: Since the Conservation Target Table is the foundation of the adaptive management strategy to be implemented in the Monument, it is unfortunate that the Table is at times unclear and difficult to interpret. This makes it difficult to ascertain which vegetation communities and plant and animal will be monitored, this difficult to ascertain the “success of the management actions or constraints in meeting the specific conservation target objectives and the overall management goals”, nor what management changes might be warranted. For example, I can find nothing in draft Management Plan that would explain how the vascular plant taxa on the Conservation Target Table were selected.

Response: As stated in Section 2.3, the Conservation Target Table is considered to be a work in progress and the table was included in the RMP to provide the public with information on how plan objectives would be implemented. The Conservation Target Table is not intended to be a comprehensive or completed document, and there are some areas that contain considerably more detail than others. Further development and updating of the Conservation Target Table is considered to be an implementation action of the RMP. As stated in the RMP, all changes in the Conservation Target Table need to conform to RMP objectives, or a plan amendment would be required.

Comment Number: 66-20

Comment: As the situation stands right now, there is no substantive evidence-based reason to include livestock grazing in the Conservation Target Table that includes “Management Objectives and Variables” and “Management Guidelines” (Appendix C, pp. C-5 through C-103).

Response: The impact analyses in Section 4.2 recognize the incomplete knowledge and confounding effects of livestock grazing on wildlife and listed animal species, including evaluation of recent monitoring data within the Monument. BLM has reviewed the available literature and agency monitoring data and considers that vegetation structure is an important habitat component that may affect habitat suitability for the listed animals. The effects of herbaceous cover appear to be different among the listed animal species so that a variety of management prescriptions may be required. Additionally, the amount of herbaceous/grass structure appears to have different effects from year to year. BLM has cooperated with species experts and has conducted monitoring to sort out these relationships. The application of livestock grazing proposed in the Conservation Target Table reflects current knowledge regarding vegetation structure, habitat suitability, and management prescriptions. The process of adaptive management will direct the application of livestock grazing to meet Monument objectives to maintain viable populations of the listed animal species.

5.8.21 Appendix N – Actual Grazing Use for Vegetation Management

Comment Number: 83-2

Comment: My memory is that there was turnout on the Brumley and Center Well pastures in 2003/2004. If this is the case, then Appendix N in Volume III of the DRMP/DEIS needs to be changed.

Response: During 10/1/2003- 9/30/2004, BLM records show the Hill pasture of the Saucito allotment was used, not the adjacent Brumley pasture. It is possible that cattle may have strayed into Brumley from Hill due to some fence problems, but were removed promptly. Also during that time period, the House pasture of the KCL allotment was used, but not the adjacent Center Well pasture.

5.8.22 Appendix P – Minerals Standard Operating Procedures

Comment Number: 13-101 to 13-115, 46-27 to 46-30, 46-33 to 46-41

Comment: Commenter suggested specific changes to language in Appendix P, as follows:
Implementation Guidelines

- All oilfield activities...would be conducted with the least impact ~~practicable~~ to sensitive resources.
- Wells that are not commercially developed would be reclaimed to natural contours and revegetated ~~as soon as appropriate~~ immediately; that is,
- Applications for Permit to Drill (APDs)... The BLM will promptly make available for public review on the internet all such applications and notices.
- Time plugging and abandonment of depleted wells ~~would~~ will be required...
- Design roads, well pads, and facilities ~~for exploratory wells~~ to impact and fragment the least acreage ~~possible~~ practicable. New/existing facilities ~~will~~ would be designed/modified to Impacts associated with noncommercial wells would be restored immediately as soon as appropriate using....

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- Only geophysical activities... After the data gathering phase, resource specialists would evaluate impacts and recommend remediation when appropriate. All of these activities would only be permitted to the extent that BLM determines, subject to a showing based on best quality science, that Monument objects will not be harmed and can be adequately protected.
- Good housekeeping requirements ~~would~~ will be enforced (that is, operators ~~would~~ will be required....
- Sufficiently impervious secondary containment... ~~should~~ must be constructed and maintained...
- Chemical containers ~~should~~ must not be stored.... Chemical containers ~~should~~ must be maintained....
- Pipelines ~~would~~ will be placed...
- Roads ~~would~~ will be designed...
- New wells and roads ~~would~~ will be located in areas where cut and fill ~~would be~~ is minimized ~~to the extent practicable.~~
- Operators ~~would~~ will be ~~encouraged~~/required to place multiple wells on a single pad....
- Operators ~~would~~ will be required to maintain clean well locations...
- Other BMPs that ~~may~~ will be applied to operations....

Response: See response to Comment 13-78 et al. on page 5-120 in Section 5.8.17.1 Minerals. In addition to the SOPs in Appendix P, there are many additional SOPs that will be applied to oil and gas operations that can be found in Appendix O, “Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment.”

Comment Number: 46-31, 46-32

Comment: Commenter suggested specific changes to language in Appendix P, as follows:
Implementation Guidelines

- Design roads, well pads, and facilities ~~for exploratory wells~~ to impacts and fragment the least acreage ~~practicable.~~ New/existing facilities will ~~would~~ be designed/modified to maintain.... Noncommercial wells would be restored immediately ~~as soon as appropriate~~ using...
- Only geophysical activities that do not result in damage to the objects of the Proclamation would be authorized. Such activities would include walking out and/or the use of helicopters to deploy geophone lines. [*This language infers that using helicopters would not result in damage, nor would the actual detonation of explosives.*]

Response: See response to previous comment.

Comment Number: 46-53

Comment: BLM should develop species-specific SOPs, including one that would specifically limit or avoid impacts to dens, and include all species-specific SOPs in the RMP.

Response: The existing Biological SOPs in Appendix O include species-specific information, including survey and avoidance criteria for dens.

5.8.23 Appendix U – Livestock Management Guidelines

Comment Number: 80-7, 80-8, 80-9

Comment: In Appendix U, unsubstantiated information is presented on the effects of grazing under the No Action alternative, Alt 1 and 3. An appendix is an accessory to the main document but this entire plan relies solely on the appendix section for determinations of effects of actions on rare plant resources. The public at large does not have the advantage of a library of the thousands of pages of previously published documents the Bureau refers to (e.g., old grazing management plans with the supposed data to justify selections of actions presented in this document). In particular you lifted a table from page 54 of the 1997 (over ten years old) Caliente RMP with no other analysis in the DEIS. In Table U-1, it is noted that for listed plant species that you only consider flowering period to attempt to minimize the adverse effects of grazing on those plants. It is well known that a crucial time period for plant species survival is the successful establishment of a seed bank. If grazing is allowed to occur on plant populations that have not released viable seed into the environment, there will be a substantial adverse influence on rare plants if you implement grazing into the system prematurely.

Response: Appendix U contains the existing livestock management guidelines currently in effect under the No Action Alternative. It does not contain effects from grazing. The draft plan also stated that this appendix would also be used to provide direction under Alternatives 1 and 3. It has not been reprinted in this PRMP/FEIS and would not be used for guidance under any of the action alternatives. The effects of the Bureau actions on rare plants are found in the impact section on vegetation, Section 4.3.

5.8.24 Appendix W - CPNM Flora

Comment Number: 55-11

Comment: The list of vascular plant taxa in Appendix W was incomplete. Additional taxa were found in herbarium records, the Carrizo Plain preliminary list, reports, and publications. Based on this finding, it appears that a comprehensive survey of vascular plant taxa is needed for the Monument area.

Response: The species list has been revised to incorporate additional species and new nomenclature. Additional inventory of botanical resources is included as an action in the proposed plan.

Comment Number: 55-12

Comment: I could find no information in the Management plan concerning herbarium vouchers for the vascular plant taxa listed in Appendix W. To maintain an accurate list of vascular plant taxa occurring in the Monument area, BLM personnel need to develop a database of specimens, contacting all herbaria that may have accessioned specimens from the Monument area. Where specimens are not adequately identified and complete identification is needed, BLM personnel need to develop a protocol for obtaining complete identification. BLM personnel need to develop a collecting protocol for vouchering those taxa reported as occurring in the Monument area but for which vouchers are not located and any new taxa discovered.

Response: BLM will continue to update inventories of vascular plants within the Monument and using available information sources. Discussion of specific process or sources for additional inventory is an implementation action and beyond the scope of the RMP.

Comment Number: 55-13

Comment: There is one rare vascular plant taxon in Appendix W with specimens from area in Consortium of California Herbaria is out of range and may be based on an error in identification - *Layia jonesii* A. Gray.

Response: This error has been corrected.

Comment Number: 55-14

Comment: The federally endangered taxon *Eremalche parryi* (Greene) Greene ssp. *kernensis* (C.B. Wolf) D.M. Bates [= *Eremalche kernensis* C.B. Wolf] has been reported from the Monument area. Because there is no clear evidence that this taxon does not occur in the Monument area, and with the existence of the Hrusa and Sasla collection, BLM needs to either include the taxon in the analyses or to clearly document that it should be excluded.

Response: Kern mallow has been added to rare plant sections in the RMP.

Comment Number: 55-15

Comment: *Gilia tenuiflora* Benth. ssp. *amplifauca* A.D. Grant & V.E. Grant has been reported from on or near the Monument. I could find nothing in the draft Management Plan that would indicate why this taxon was omitted.

Response: This species has been added to rare plant section.

Comment Number: 80-12

Comment: We are sure you have caught the two plant family header mistakes in the plant species list, Appendix W, Pteridaceae and Ephedraceae are on the wrong lines.

Response: The species list has been corrected to reflect current nomenclature and to correct the errors that the commenter identified.

5.8.25 Out of Scope Comments

58-1: I would highly recommend a workshop to recognize the role of grazing livestock in the conservation of remnant native grasslands and restoration of grassland sites to the planning staff.

60-1: Can you help introduce a technology for geostabilization?

66-28: BLM law enforcement officers should not approach people and demand to see identification and run checks on vehicle license plate numbers without clear probable cause.