

ENVIRONMENTAL ASSESSMENT LIVESTOCK GRAZING AUTHORIZATION

EA Number CA 170-09-0002

Allotment Number and Name(s)

**6058 Dog Creek
6076 Green Creek**



**BLM Bishop Field Office
Prepared
March 2011**

TABLE OF CONTENTS

Chapter 1: INTRODUCTION	1
A. Summary	1
B. Background	1
C. Purpose and Need for the Action	2
D. Scoping and Issues	2
E. Tiering to Existing Land Use Plan(s)/Environmental Impact Statement(s)	4
F. Prevention of Unnecessary or Undue Degradation	4
G. Relationship to other Statutes, Regulations, and Plans	4
H. Plan Conformance	8
I. Rangeland Health	8
Chapter 2: ALTERNATIVES	9
A. Alternative 1 - Modified Grazing Permit	10
B. Alternative 2 - Current Management / No Action	16
C. Alternative 3 - No Grazing	18
D. Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only	18
E. Alternatives Considered but Eliminated from Detailed Analysis	22
Chapter 3: ENVIRONMENTAL ANALYSIS	25
A. LIVESTOCK MANAGEMENT	25
B. AIR QUALITY	29
C. AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)	29
D. CULTURAL RESOURCES	31
E. ENVIRONMENTAL JUSTICE	33
F. ESSENTIAL FISH HABITAT	34
G. FARMLANDS, PRIME OR UNIQUE	34
H. FLOOD PLAINS	34
I. GLOBAL CLIMATE CHANGE	34
J. INVASIVE, NON-NATIVE SPECIES	35
K. NATIVE AMERICAN CULTURAL VALUES	37
L. RECREATION	39
M. SOCIAL AND ECONOMIC VALUES	39
N. SOILS	41
O. VEGETATION/THREATENED AND ENDANGERED	42
P. WASTE, HAZARDOUS OR SOLID	47
Q. WATER QUALITY, DRINKING-GROUND	47
R. WETLANDS/RIPARIAN ZONES	48
S. WILD AND SCENIC RIVERS	50
T. WILDERNESS	51
U. WILDLIFE/THREATENED AND ENDANGERED	52
V. WILD HORSE AND BURROS	60
W. CUMULATIVE IMPACTS	61
Chapter 4: CONSULTATION AND COORDINATION	66
Chapter 5: REFERENCES AND MAPS	70

Chapter 1: INTRODUCTION

A. Summary

This environmental assessment (EA) was prepared to analyze and disclose the environmental consequences of grazing or not grazing domestic sheep on the Dog Creek and Green Creek allotments in Mono County, California. The EA is a site-specific analysis of potential impacts that could result from implementation of one of the alternatives. The EA assists the Bureau of Land Management (BLM) in project planning and in ensuring compliance with the National Environmental Policy Act (NEPA) and other applicable laws and policies affecting the action and alternatives. If the authorized officer determines that this action has “significant” impacts following the analysis in the EA, then an Environmental Impact Statement (EIS) would be prepared for the action. If not, a Grazing Decision will be issued along with a Finding of No Significant Impact (FONSI) statement, documenting the reasons why implementation of the selected alternative would not result in “significant” environmental impacts. The selection of any alternative that would modify the mandatory terms and conditions of the allotments, or that would make all or portions of the allotments unavailable for grazing by domestic livestock, would not conform to the Bishop Resource Management Plan (BLM 1993), and would therefore require a plan amendment.

B. Background

The Dog Creek and Green Creek allotments analyzed in this EA are located in the Bridgeport Valley Management Area of the BLM Bishop Field Office. The elevation range is between 6,800 and 8,600 feet. Vegetation communities are dominated by Great Basin Sagebrush Scrub. Livestock kind, permitted season of use, allocated animal unit months (AUMs), and use type for the allotments as prescribed in the Bishop Resource Management Plan (BLM 1993) are:

Allotment	Kind	From	To	AUMs	Use
Dog Creek	Sheep	6/1	10/31	990	Perennial
Green Creek	Sheep	6/1	10/31	550	Perennial

The approximate public, state, and private land acreages (Map 1) are:

Allotment Name	Public Land	State Land	Private Land
Dog Creek	6,527	0	1,148
Green Creek	3,861	160*	364

* State Wildlife Area

There is one livestock operator for the Dog Creek allotment and one operator for the Green Creek allotment. Both operators took temporary non-use on the allotments during the 2010 grazing season.

C. Purpose and Need for the Action

The purpose of the action is to consider whether or not to authorize domestic sheep grazing for 10-years on the Dog Creek and Green Creek allotments. The purpose of the action is also to ensure that any grazing authorizations implement provisions of, and are in conformance with, the Bishop Resource Management Plan (RMP) (BLM 1993) and the Secretary of the Interior approved Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000). If authorized, grazing would be in accordance with 43 Code of Federal Regulations (CFR) 4100 and consistent with the provisions of the Taylor Grazing Act (1934), as amended, the Public Rangelands Improvement Act (1978), and the Federal Land Policy and Management Act (FLPMA) of 1976. If grazing is not authorized, or if the mandatory terms and conditions for the two allotments are modified, the Bishop RMP would be amended.

The action is needed to respond to expired 10-year grazing permits that were issued under the appropriations act. There is also a need to consider and analyze allotment closure and management recommendations to reduce or eliminate the risk of contact and subsequent disease transmission between domestic sheep and the federally endangered Sierra Nevada bighorn sheep (*Ovis canadensis sierra*) as outlined by the U.S. Fish and Wildlife Service in Section II E of the final Recovery Plan for the Sierra Nevada Bighorn Sheep (FWS 2007a). Allotment specific recommendations to reduce or eliminate the risk of contact and potential disease transmission were developed based on information provided in two documents: 1) A Process for Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic Sheep (Baumer et al. 2009), and 2) Application of the Document Entitled *A Process for Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic Sheep* (Croft et al. 2009, 2010).

D. Scoping and Issues

Public Scoping

On January 23, 2006, the Bishop Field Manager sent a letter to the two permittees who graze the Dog Creek and Green Creek allotments informing them of the status of the 10-year grazing permits and included a proposed schedule for environmental assessment and permit completion.

On November 23, 2007, the Bishop Field Manager sent a second letter to the two permittees who graze the Dog Creek and Green Creek allotments informing them how the environmental assessment would be prepared and the status of the 10-year grazing permits. Included with the letter was a proposed schedule for environmental assessment and permit completion.

On December 17, 2007, a Notice of Proposed Action (NOPA) was sent to the two permittees who graze the Dog Creek and Green Creek allotments. The NOPA was also sent to one hundred and twenty-five interested publics including the Center for Biological Diversity, The Wilderness Society, California Wilderness Coalition, Sierra Club, Earth Justice, Audubon Society, Friends of the Inyo, Mono Lake Committee, Lahonton Regional Water Quality Control Board, Great Basin Unified Air Pollution Control District, Inyo and Mono County Supervisors, California Department of Fish and Game, Natural Resource Conservation Service (NRCS), Bodie State Historic Park, and BLM Resource Advisory Council members of California. The NOPA

contained the Need for the Proposed Action, Plan Conformance, the Proposed Action and Alternatives, a schedule for EA completion, and area maps. The NOPA was also posted on the BLM internet site for public review at <http://www.blm.gov/ca/st/en/fo/bishop.html>. The NOPA provided a 30 day comment period on the proposed action and alternatives. One letter was received from the NRCS on December 21, 2007 and has been addressed within this environmental assessment. No other comments were received and no issues or additional alternatives were identified as a result of this initial public scoping.

On March 14, 2008, the Bishop Field Manager sent a letter and package of information to all BLM permittees to share current information. Of particular interest, the package included the latest information in regards to Sierra Nevada bighorn sheep and Greater Sage-grouse (*Centrocercus urophasianus*).

On March 15, 2008, a protest letter was filed on behalf of the Center for Biological Diversity (CBD) and Western Watersheds Project (WWP). CBD and WWP protested a proposed grazing decision to issue a ten year grazing permit on two other allotments which are administered by the Bishop Field Office. From this protest, two issues were raised which have relevance and are addressed within this environmental assessment. The two issues are habitat for Greater Sage-grouse and global climate change following the Department of Interior Order No. 3226.

On April 3, 2009, the Bishop Field Office received a letter from the U.S. Fish and Wildlife Service (FWS) concerning new information that had become available related to the level of risk associated with grazing domestic sheep on federal allotments in close proximity to the federally-listed, endangered Sierra Nevada bighorn sheep. Due to concern over the potential negative effects of disease on bighorn sheep, the FWS encouraged the BLM to fully consider the available risk assessment information (Baumer et al. 2009, Croft et al. 2009 which was revised by Croft et al. 2010) and other pertinent information in any future actions involving domestic sheep grazing on allotments located in close proximity to Sierra Nevada bighorn sheep.

On April 15, 2009, the Bishop Field Office received a letter from the Center for Biological Diversity et al. in regards to protection of Sierra Nevada bighorn sheep on BLM managed public lands in Mono County, California. The letter advocated the elimination of all domestic sheep grazing on identified high-risk allotments including the Green Creek and Dog Creek allotments. The letter also urged the BLM to identify and analyze the potential impacts to Sierra Nevada bighorn sheep from forage competition and displacement due to domestic sheep grazing on high-risk allotments.

On April 29, 2010, a Notice of Intent to Prepare an Environmental Assessment for Domestic Sheep Grazing on the Dog Creek and Green Creek Allotments, Mono County, CA, and Possible Land Use Plan Amendment was published in the Federal Register (Federal Register Vol. 75, No. 82, Pages 22617-22618). The Notice of Intent initiated the public scoping process for this environmental assessment and the possible Bishop Resource Management Plan amendment. The public was provided until June 1, 2010 to submit comments on issues. Eight comment letters were received as a result of this public scoping. Issues identified through this public scoping have been incorporated into this environmental assessment. No additional alternatives were identified as a result of this public scoping effort.

Public Review of Environmental Assessment CA-170-09-0002

On March 8, 2011, EA CA 170-09-0002 was made available for a two week public review and comment period and posted on the BLM internet at <http://www.blm.gov/ca/st/en/fo/bishop.html>. Written comments on the EA should be addressed to: Field Office Manager, BLM - Bishop Field Office, 351 Pacu Lane, Suite 100, Bishop, CA 93514. Comments should be received by March 22, 2011.

E. Tiering to Existing Land Use Plan(s)/Environmental Impact Statement(s)

The Bishop Resource Management Plan (RMP) (BLM 1993) provides a comprehensive framework for managing land use authorizations, including grazing permits, for public lands administered by the Bishop Field Office. The Bishop RMP replaced the Benton-Owens Valley (BLM 1982) and the Bodie-Colville (BLM 1983) Management Framework Plans (MFPs). Grazing decisions and changes in grazing decisions from the Benton-Owens Valley and the Bodie-Coleville MFPs are summarized in Appendix 4 of the Bishop RMP (pages A4-1 through A4-11). Mandatory terms and conditions for all allotments administered by the Bishop Field Office were established at the land use planning level in the Bishop RMP. The Bishop RMP also established which public lands administered by the Bishop Field Office would be available for livestock grazing (allotted vs. un-allotted).

This EA is tiered to the Final Bishop Resource Management Plan and Environmental Impact Statement (RMP/EIS) (BLM 1991). Tiering helps focus this EA more sharply on the significant issues related to grazing on the allotments while relying on the Final Bishop RMP/EIS for the overall analysis of grazing actions throughout the Bishop Field Office. Livestock grazing was analyzed in Chapter 4, Impacts, of the Final Bishop RMP/EIS (pages 4-20 through 4-26).

Impacts associated with adoption of the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000) were analyzed in Chapter 4 of the Rangeland Health Standards and Guidelines for California and Northwestern Nevada Final Environmental Impact Statement (BLM 1998). The analysis contained in this EA also tiers to that analysis.

F. Prevention of Unnecessary or Undue Degradation

In addition to management prescriptions analyzed in this EA, including all terms and conditions, the BLM may use its authority to close any area of an allotment to grazing use or take other measures to protect resources at any time, if needed. Therefore, issuance of a grazing permit with appropriate terms and conditions is consistent with the BLM's responsibility to manage public use, occupancy, and development of the public lands and to prevent unnecessary or undue degradation of those lands (43 USC 1732(b)).

G. Relationship to other Statutes, Regulations, and Plans

The following Statutes, Regulations, and Plans provide additional legal framework for grazing on public lands.

Air Quality

Section 176 (c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 *et seq.*), and regulations under 40 CFR part 93 subpart W, with respect to the conformity of general Federal actions to the applicable State Implementation Plan apply to projects within any Federal Air Quality Non-Attainment/Maintenance Areas. Under those authorities, "no department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan." Under CAA 176 (c) and 40 CFR part 93 subpart W, a Federal agency must make a determination that a Federal action conforms to the applicable implementation plan before the action is taken.

40 CFR Part 93.153 Applicability:

(c) The requirements of this subpart shall not apply to the following Federal actions:

(ii) Continuing and recurring activities such as permit renewals where activities will be similar in scope and operation to activities currently being conducted.

Where livestock grazing occurs within an area classified as a Federal Air Quality Non-Attainment/Maintenance Area, the BLM will make a determination whether the action is in conformance with the applicable State Implementation Plan requirement. The Great Basin Unified Air Pollution Control District (GBUAPCD) has state air quality jurisdiction over parts of Inyo and Mono County.

The Dog Creek and Green Creek allotments occur outside of any Federal Air Quality Non-Attainment/Maintenance Area and therefore no conformity determination is required.

Cultural Resources

California BLM has the responsibility to manage cultural resources on public lands pursuant to the 1966 National Historic Preservation Act, the 1980 Rangeland Programmatic Memorandum of Agreement with the Advisory Council on Historic Places (WO IM 80-369), the 1997 Programmatic Agreement Among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act, the State Protocol Agreement Between the California State Director of the Bureau of Land Management and the California State Historic Preservation Officer (2004), and other internal policies.

Special Status Plant Species

The BLM uses the term "Special Status Plants" to include: 1) Federally-listed endangered and threatened plants; 2) Plants proposed for federal listing; and 3) BLM designated sensitive plants. Sensitive plants are those species that are neither federally-listed, nor proposed for federal listing, but which are designated by the BLM State Director for special management consideration. By national policy, federal candidate species are automatically treated as BLM

sensitive species. The California State Director has also conferred sensitive status on all California state-listed endangered, threatened, and rare species; and on species on List 1B (plants rare and endangered in California and elsewhere) of the California Native Plant Society's Inventory of Rare and Endangered Plants of California (unless specifically excluded by the State Director on a case-by-case basis); and on certain other plants the State Director believes meet the definition of sensitive.

All of the plants constituting List 1B meet the definition of Sec. 1901, Chapter 10 (Native Plant Protection Act), or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. The Bishop Resource Management Plan (BLM 1993, p. 17) stipulates year-long protection of sensitive plants (Special Status Plants) and their associated habitats.

Cusickiella quadricostata (Bodie Hills “draba”), a California BLM Special Status Plant and CNPS List 1B plant occurs in several locations on rocky, low sage sites on the Green Creek allotment. No other Special Status Plants are known or likely to occur based on historical records, field monitoring, and/or habitat suitability on the Dog Creek and Green Creek allotments.

Threatened and Endangered Species (T&E)

Pursuant to Section 7 of the Endangered Species Act of 1973, consultation with the U.S. Fish and Wildlife Service (FWS) is required for any Grazing Decision for which the BLM determines that livestock grazing pursuant to that decision may affect listed species or designated critical habitat. The stipulations of any grazing permit may be modified to conform to the terms and conditions specified in a FWS biological opinion as the result of formal consultation. In addition, the terms and conditions of any grazing permit may be modified through subsequent land use plan amendments or revisions to conform to decisions made to achieve recovery plan objectives.

In August 2000, the Bishop Field Office submitted a Biological Evaluation and requested formal consultation on the Bishop Resource Management Plan (RMP) under Section 7(a)(2) of the Endangered Species Act to the FWS. The Biological Evaluation analyzed the potential effects on six listed species that occurred within the Bishop Field Office's jurisdiction: Owens pupfish (*Cyprinodon radiosus*), Owens tui chub (*Siphateles bicolor synderi*), Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), American Bald Eagle (*Haliaeetus leucocephalus*), and Fish Slough milk-vetch (*Astragalus lentiginosus* var. *piscinensis*). In 2007, one of these six species, the American Bald Eagle, was delisted. Only designated critical habitat for Sierra Nevada bighorn sheep and Fish Slough milk-vetch overlaps with any public land administered by the Bishop Field Office. However, no designated critical habitat for either species occurs within the Dog Creek or Green Creek allotments. Subsequent requests for action on formal consultation on the Bishop RMP were made to the FWS in September 2005 and in April 2008. To date, no action has been taken by the FWS.

No threatened or endangered species are present on the Dog Creek or Green Creek allotments based on historical records and field monitoring. However, Sierra Nevada bighorn sheep do inhabit the Sierra Nevada range to the south and west of the two allotments. Both allotments

were identified as relatively high-risk allotments for domestic sheep grazing in Section II E of the final Recovery Plan for the Sierra Nevada Bighorn Sheep (FWS 2007a) and the subsequent risk assessment process (Baumer et al. 2009, Croft et al. 2009, 2010) because of the potential for contact associated with domestic sheep grazing in close proximity to occupied Sierra Nevada bighorn sheep habitat. Using the process outlined by Croft et al. 2010, large portions of both allotments overlap the “predicted area of potential contact” and are considered to pose a “high/unacceptable risk of contact” between domestic sheep and Sierra Nevada bighorn sheep.

Water Quality

The Dog Creek and Green Creek allotments are within watersheds governed by basin plans subject to California's Clean Water Act. Nationally, Executive Order #12088 directs federal agencies to comply with state administrative procedures. Recently, the standards and guidelines reiterated the intent of the Federal Clean Water Act (CWA) and the States' water quality plans. A Memorandum of Understanding (BLM Manual Supplement 6521.11) with the California Department of Fish and Game (CDFG) describes how the BLM and CDFG will coordinate when activities could affect aquatic or riparian habitat. The Unified Federal Policy to Insure a Watershed Approach in Federal Land and Resource Management (UFP) requires: 1) that all plans and activity management be conducted on a watershed basis, 2) that all landowners and managers within a watershed be solicited for participation in the planning and management of the watershed, 3) that citizens and officials are better informed of planning and management, and 4) that the best available science is used. Where there is a threat to water quality or where water quality violates state standards, coordination must occur with the regional water quality control board(s) and where aquatic or riparian habitat may be impacted, coordination with the CDFG must occur as well. Any allotment that contains any water bodies (streams, lakes, springs, etc.) must have adopted Best Management Practices (BMP) for all associated livestock management activities that could affect water quality. Pursuant to the decisions affecting water quality in the Bishop Resource Management Plan (BLM 1993), BMPs for the Bishop Field Office area have been submitted to meet the requirements under the CWA.

Wild and Scenic Rivers

Wild and scenic river values are described in Appendix 2 of the draft Bishop Resource Management Plan and Environmental Impact Statement (BLM 1990). The Interim Management Guidelines for Study Rivers provide direction for grazing management on eligible creeks until the creeks are either designated as wild and scenic rivers or released from the wild and scenic river review process. Continued livestock grazing within allotments would be in compliance with this policy. For further information, see Appendix 3 of the final Bishop Resource Management Plan and Environmental Impact Statement (BLM 1991).

The Dog Creek allotment contains two eligible wild and scenic river study segments identified in the Bishop Resource Management Plan (BLM 1993) for future consideration as potential wild and scenic rivers. These segments include: Dog Creek and Virginia Creek. The Green Creek allotment also includes two eligible wild and scenic river study segments: Green Creek and Virginia Creek.

There are no designated wild and scenic rivers within the Dog Creek or Green Creek allotments.

Wilderness Study Areas

Livestock grazing on public lands within Wilderness Study Areas (WSAs) must comply with and be managed consistent with the BLM's Interim Management Policy Handbook (H-8550-1) For Lands Under Wilderness Review (IMP). The law provides for, and the BLM's policy is to allow, continued grazing uses on lands under wilderness review in the manner and degree in which these uses were being conducted on public land when the Federal Land Policy and Management Act (FLMPA) was signed (October 21, 1976). Grazing within WSAs is subject to reasonable regulations, policies, and practices.

Wilderness values are described in the 1979 Final Wilderness Intensive Inventory Report while a WSA's existing range and other improvements are identified in the 1990 California Statewide Wilderness Study Report. The IMP provides direction for grazing management in WSAs until the WSA is designated wilderness or released from the wilderness review process.

The Dog Creek and Green Creek allotments contain no designated Wilderness or WSAs.

H. Plan Conformance

The action would occur in areas identified as available for livestock grazing (allotted vs. unallotted) in the Bishop Resource Management Plan (RMP) (BLM 1993) and must be consistent with the General Policies, Area Manager's Guidelines, Valid Existing Management, Standard Operating Procedures, Decisions, and Support Needs prescribed in the RMP as amended by the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000). The selection of any alternative that would modify the mandatory terms and conditions of the allotments, or that would make all or portions of the allotments unavailable for grazing by domestic livestock, would not conform to the Bishop RMP, and would therefore require a plan amendment.

I. Rangeland Health

Rangeland health assessments have been completed on the grazing allotments in conformance with the Record of Decision, Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000, pg 12). Qualitative rangeland health field assessments were completed in June 2002 on the Dog Creek and Green Creek allotments.

Geographical Information System (GIS) database information was used to stratify the number of areas (ecological sites) to sample. Field assessments consisted of following protocol established in BLM Technical Reference 1734-6, Interpreting Indicators of Rangeland Health Version 3 (BLM 2000). A preponderance of the evidence is the criterion for determining if rangeland health standards are being met at each sample site. Rangeland Health Assessment Determinations, following the Central California Resource Advisory Council assessment protocol, were completed for the Dog Creek and Green Creek allotments. The Dog Creek and Green Creek allotments were found to meet the Secretary of the Interior Approved Rangeland Health Standards.

Chapter 2: ALTERNATIVES

An environmental assessment (EA) for a livestock grazing permit must consider a reasonable range of alternatives (WO IM No. 2000-022) including: 1) issuing a new permit based on the application (often the proposed action), 2) issuing a new permit with the same terms and conditions as the expiring permit (no action), and 3) a no grazing alternative. If the application for a permit is the same as the expiring permit (no changes in the terms and conditions), then the proposed action and the no action alternative are the same. Other alternatives may be needed to resolve conflicts or to address new conditions or new information. If other alternatives are identified or proposed during scoping but are determined by the BLM not to reasonably address the purpose and need for action, or not to be technically or economically feasible, or not to be in conformance with the land use plan, or not to be substantially different from another alternative in design or effects, they may be dismissed from detailed analyses (BLM Manual H-1790-1).

As the result of internal and public scoping four alternatives have been identified for detailed analyses in this EA:

- 1) Modified Grazing Permit - Under this alternative, the BLM would issue new permits following the guidance provided by the Bishop Resource Management Plan (BLM 1993), as amended by the Central California Standards for Rangeland Health and Guidelines for Grazing Management (BLM 2000), with additional management prescriptions based on Baumer et al. 2009 that would reduce, but not eliminate, the risk of contact between domestic sheep and Sierra Nevada bighorn sheep on the allotments.
- 2) Current Management / No Action - Under this alternative, the BLM would issue new permits with the same terms and conditions as the expired permits.
- 3) No Grazing - Under this alternative, the BLM would close the allotments to domestic livestock use, therefore cancelling the permits for both the Dog Creek and the Green Creek allotments.
- 4) No Domestic Sheep Grazing / Crossing Permit Only - Under this alternative, the BLM would close the Dog Creek and Green Creek allotments to domestic sheep grazing. The BLM would issue a crossing permit only to allow short-term trailing of domestic sheep along a designated route outside of the “predicted area of potential contact” as outlined by Croft et al. 2010.

The BLM also considered a fifth alternative, the conversion of livestock kind from domestic sheep to cattle on the Dog Creek and Green Creek allotments. However, this alternative was considered but eliminated from detailed analysis in this environmental assessment because it does not address the stated purpose and need for action, nor is it considered to be technically or economically feasible at this time. The four alternatives and the alternative considered but eliminated from detailed analysis are described in detail below.

A. Alternative 1 - Modified Grazing Permit

Alternative 1 is to authorize domestic sheep grazing for 10-years on the Dog Creek and Green Creek allotments with applicable terms and conditions and other provisions as described in this section. Alternative 1 differs from current management (the no action alternative) in that the terms and conditions from both the Bishop Resource Management Plan (RMP) (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (S&Gs) (BLM 2000) are applied specifically for the allotments, with defined implementation guidelines, and tailored to specific vegetation communities and other resources present on the allotments. In particular, following the Application of Guidelines of the Central California S&Gs (BLM 2000), some guidelines were applicable regardless of the specific rangeland health condition and some needed to be more specifically identified and then applied as terms and conditions.

Based on the information provided in the risk assessment by Baumer et al. 2009 and a reasonable grazing plan for the allotments, management prescriptions for the Dog Creek and Green Creek allotments under this alternative include:

- 1) Adjustment in the season of use on the allotments to limit grazing days by domestic sheep and to avoid domestic sheep grazing during the Sierra Nevada bighorn sheep rut (September - December). The permitted season of use would be June 1 to August 31. However, the actual grazing period would be restricted to 45 days or less on each allotment.
- 2) Only one band of sheep would be allowed on each allotment to promote vigilant domestic sheep management. Band size would be limited to 1,500 or less dry ewes or yearlings, 900 ewes with single lambs (1,800 total), or 700-800 ewes with twin lambs (2,100 to 2,400 total).
- 3) Management requirements and grazing practices designed to reduce and detect straying of domestic sheep (Baumer et al. 2009) would be included as terms and conditions of the grazing permits.

Under this alternative, the BLM would amend the Bishop RMP in accordance with 43 CFR parts 4100 and 1600 to incorporate changes to the mandatory terms and conditions of the grazing permits for both allotments.

Terms and conditions, grazing practices designed to reduce and detect straying of domestic sheep (Baumer et al. 2009), and provisions related to range improvements and monitoring requirements included under this alternative are detailed below:

A. Mandatory Terms and Conditions

Mandatory terms and conditions including livestock number, livestock kind, season of use, percent public land (% P.L.), and allocated animal unit months (AUMs) are required for each allotment in accordance with 43 CFR 4130.3-1. The proposed mandatory terms and conditions for the Dog Creek and Green Creek allotments (Map 1) under this alternative are:

Allotment	Number	Kind	From	To	% P.L.	AUMs*
Dog Creek	734	sheep	6/1	8/31	100	444
Green Creek	733	sheep	6/1	8/31	90	399

*AUMs were calculated based on a 45 day use period, for example 7/1 to 8/14, with the number of sheep in a single band of 1500. However, number of sheep in the mandatory terms and conditions reflect the required AUM calculation for a season of use from 6/1 to 8/31.

B. Terms and Conditions - Bishop Resource Management Plan

No trailing through a neighboring allotment is allowed without prior authorization by the BLM. Prior to trailing through a neighboring allotment, the trailing permittee will notify the BLM and all identified interested parties.

No salt, or other nutrient supplement, or sheep bedding is allowed within 1/4 mile of creeks, aspen groves, meadows, sage grouse strutting grounds, or special status plant populations.

No grazing is allowed on the Conway Summit acquired lands (Kirkwood Meadow) except as prescribed to meet Desired Plant Community (DPC) goals or to improve late-brood/summer habitat conditions for Greater Sage-grouse.

C. Terms and Conditions - Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management

The goal of these terms and conditions is to provide the permittee the opportunity to realize the highest, long-term, agricultural, economic return with the least risk to rangeland health. Livestock would be managed to progress toward maintaining or promoting adequate vegetative ground cover, and maintaining soil moisture storage and soil stability appropriate for the ecological sites within the management units. Maintaining adequate ground cover should allow soil organisms, plants, and animals to support the hydrologic, nutrient, and energy cycles.

Sagebrush Grassland and Pinyon-Juniper Woodland Rangelands: Livestock grazing operations will be conducted so that forage utilization on key perennial species does not exceed 40 percent on the average. Key areas will be selected and utilization on key species will be estimated in accordance with the current BLM technical reference. Utilization monitoring will be conducted by a BLM employee, permittee, and/or trained range consultant. Then, all key area data for the allotment data will be averaged and verified by a BLM employee to determine if the terms and conditions are being met. If utilization guidelines on the average of the upland key areas across the allotment are exceeded for 2 consecutive years or in any 2 years out of every 5 years, BLM will consult with the permittee to address the situation, potentially implementing a management change (e.g. change in livestock distribution). Because of the potential long-term damage to perennial grass species associated with severe grazing, when grazing utilization exceeds 70% in any upland key area for more than 2 consecutive years, management action will be taken to remedy the problem in the area of the allotment that key upland area represents.

Riparian Areas & Wetlands:

Grazing practices should maintain a minimum herbage stubble height of 4-6 inches on the average on all stream-side riparian and wetland areas at the end of the growing season. There should be sufficient residual stubble or regrowth at the end of the growing season to meet the requirements of plant vigor, maintenance, and bank protection.

D. Other Terms and Conditions

No supplemental feeding (i.e. hay, pellets/cubes, or other forages) is allowed at any time on public lands without the BLM's authorization. If authorization is granted, the permittee would be required to obtain "certified weed-free" feed for supplemental feeding of livestock.

Range improvements in each pasture/allotment would need to be functioning properly prior to livestock turnout.

Periodically check livestock for weed seed to minimize or stop the spread of weeds such as perennial pepperweed from private land or other areas where known weed infestations exist. A guide on preventing the spread of weeds along with specific species of concern is described in the Eastern Sierra Weed Management Area Noxious Weed Identification Handbook.

Notify the BLM of noxious weed locations when encountered on the allotment.

Use existing camps, bedding grounds, and watering sites and do not make new ones. Stay on existing roads and trails with all vehicles.

Grazing will not be allowed within 2 miles of active sage-grouse leks until July 1. A map will be provided to permittees annually displaying the deferred use area.

Green Creek (6076) Allotment Additional

Avoid grazing or trailing through populations of *Cusickiella quadricostata* (Bodie Hills "draba") that occurs on rocky, low sage sites found from Dog Town along U.S. Highway 395 west-northwest to the Green Creek Road (Township 4 N, Range 25 E, Sections 27, 28, and 34).

E. Management Requirements and Grazing Practices to Reduce and Detect Straying of Domestic Sheep

The Bishop Field Office will coordinate with the U.S. Fish and Wildlife Service and the California Department of Fish and Game prior to turnout to determine if recent bighorn sheep locations or movements require a re-evaluation of the risk of contact between domestic sheep and Sierra Nevada bighorn sheep on the allotment.

If new information on bighorn sheep locations and movements indicates that domestic sheep use of the allotment poses an imminent risk of contact, the authorized officer will temporarily close the allotment, or portions of the allotment, as necessary to eliminate the risk of contact after consultation with the permittee in accordance with 43 CFR 4110.3-2(a) and 4110.3-3(b)(1).

The authorized officer will implement changes in active use through a documented agreement or a decision (43 CFR 4110.3-2(a) and 4110.3-3(b)(1)). Notices of closure and decisions requiring modifications of authorized grazing use may be issued as final decisions effective upon issuance or on the date specified in the decision. Such decisions would remain in effect pending the decision on appeal unless a stay is granted by the Office of Hearings and Appeals in accordance with 43 CFR 4.472.

The permittee will notify the Bishop Field Office by telephone or in person, at least 48 hours in advance of entering the allotment. The permittee will also notify the Bishop Field Office by telephone or in person, at least 48 hours in advance of trailing to or from the allotment. This requirement will allow the BLM to fully document the actual season of use and to check with the U.S. Fish and Wildlife Service and the California Department of Fish and Game for the most recent sightings of Sierra Nevada bighorn sheep to assure they are not in, or immediately adjacent to, the allotment.

The permittee will maintain a band size of less than 1,500 dry ewes or yearlings, 900 ewes with single lambs (1,800 total), or 700-800 ewes with twin lambs (2,100 to 2,400 total) while in the allotment.

The permittee will only use sheep herders that are very knowledgeable about the band of domestic sheep they manage.

The permittee will place and retain one herder and at least two guard dogs (specifically Great Pyrenees) plus two herd dogs with domestic sheep while in the allotment. Female dogs in heat should not be placed in the allotment.

The permittee/herder will remove any domestic sheep that is sick or injured from the band prior to entering the allotment. The permittee/herder will also immediately remove from the band any domestic sheep that becomes sick or injured after it has entered the allotment.

The permittee/herder will use marker sheep at a ratio of 1 to 20 to facilitate counts of domestic sheep while in the allotment.

The permittee/herder will place bells on mature ewes at a ratio of at least 1:100 to serve as a warning sound for the herder and to serve as identification and location of sheep to other sheep. If using "bell" sheep as markers, the permittee will place an identifying mark on the bell sheep in case the bell is lost.

The permittee/herder will count, and document in a log book, all individual sheep and marker sheep upon entering and exiting the allotment. This number will serve as the baseline for the herder to assure that, as the grazing season progresses, the full number of sheep can be accounted for at all times.

The permittee/herder will count marker sheep any time a camp is moved within the allotment. The permittee/herder will also count marker sheep following any scatter event (thunderstorm, predator attack, etc.). If any marker count comes up short, a full count of all sheep would ensue. All marker counts and full counts will be documented in a log book.

If at any time during the grazing season or during the post-season count a domestic sheep is determined to be missing from the band, the permittee will notify the Bishop Field Office, as soon as possible, but within 24 hours. The permittee will immediately initiate a comprehensive search for the stray(s) which will conclude when the stray(s) are located. The permittee will immediately report the results of the search to the BLM.

The permittee will ensure 24 hour monitoring of domestic sheep on the allotment by having the herder in direct visual contact with the sheep at all times during the day and by bedding sheep adjacent to camps (the trailer or donkey-based field camp) at night.

There will be no overnight grazing of domestic sheep to prevent straying.

A GPS unit will be used by the herder to record locations (i.e. bedding grounds) within the log book. The herder will try to be in mobile phone contact with the permittee throughout the time on the allotment.

If at any time during the grazing season the permittee/herder observes a bighorn sheep in the allotment (grazing area), the permittee/herder will notify the Bishop Field Office, as soon as possible, but within 24 hours of the observation. The BLM will immediately notify the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The permittee/herder is directed to increase the distance between the Sierra Nevada bighorn sheep and the domestic sheep. The permittee/herder will document how many bighorn sheep were observed, where the domestic sheep were at the time of the sighting, where the bighorn sheep was sighted, and the direction in which the bighorn sheep moved after the initial sighting.

If at any time during the grazing season the U.S. Fish and Wildlife Service or the California Department of Fish and Game identify a bighorn sheep within the immediate vicinity of the allotment, the Bishop Field Office will coordinate with the permittee to implement a management change to mitigate the potential for contact. This management change will position as much distance as practicable between the wild sheep and domestic sheep. Possible alternatives include increased sheep counts, shifting grazing use to lower elevation areas of the allotment, or to portions of the allotment furthest from known bighorn sheep locations/occupied habitat. In the worst case, the permittee may be required to move all domestic sheep to an alternative allotment.

F. Livestock Grazing

The Dog Creek and Green Creek allotments would be used for a maximum of 45 days between June 1 and August 31. One band of sheep would be permitted for each allotment. The operator would be permitted to run one band of sheep in accordance to permit terms and conditions. Once utilization levels have been met, or on the last permitted day for that year, or on August 31, whichever comes first, the band would move off the allotment.

G. Range Improvements

No range improvement projects exist on the Dog Creek or Green Creek allotments. This is mainly due to the allotments being grazed by domestic sheep only, traditionally and recently. No

new range improvements need to be constructed to achieve or maintain rangeland health on the allotments. Therefore, no new range improvements are planned to be constructed. If, through monitoring, the Bishop Field Office identifies a need to construct a new range improvement to achieve or maintain rangeland health or to address a site-specific resource concern, a subsequent site-specific project level environmental assessment would be completed at that time.

H. Monitoring

In general, rangeland allotment monitoring (both upland and riparian) would continue to be conducted annually and/or periodically under three applicable oversight categories. These categories include: 1) short-term monitoring, 2) long-term trend monitoring, and 3) compliance assurance monitoring. All monitoring would continue to be performed according to BLM policy and following protocols from BLM approved manuals and technical references. Monitoring would be conducted on an annual schedule for Selective Management Category to Improve (I) allotments and periodically on Selective Management Category to Maintain (M) and Custodial (C) allotments.

The Dog Creek and Green Creek allotments are designated as Category M allotments in the Bishop Resource Management Plan (BLM 1993, Appendix 4, pages A4-5 through A4-7). Consistent with BLM policy, monitoring on these allotments would be conducted periodically.

Short-Term Monitoring

Short-term monitoring is a tool to gauge the cause and effect of the current grazing management on resource conditions on the allotments. This monitoring consists of information addressing current climatic conditions and the collection of utilization data. Monitoring would consist of documenting utilization levels to ensure that forage utilization on key perennial species does not exceed 40 percent on the average. Key areas would be selected and utilization on key species would be estimated in accordance with the current BLM technical reference. This would assure compliance with permit terms and conditions for the Dog Creek and Green Creek allotments.

Long-Term Trend Monitoring

Trend refers to the direction of change in vegetation composition and cover over time. Rangeland data are collected at different points in time on the same site in accordance with the BLM technical reference and the results are then compared to detect change. Trend data are important in determining the effectiveness of on-the-ground management actions. The Dog Creek and Green Creek allotments do not have established long-term rangeland trend plots. There is no plan at this time to establish long-term rangeland trend plots in the allotments given current management priorities.

Compliance Assurance Monitoring

Allotment compliance would be conducted on the Dog Creek and Green Creek allotments on an annual schedule to assure adherence to permit terms and conditions. Compliance involves assuring that livestock are on/off the allotment according to annual application dates, counting livestock numbers, identifying their location, checking brands or other marking requirements, and assuring range improvements function properly.

Compliance monitoring is an important tool to ensure the Bishop Field Office can respond quickly and appropriately to any changes in the potential for contact between domestic sheep and Sierra Nevada bighorn sheep on the Dog Creek and Green Creek allotments during the grazing season. Staff would be required to respond quickly and appropriately to any violations of the terms and conditions of any permit authorizations for these allotments and/or to any changes in the locations and movements of Sierra Nevada bighorn sheep in proximity to the allotments. Under this alternative, the Bishop Field Office would need to increase the level of allotment administration and compliance assurance monitoring on the Dog Creek and Green Creek allotments.

B. Alternative 2 - Current Management / No Action

This alternative involves issuing new 10-year permits with the same terms and conditions as under the previous authorizations. The terms and conditions of the current permits do not address the potential for contact between domestic sheep and Sierra Nevada bighorn sheep on the allotments; and under current management, the terms and conditions from both the Bishop Resource Management Plan (RMP) (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (S&Gs) (BLM 2000) were applied commonly and broadly to the allotments, without defined implementation guidelines, and were not tailored to specific vegetation communities and resources on the allotments. The Bishop RMP, as well as allotment management and other activity plans were amended when the Central California S&Gs were signed by the Secretary of the Interior on July 13, 2000.

A. Mandatory Terms and Conditions

Mandatory terms and conditions for the Dog Creek and Green Creek allotments were established at the land use planning level in the Bishop Resource Management Plan (BLM 1993). Mandatory terms and conditions including livestock number, livestock kind, season of use, percent public land (% P.L.), and allocated animal unit months (AUMs) are required for each allotment in accordance with 43 CFR 4130.3-1.

The mandatory terms and conditions for the Dog Creek and Green Creek allotments (Map 1) as prescribed in the Bishop Resource Management Plan (BLM 1993) for the allotments are:

Allotment	Number	Kind	From	To	% P.L.	AUMs*
Dog Creek	985	sheep	6/1	10/31	100	990
Green Creek	607	sheep	6/1	10/31	90	550

B. Terms and Conditions - Bishop Resource Management Plan

No salt or other nutrient supplement or sheep bedding is allowed within 1/4 mile of creeks, aspen groves, meadows, sage grouse strutting grounds or special status plant habitat.

No trailing through a neighboring allotment without prior authorization by the BLM.

Burned areas will be rested for a minimum of 3 growing seasons before grazing, to achieve proper functioning condition, recovery of vegetation or desired plant community.

The Bishop RMP Decision for the Desired Plant Community for riparian vegetation along streams is: “riparian vegetation growth is vigorous for woody plants and at least 4-6 inches of residual herbaceous plant height will remain at the end of the growing season or at the time of livestock turnoff, whichever is later.”

No grazing is allowed on the Conway Summit acquired lands (Kirkwood Meadow) except as prescribed to meet Desired Plant Community (DPC) goals or to improve wildlife habitat conditions.

C. Terms and Conditions - Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management

The maximum forage utilization limit for key perennial species is not to exceed 40% on sagebrush grassland, semi-desert grassland, semi-desert grass and shrubland or pinyon-juniper woodland rangelands. On salt desert shrubland ranges, the maximum utilization limit for key perennial species is not to exceed 35%.

The maximum forage utilization limit in riparian areas and wetlands is not to exceed 45% for herbaceous species or 20% for shrubs and trees.

The maximum utilization limit for bitterbrush in mule deer concentration areas (i.e. migration corridors or winter ranges) is not to exceed 20% of annual growth before October 1.

D. Other Terms and Conditions

No supplemental feeding (i.e. hay, pellets/cubes, or other forages) is allowed at any time on public lands without the BLM's authorization.

Ensure that livestock are not infested with or cannot transport weed seed, or other weed plant material from such species as ‘perennial pepperweed,’ coming from private land or other areas where known weed infestations exist. Specific species of concern are those described in the Eastern Sierra Weed Management Area Noxious Weed Identification Handbook.

Green Creek Allotment

Graze the Green Creek allotment in accordance with the draft allotment management plan.

Use old camps, bedding, and watering sites. Do not make new ones. Stay on existing roads and trails with all vehicles.

Trailing Stipulations: 1. Trail in direction of destination at all times. 2. See other Standard Office Stipulations under Terms and Conditions.

E. Management Requirements and Grazing Practices to Reduce and Detect Straying of Domestic Sheep

The permittees may voluntarily implement guidelines from the document entitled *A Process for Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic Sheep* (Baumer et al. 2009) and exercise voluntary avoidance measures for Sierra Nevada bighorn sheep while on the Dog Creek and Green Creek allotments.

F. Range Improvements

Range improvements would be the same as described in Alternative 1.

G. Monitoring

Monitoring would be the same as described in Alternative 1.

C. Alternative 3 - No Grazing

This alternative would cancel the permit for the Dog Creek allotment and the permit for the Green Creek allotment. No livestock grazing would be authorized on these allotments and the allotments would be closed to future grazing.

Under this alternative, the BLM would amend the Bishop Resource Management Plan (BLM 1993) in accordance with 43 CFR parts 4100 and 1600 to eliminate grazing on these allotments.

D. Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Under this alternative, domestic sheep grazing would not be authorized on the Dog Creek and Green Creek allotments except only to allow short-term trailing under a crossing permit along a designated route outside the “predicted area of potential contact” that poses a “high/unacceptable risk of contact” as outlined by Croft et al. 2010 (Map 2). A crossing permit would be issued on an annual basis, to authorize trailing from private lands in the Bridgeport Valley to other allotments located east of U.S. Highway 395. Trailing would be permitted between June 1 and September 30 and would occur in two separate events within a single year. Management requirements and grazing practices designed to reduce and detect straying of domestic sheep (Baumer et al. 2009) would be included as terms and conditions of the crossing permit.

This alternative is based on *Recommendation 1 (Closures of High-Risk Allotments)* as outlined in Section II E of the final Recovery Plan for the Sierra Nevada Bighorn Sheep (FWS 2007a). This alternative fully incorporates use of the “risk assessment tool” as recommended by the U.S. Fish and Wildlife Service (FWS) and considers information and guidance provided in two documents: 1) *A Process for Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic Sheep* (Baumer et al. 2009), and 2) *Application of the Document Entitled A Process for Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic Sheep* (Croft et al. 2009, 2010). This alternative would eliminate all domestic sheep use within the “predicted area of potential contact” on the Dog Creek and Green Creek allotments (0.833 as modeled in the “risk assessment tool” developed by Baumer et al. 2009 and

Croft et al. 2009, 2010). The crossing permit would be evaluated on an annual basis to determine if authorization is appropriate, depending on vegetation conditions and the level of risk to Sierra Nevada bighorn sheep.

Prior to permitting any future grazing on the Dog Creek and Green Creek allotments, a subsequent environmental assessment (EA) would be prepared to analyze and disclose the environmental consequences of any reauthorization. The Bishop Field Office would coordinate with the U.S. Fish and Wildlife Service and the California Department of Fish and Game to determine if the status and distribution of Sierra Nevada bighorn sheep populations still warrants closure of the Dog Creek and Green Creek allotments to domestic sheep use. If the allotments are reconsidered for domestic sheep use, the BLM would use the risk assessment methodology developed by the Sierra Nevada Bighorn Sheep Recovery Team and the best available information on bighorn sheep locations and movement patterns to assess the current risk of contact to determine if sheep grazing can recommence.

Under this alternative, the BLM would amend the Bishop Resource Management Plan (BLM 1993) in accordance with 43 CFR parts 4100 and 1600 to eliminate domestic sheep grazing on these allotments, except to allow for an annual crossing permit along a designated trailing route outside the “predicted area of potential contact” that poses a “high/unacceptable risk of contact” (Croft et al. 2009, 2010) between domestic sheep and Sierra Nevada bighorn sheep (Map 2).

Terms and conditions, grazing practices designed to reduce and detect straying of domestic sheep (Baumer et al. 2009), and provisions related to monitoring requirements included under this alternative are detailed below:

A. Terms and Conditions

Trailing may occur only between June 1 and September 30.

Trail in the direction of destination at all times. Trailing will occur in less than half a day. No bedding or siestas are permitted.

No trailing through a neighboring allotment is allowed without prior authorization by the BLM. Prior to trailing through a neighboring allotment, the trailing permittee will notify the BLM and all identified interested parties.

Avoid trailing through populations of *Cusickiella quadricostata* (Bodie Hills “draba”) that occurs on rocky, low sage sites found from Dog Town along U.S. Highway 395 west-northwest to the Green Creek Road (Township 4 N, Range 25 E, Sections 27, 28, and 34).

Periodically check livestock for weed seed to minimize or stop the spread of weeds such as perennial pepperweed from private land or other areas where known weed infestations exist. A guide on preventing the spread of weeds along with specific species of concern is described in the Eastern Sierra Weed Management Area Noxious Weed Identification Handbook.

Notify the BLM of noxious weed locations when encountered.

Use existing watering sites. Stay on existing roads and trails with all vehicles.

B. Management Requirements and Grazing Practices to Reduce and Detect Straying of Domestic Sheep

The Bishop Field Office will coordinate with the U.S. Fish and Wildlife Service and the California Department of Fish and Game prior to annual authorization of the crossing permit to determine if recent bighorn sheep locations or movements require a re-evaluation of the risk of contact between domestic sheep and Sierra Nevada bighorn sheep as a result of trailing west of U.S. Highway 395.

If new information on bighorn sheep locations and movements indicate that domestic sheep trailing poses an imminent risk of contact, the authorized officer will temporarily suspend or modify the crossing permit, as necessary to eliminate the risk of contact.

The permittee will notify the Bishop Field Office by telephone or in person, at least 48 hours in advance of trailing to or from an allotment and/or private lands. This requirement will allow the BLM to check with the U.S. Fish and Wildlife Service and the California Department of Fish and Game for the most recent sightings of Sierra Nevada bighorn sheep to insure that trailing west of U.S. Highway 395 does not pose an imminent risk of contact.

The permittee will maintain a band size of less than 1,500 dry ewes or yearlings, 900 ewes with single lambs (1,800 total), or 700-800 ewes with twin lambs (2,100 to 2,400 total) while trailing.

The permittee will only use sheep herders that are very knowledgeable about the band of domestic sheep they manage.

The permittee will place and retain one herder and at least two guard dogs (specifically Great Pyrenees) plus two herd dogs with domestic sheep while trailing. Female dogs in heat should not be used.

The permittee/herder will remove any domestic sheep that is sick or injured from the band prior to trailing. The permittee/herder will also immediately remove from the band and trailing area any domestic sheep that becomes sick or injured while trailing.

The permittee/herder will use marker sheep at a ratio of 1 to 20 to facilitate counts of domestic sheep while trailing.

The permittee/herder will place bells on mature ewes at a ratio of at least 1:100 to serve as a warning sound for the herder and to serve as identification and location of sheep to other sheep. If using "bell" sheep as markers, the permittee will place an identifying mark on the bell sheep in case the bell is lost.

The permittee/herder will count, and document in a log book, all individual sheep and marker sheep immediately prior to and after trailing. This number will serve as the baseline for the herder to assure that the full number of sheep can be accounted for at all times.

The permittee/herder will count marker sheep following any scatter event (thunderstorm, predator attack, etc.). If any marker count comes up short, a full count of all sheep will ensue. All marker counts and full counts will be documented in a log book.

If at any time while trailing a domestic sheep is determined to be missing, the permittee will notify the Bishop Field Office, as soon as possible, but within 24 hours. The permittee will immediately initiate a comprehensive search for the stray(s) which will conclude when the stray(s) are located. The permittee will immediately report the results of the search to the BLM.

The permittee will ensure vigilant monitoring of domestic sheep while trailing by having the herder in direct visual contact with sheep at all times along the trail. No bedding or siestas are permitted along the trail.

There will be no overnight trailing.

The herder will try to be in mobile phone contact with the permittee while trailing.

If at any time while trailing the permittee/herder observes a bighorn sheep along the trail, the permittee/herder will notify the Bishop Field Office, as soon as possible, but within 24 hours of the observation. The BLM will immediately notify the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The permittee/herder is directed to increase the distance between the Sierra Nevada bighorn sheep and the domestic sheep. The permittee/herder will document how many bighorn sheep were observed, where the domestic sheep were at the time of the sighting, where the bighorn sheep was sighted, and the direction in which the bighorn sheep moves after the initial sighting.

C. Range Improvements

Range improvements would be the same as described in Alternative 1.

D. Monitoring

In general, rangeland allotment monitoring (both upland and riparian) would continue to be conducted annually and/or periodically under three applicable oversight categories. These categories include: 1) short-term monitoring, 2) long-term trend monitoring, and 3) compliance assurance. All monitoring would continue to be performed according to BLM policy and following protocols from BLM approved manuals and technical references. Monitoring would be conducted on an annual schedule for Selective Management Category to Improve (I) allotments and periodically on Selective Management Category to Maintain (M) and Custodial (C) allotments.

The Dog Creek and Green Creek allotments are designated as Category M allotments in the Bishop Resource Management Plan (Appendix 4, pages A4-5 through A4-7). Consistent with BLM policy, monitoring on the allotments would be conducted periodically.

Short-Term Monitoring

Short-term monitoring would be the same as described in Alternative 1.

Long-Term Trend Monitoring

Long-term monitoring would be the same as described in Alternative 1.

Compliance Assurance

Compliance assurance monitoring would be conducted on an annual basis to assure adherence to the terms and conditions of the crossing permit. Compliance would be conducted during both the spring and fall trailing periods to assure that livestock are using the trail according to the annual authorization.

Compliance monitoring is an important tool to ensure the Bishop Field Office can respond quickly and appropriately to any changes in the potential for contact between domestic sheep and Sierra Nevada bighorn while trailing. Staff would be required to respond quickly and appropriately to any violations of the terms and conditions of the crossing permit and/or to any changes in the locations and movements of Sierra Nevada bighorn sheep in proximity to the designated trail. Under this alternative, the Bishop Field Office would need to increase the level of compliance assurance monitoring associated with the crossing permit.

The Bishop Field Office will coordinate annually with the U.S. Fish and Wildlife Service and the California Department of Fish and Game to determine if recent bighorn sheep movements require a re-evaluation of the risk of contact between domestic sheep and Sierra Nevada bighorn sheep for trailing west of U.S. Highway 395. If the crossing permit requires re-evaluation, the BLM will use the risk assessment methodology developed by the Sierra Nevada Bighorn Sheep Recovery Team and the best available information on bighorn sheep locations and movement patterns to assess the current risk of contact and to determine if changes in trailing and herding practices are necessary to eliminate the risk of contact.

E. Alternatives Considered but Eliminated from Detailed Analysis

During internal scoping and after receiving comments from the current livestock operator for the Dog Creek allotment, the BLM also considered a fifth alternative, the conversion of livestock kind from domestic sheep to cattle on the Dog Creek and Green Creek allotments. However, this alternative was considered but eliminated from detailed analysis after initial review. Though not required, a brief explanation of why the proposed alternative was eliminated from detailed analysis in this environmental assessment is provided below as recommended in BLM Manual H-1790-1.

Proposed Alternative 1:

Conversion of Livestock Kind on the Dog Creek and Green Creek Allotments from Domestic Sheep to Cattle.

Rationale for Eliminating Proposed Alternative 1 from Detailed Analysis:

At the time of this environmental assessment, the conversion of the Dog Creek and Green Creek allotments from domestic sheep to cattle is not considered a reasonable alternative because: 1) there is currently no infrastructure (e.g. allotment boundary fencing) on these two allotments that would allow for cattle use, and 2) it would not be economically feasible to develop and maintain the infrastructure needed to manage cattle on these allotments in the reasonably foreseeable future. In addition, the proposed conversion is outside the scope of this environmental assessment and does not meet the purpose and need described in Chapter 1.

The historic and recent use of the Dog Creek and Green Creek allotments has been for domestic sheep grazing in conjunction with other federal grazing allotments and intermingled and adjacent private lands. The proposed alternative is inconsistent with the current management direction for the area and would not be in conformance with the Bishop Resource Management Plan (RMP) (BLM 1993), since both allotments are currently authorized for sheep grazing only. Furthermore, existing allotment management plans for the Dog Creek and Green Creek allotments are specific to sheep grazing.

At this time, there is no infrastructure on these two allotments that would allow for cattle use. This includes a complete lack of allotment boundary fences, internal pasture fences, stock waters, corrals, loading chutes, and other infrastructure that would be required to effectively manage cattle on the allotments. No allotment boundary fences currently exist on either the Dog Creek or Green Creek allotment. This at a minimum would be required to keep cattle within the designated allotment boundaries. Roughly 15 miles of boundary fence on the Dog Creek allotment and over 12 miles of boundary fence on the Green Creek allotment would need to be built before cattle could be placed on the allotments. The estimated cost of the required boundary fencing alone calculates to approximately \$400,000.00. In addition, road access to build boundary fences is limited and the terrain in many places may be unsuitable for fence construction. Stock waters may also be needed to ensure proper livestock distribution and the achievement of required use levels. Corrals and loading chutes would likely be needed to handle cattle while on the allotments. In addition, internal pasture fencing may be needed to effectively manage cattle distribution and use on the allotments. The current advantage to using sheep on these allotments is that they are easily herded and therefore no infrastructure is required to effectively manage sheep distribution and use on the allotments.

This alternative is also considered to be outside the scope of this environmental assessment partially due to pending decisions for adjacent federal allotments managed by the Humboldt-Toiyabe National Forest (HTNF), Bridgeport Ranger District. Depending on the outcome of allotment evaluations currently being considered by the HTNF, there may be an opportunity to re-align allotment boundaries and coordinate management on adjacent National Forest lands through a subsequent environmental analysis. The HTNF Bridgeport Ranger District has informed the BLM that their allotments are not likely to be analyzed until 2012 or later.

Finally, this alternative is outside the scope of this environmental assessment because of the additional scoping and planning needed to fully analyze the site specific projects including boundary adjustments and fencing, livestock handling facilities, internal pasture fencing, and other infrastructure that would be required to support the conversion from domestic sheep to cattle on the Dog Creek and Green Creek allotments.

Chapter 3: ENVIRONMENTAL ANALYSIS

A. LIVESTOCK MANAGEMENT

1. Affected Environment

Past and Present Grazing

Prior to 1859, the Owens Valley had minimal if any domestic livestock grazing. L. R. Ketcham of Visalia, California in 1859 was documented as the first cattleman to drive cattle into the Owens Valley (Putman and Smith (editor) 1995). By 1910, the Farm Census had reported 43,000 sheep and 20,000 cows and cattle in the Owens Valley.

After the enactment of the Taylor Grazing Act in 1934, the U.S. government began taking an active role in managing public lands in the Owens Valley, creating allotment boundaries and developing grazing management systems. In 1946, the General Land Office and the Grazing Service merged to create the Bureau of Land Management.

Over the last forty years, grazing on public and private lands in the eastern Sierra region has generally consisted of optimizing stocking rates when forage production was adequate to support livestock, generally throughout various habitat types. Grazing permits on public lands have incorporated numerous federal laws, regulations, policies, and management guidelines to protect and improve various resource values including rangeland and vegetative/wildlife habitat conditions. Monitoring has also been incorporated into grazing management to ensure compliance with permit stipulations. These grazing management practices have generally lead to improving trend in rangeland health and habitat conditions within the region.

Presently, the Bishop Field Office administers 57 allotments with 24 permittees spanning a geographic distance of 220 miles from Olancha to Topaz, California, a 750,000 acre linear and narrow configuration of public land straddling the edge of the eastern Sierra and western Great Basin. The physical environment ranges from Great Basin habitat in the north to Mojave Desert in the south. Subsequently, forage capability is often limited by precipitation and elevation which tends to be more favorable in the northern portion of the field office area.

Allotment Specific

The Dog Creek allotment is located in the Bridgeport Valley Management Area as defined in the Bishop Resource Management Plan (BLM 1993) (Map 1). The southern boundary of the allotment is the Virginia Creek Road and the eastern boundary is Highway 395. The northern boundary is the Green Creek allotment, and the western boundary borders private land and the Humboldt-Toiyabe National Forest.

One livestock operator has been permitted to use the Dog Creek allotment. Livestock number, livestock kind, permitted season of use, percent public land, and allocated animal unit months (AUMs) for the Dog Creek allotment are:

Allotment	Number	Kind	From	To	% P.L.	AUMs*
Dog Creek	985	sheep	6/1	10/31	100	990

The base property for the Dog Creek allotment consists of private lands at Sinnamon Meadow. The current permittee first acquired the grazing preference in 2004 under a lease agreement. The permittee leased the base property under 3 year agreements and the current lease is valid through October 31, 2012. The allotment is used in conjunction with the permittees adjacent federal allotments and private lands. Livestock grazing is permitted from June 1 to October 31, although, the allotment is typically used for approximately 45 days between June 15 and August 31. The permittee would often run one band of 900 sheep (ewes with lambs) or less on the allotment. For example in 2008, the permittee took active use on the Dog Creek allotment for 985 sheep from June 1 to September 15 (693 AUMs). However, reported actual use for the one herd was 627 ewes and 1073 lambs. The band used the allotment between July 21 and August 30 for approximately 41 days (169 AUMs). The permittee took temporary non-use for the 2010 grazing season to avoid conflicts and to provide the BLM time to complete the environmental review process. Grazing of private property at Sinnamon Meadow does not occur under the auspices of a federal grazing permit.

The Green Creek allotment is located in the Bridgeport Valley Management Area as defined in the Bishop Resource Management Plan (BLM 1993) (Map 1). The southern boundary of the Green Creek allotment is the Dog Creek allotment and the eastern boundary is Highway 395. The northern boundary borders private land of Bridgeport Valley. The western boundary borders private land, a State Wildlife Area managed by the California Department of Fish and Game, and the Humboldt-Toiyabe National Forest.

One livestock operator has been permitted to use the Green Creek allotment. Livestock number, livestock kind, permitted season of use, percent public land, and allocated animal unit months (AUMs) for the Green Creek allotment are:

Allotment	Number	Kind	From	To	% P.L.	AUMs*
Green Creek	607	sheep	6/1	10/31	90	550

The base property for the Green Creek allotment consists of private lands at Sario Ranch. The permittee acquired the grazing preference in 1983 under a lease agreement. The permittee leases the base property under yearly lease agreements. The allotment is typically used in conjunction with the BLM Mormon Ranch allotment and private land north of Bridgeport, California. Livestock grazing is permitted from June 1 to October 31, although, the allotment was normally used for approximately 40 days between July 1 and August 31. The permittee would often run one band of 1500 sheep or less on the allotment. For example in 2008, the permittee took active use on the Green Creek allotment for 1500 sheep from July 3 to August 13 (373 AUMs). The permittee took temporary non-use for the 2010 and 2011 grazing seasons to avoid conflicts and to provide the BLM time to complete the environmental review process. Grazing of private property at Sario Ranch does not occur under the auspices of a federal grazing permit. The permittee is planning to acquire the allotment by a transfer of grazing preference to the permittee's owned base property, pending the outcome of the selected alternative.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Authorizing grazing with modified allotment-specific terms and conditions would not create negative impacts to livestock operations. Because livestock grazing practices would follow Bishop RMP (BLM 1993) guidelines as amended by the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000) and the revised terms and conditions, the permittees would have to manage their livestock (e.g. active herd management for better distribution) so forage utilization on key perennial species does not exceed utilization levels, as defined in the proposed terms and conditions described in Chapter 2. For example, strategic management of livestock by active herding to distribute use on forage across the allotment would indirectly improve forage resources. “On many ranges, improvement will occur without reduction in livestock numbers if practices to secure more uniform utilization are met” (Holechek et al. 1989). Practices already used to distribute livestock include changing location of field camps and active herd management to move livestock to underutilized areas.

Incorporating terms and conditions for Sierra Nevada Bighorn Sheep, and other grazing practices to reduce and detect straying of domestic sheep would create extra annual work for the operator and sheep herders while on the Dog Creek and Green Creek allotments. However, these grazing practices have already been exercised voluntarily by the two permittees on the Dog Creek and Green Creek allotments. Extra work may create an added expense for the two operators along with purchasing special equipment (e.g. GPS unit and cell phone) for compliance with terms and conditions.

Changing the season of use from June 1 through October 31 to June 1 through August 31 would not negatively impact livestock operations. Commonly, the allotments were grazed during that time period of July 1 through August 31. However, this would restrict the operators to a more confined grazing period.

Lastly, the proposed terms and conditions are designed to help maintain, protect, and improve rangeland health, increasing the probability of long-term economic viability for the permittees.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of Alternative 2 would be very similar to Alternative 1. One difference between Alternative 1 and Alternative 2 is that the terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on these allotments, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines.

Furthermore, avoidance measures for Sierra Nevada Bighorn Sheep derived from A Process For Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic

Sheep (Baumer et al. 2009) would be a voluntary action under the discretion of the two operators. Since the avoidance measures would not be incorporated into the terms and conditions of the permits, they could not be enforced by the BLM.

Lastly, the permitted season of use would be from June 1 through October 31. The late permitted season of use of September and October overlaps with the autumn breeding season (the rut) of Sierra Nevada bighorn sheep. Long distance movements by Sierra Nevada bighorn sheep during rut may be associated with forays by rams in search of mates. The long distance movement by a ram has the potential to cross paths with domestic sheep on the Dog Creek and Green Creek allotments. Domestic sheep grazing during rut would increase the probability of contact and the potential for respiratory disease transmission between domestic sheep and Sierra Nevada bighorn sheep.

c. Impacts of Alternative 3 - No Grazing

The elimination of domestic livestock grazing on the Dog Creek and Green Creek allotments would force the two operators to look for alternative forage. This may increase the cost of their ranching operations if similar federal allotments are not acquired. If federal allotments are not available, the operators may need to supplement with private lands which are often more expensive per animal unit month. Or, the permittees may be forced to sell sheep and operate with fewer livestock. Less domestic sheep calculates to less work and less money.

In the worst case, an operator may need to sell the entire livestock business. If the business is sold, private lands associated with the ranch have the potential to be sold and developed. Ranches build connections between public and private land, and between rural and urban communities. “Private lands are disproportionately important to the maintenance of our region’s natural heritage because they are disproportionately more productive” (Knight 2007). Private lands often contain springs, riparian areas, rich soils, and important wildlife habitat values. A few of the consequences from development of rural lands are landscape level fragmentation, decreased biodiversity, and loss of important wildlife habitat.

Grazing of private property does not occur under the auspices of a federal grazing permit; therefore, grazing could still occur on private lands within the allotments. However, there would be a need to either trail or truck livestock to the private lands. There may be unauthorized grazing use onto BLM lands since the private lands are unfenced. Livestock trespass or drift onto BLM land would result in administrative costs to the agency.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts to the operators would be very similar to Alternative 3 because the allotments would be closed to domestic sheep grazing. Authorizing a crossing permit on an annual basis would allow for trailing access between private lands in Bridgeport Valley and public land allotments east of U.S. Highway 395. A crossing permit would allow for trailing along part of a historic trailing route which would eliminate the need to find alternative routes or to truck sheep between the respective locations. The trail from private land in Bridgeport Valley to public land allotments on the east side of U.S. Highway 395 does cross through the southern portions of both the Dog Creek and Green Creek allotments. However, the area lies outside the “predicted area of potential contact” that poses a “high/unacceptable risk of contact” as outlined by Croft et al.

2010 (Map 2). The location where the trail crosses U.S. Highway 395 is a suitable and safe location.

B. AIR QUALITY

1. Affected Environment

The Dog Creek and Green Creek allotments are not within any federal non-attainment/maintenance area under jurisdiction of the Great Basin Unified Air Pollution Control District (GBUAPCD). Federal actions are not subject to conformity determinations under 40 CFR 93.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Fugitive dust emissions would occur due to soil disturbance as a result of the trampling action of livestock when soil moisture levels are low. Ruminant animals emit methane gas which is a precursor emission for ozone. Support vehicles would emit various precursor emissions for ozone. Actual emission amounts from these grazing related activities would be negligible.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of Alternative 2 would be the same as the impacts of Alternative 1.

c. Impacts of Alternative 3 - No Grazing

There would be no fugitive dust emissions from livestock trampling or precursor emissions for ozone.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be very similar to the impacts of Alternative 1; however, the duration would be much shorter and confined to the trailing periods only.

C. AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

1. Affected Environment

A portion of the Conway Summit ACEC is located within the Dog Creek allotment (Map 1). One grazing permit exists for the use of the allotment and is authorized for sheep only. Approximately 1,920 acres of the ACEC are within the Dog Creek allotment.

The ACEC encompasses 2,700 acres and was designated in the Bishop Resource Management Plan (BLM 1993) for its assemblage of resource values. Identified values include scenery, riparian habitat, and recreation opportunities. There is currently no activity level management

plan for the Conway Summit ACEC.

Livestock use was authorized for sheep grazing under the expired permit and complied with both the Bishop RMP and the Dog Creek Allotment Management Plan. Present physical impacts consist of slight soil compaction from herding and trailing. Under current utilization levels, the grazing system is designed to sustain natural processes as defined in the above plans. Sheep herding practices which control and distribute physical impacts in the ACEC emphasize forage consumption when and where range conditions provide the best utilization opportunities while protecting the ACEC's resource values. Grazing in the ACEC has the potential to damage cultural properties and includes a disease risk to native Sierra Nevada bighorn sheep populations.

No other ACECs are located within the remainder of the Dog Creek allotment. No ACECs are located within the Green Creek allotment.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Issuance of a grazing permit with the proposed terms and conditions stated in Chapter 2, Section A of this document for the Dog Creek allotment would maintain or slightly improve the existing physical characteristics of the Conway Summit ACEC similar to those identified in the Affected Environment with some improvements in the ACEC's ecological health.

Alternative 1 would create no new impacts to soils because the proposed terms and conditions are designed to help maintain, protect, or sustain rangeland health including soils, and to keep the ecosystem functioning properly. The implementation of the revised terms and conditions on the Dog Creek allotment would enhance and sustain the large-scale ecological function of the ACEC's plant communities due to the terms and conditions of the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000). Alternative 1 would sustain and improve perennial grass cover, root distribution, species diversity, vegetative structure and recruitment.

The overall wildlife habitat quality of the ACEC would be maintained or slightly improved because of a lack of concentrated use in any one area of the allotment which would limit alteration impacts to soils and vegetation, thus maintaining the largely intact wildlife habitats.

Impacts to cultural resources are expected to be low since livestock use would remain dispersed throughout the ACEC.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of the no action alternative on ACEC values would be essentially the same as Alternative 1 because both alternatives are very similar. The only difference between this alternative and Alternative 1 is that terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on the allotments,

as in Alternative 1. For this alternative, it is likely that the BLM, the Dog Creek permittee and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines.

c. Impacts of Alternative 3 - No Grazing

The no grazing alternative would have slight benefits to ACEC values. Soil disturbance would cease from termination of grazing operations and individual plant populations within the communities that are commonly grazed would have an opportunity to complete all phenological stages. Impacts to the ecological function of these plant communities would be confined to natural disturbances (e.g. fire, insect damage, and drought) and other non-anthropogenic induced effects. The no grazing alternative would also eliminate the potential for livestock damage to cultural properties and eliminate disease risks to native Sierra Nevada bighorn sheep populations.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be the same as Alternative 3. Trailing would occur outside the Conway Summit ACEC (Map 2).

D. CULTURAL RESOURCES

1. Affected Environment

Located on the western fringe of the Great Basin physiographic province the Bodie Hills region, incorporated within the Bishop Field Office, contains the highest archaeological site densities within the Great Basin (Basgall and McGuire 1988; Bettinger 1975, 1982). In 1981 and 1982 the BLM completed two Environmental Impact Statements (EISs) addressing grazing on public lands within the Bishop Field Office; “Proposed Livestock Grazing Management for the Benton-Owens Valley Planning Unit”, 1981 and “Proposed Livestock Grazing Management for the Bodie-Coleville Planning Units”, 1982. In both EIS’s cultural resource reviews are limited to Class I literature searches of existing data.

Based on existing survey data (BLM 1978, Busby et al. 1979, Hall 1980, Kobori et al. 1980), site densities are predicted to range from 4 to 9 sites per square mile (m²) on public lands administered by the Bishop Field Office in the eastern Sierra region of California.

To evaluate the allotments for cultural resource values a Class I records search was conducted and a GIS utilized to determine previously surveyed acres and sites recorded on each allotment. Range improvements where livestock congregate (troughs, salt licks, reservoirs, etc.) were mapped. Following the Bishop Field Office research design for grazing allotment assessments (Halford 1999), all areas with a high probability for the congregation of livestock and for the occurrence of significant cultural resources were field evaluated. The allotment was field checked to determine if congregation areas occur. Inventory was focused on known or suspected areas of historic ground disturbing activities associated with livestock grazing such as water sources, corrals, supplemental feeding areas, bedding areas, and salt block stations. The results of the analyses are used to modify grazing permits to protect or mitigate impacts to cultural

resources. If significant cultural resources are identified, the stipulations of the grazing permit may be modified to reflect the presence and protection of significant cultural resources.

The following table shows the results of the cultural resource analyses for the Dog Creek and Green Creek allotments.

Allotment	Previously Surveyed (% of allotment)	Newly Surveyed	Previously Recorded Sites	Newly Recorded Sites
Dog Creek	1%	All developments	6	0
Green Creek	14%	All bedding areas	3	0

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Impacts to cultural properties are predicted to be minimal as a result of the modified grazing permit alternative. Livestock use on the allotments is generally highly dispersed with light use. Impacts to sites are low based on targeted field evaluations and are predicted to be low across the allotments.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of the no action alternative would be the same as Alternative 1 because both alternatives are very similar. The only difference between this alternative and Alternative 1 is that terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on the allotments, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines.

c. Impacts of Alternative 3 - No Grazing

This alternative would eliminate all livestock threats of damage to cultural properties.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

This alternative would have nearly the same impacts as Alternative 3. Since livestock activities would be severely limited this would eliminate nearly all livestock threats of damage to cultural properties. Monitoring would still be required within areas of concentrated impacts, with the designated trail being the focus of these efforts.

E. ENVIRONMENTAL JUSTICE

1. Affected Environment

There are no low-income or minority populations living on the Dog Creek or Green Creek allotments.

There are 11 Native American communities who reside in close proximity to the allotment. Members of these communities do some hunting and subsistence collecting of materials from public lands on various allotments throughout the Bishop Field Office such as pinyon nuts, basket weaving materials, medicinal plants, etc. Some work in nearby local communities or are employed on their respective reservations.

There may be low-income minorities working for the livestock operators on these allotments.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Continued livestock grazing on the allotments would have no effect upon any low-income or minority populations. If any changes in grazing management are required, there may be a loss of a job to a member of a low-income or minority population. There may also be new jobs created and sustained as a result of the long-term livestock grazing sustainability from rangeland health standards implementation. Any such impacts would be limited to a single job here or there. There would not be a disproportionate impact, either negative or positive, to any low-income minority.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of Alternative 2 would be the same as Alternative 1.

c. Impacts of Alternative 3 - No Grazing

If livestock grazing was eliminated on the allotments there may be a loss of some jobs to members of low-income or minority populations. Any such impacts would be limited to a single job here or there. There would not be a disproportionate impact to any low-income minority.

There might be a slight positive impact to some groups (e.g. Native American) through increased availability of some vegetative resources that are collected on public lands. This would however vary by area and type of resource, and would probably be minimal on these allotments.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be the same as Alternative 3.

F. ESSENTIAL FISH HABITAT

None of the alternatives would have any effect on essential fish habitat because there are no anadromous fish species or designated essential fish habitats on the Dog Creek or Green Creek allotments.

G. FARMLANDS, PRIME OR UNIQUE

None of the alternatives would have any effect on farmlands, prime or unique, because none are present on the Dog Creek or Green Creek allotments.

H. FLOOD PLAINS

None of the alternatives would have any effect on flood plains because none are present on the Dog Creek or Green Creek allotments.

I. GLOBAL CLIMATE CHANGE

1. Affected Environment

United States Department of Interior, Order Number 3226, signed January 19, 2001, Evaluating Climate Change Impacts in Management Planning, is an order to ensure that climate change impacts are taken into account in connection with planning and decision making. Climate change refers to any significant change in measures of climate (e.g. 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 (e.g. changes in ocean circulation); human activities that change the atmosphere's composition (e.g. burning fossil fuels) and the land surface (e.g. urbanization) (IPCC 2007). "Agricultural activities contribute directly to emissions of greenhouse gases through a variety of processes (USEPA #430-R-08-005 2008)." A few of these processes include enteric fermentation (normal digestion), field burning of agricultural residues, and soil management activities such as fertilizer application.

"There is broad scientific consensus that humans are changing the chemical composition of our atmosphere" (Jones & Stokes 2007). Changes in the atmosphere have likely influenced temperature, precipitation, storms, and sea level (IPCC 2007). Rising greenhouse gas (GHG) levels are likely contributing to global climate change. In the eastern Sierra region of California, climate change may result in warmer, drier conditions, and potentially more extreme weather events.

Livestock grazing related to the action and no action alternatives contributes GHGs in the form of methane (USEPA #430-R-08-005 2008). One direct emission of greenhouse gasses related to livestock grazing on public land is through enteric fermentation and excretion. "CH₄ is produced as part of normal digestive processes in animals. During digestion, microbes resident in an animal's digestive system ferment food consumed by the animal. This microbial

fermentation process, referred to as enteric fermentation, produces CH₄ as a by-product, which can be exhaled or eructated by the animal. The amount of CH₄ produced and emitted by an individual animal depends primarily upon the animal's digestive system, and the amount and type of feed it consumes” (USEPA #430-R-08-005 2008). However, challenges exist to determine what fractions of climate change are due to natural variability versus human action since natural contributions of GHGs occur (USEPA #430-R-08-005 2008).

2. Environmental Consequences

The assessment of GHG emissions and climate change remains in its formative phase. The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts of climate change on resources within the Bishop Field Office. In addition, while alternatives 1, 2 and 4 would 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 and believed to be due to more than a century of human activities. Neither Alternative 1 nor Alternative 2 would authorize an increase in activities that would increase GHG emissions.

Rangeland allotment monitoring (both upland and riparian) would continue to be conducted annually and/or periodically. Should warmer and drier conditions occur within the next ten years, which is the term of a grazing permit, monitoring may indicate a need to adjust annual operations. Season of use for a permit is generally broad to compensate for natural annual fluctuations in vegetative growth often related to precipitation amounts and timing.

The No Grazing and Closure of High Risk Allotments/Crossing Permit Only alternatives may reduce locally produced GHG emissions from less enteric fermentation and excretion; however, this level of reduction is likely to be minute and practically un-measurable at both the local and global scales.

J. INVASIVE, NON-NATIVE SPECIES

1. Affected Environment

The following table represents invasive weed species that occur in the allotments:

Allotment	Invasive Weed Species	Estimated % Cover (Rangeland Health Assessments 2000)
Dog Creek	Cheat grass (<i>Bromus tectorum</i>)	20-25% (Associated with sheep grazing impacts, e.g. historic bedding areas).
Green Creek	Cheat grass (<i>Bromus tectorum</i>)	20-25% (Associated with sheep grazing impacts, e.g. historic bedding areas).

The Dog Creek and Green Creek allotments have slightly higher weed densities than in the neighboring Bodie Hills. These differences may be due to the varying soil types associated with

the two areas. The presence of cheat grass and other non-natives may decrease recruitment of native perennial bunch grass and bitterbrush seedlings. Periodic invasive plant monitoring of the allotments would facilitate documenting changes in site composition and density of any non-native species.

Studies have predicted that arid ecosystems may be among the most responsive to elevated levels of CO₂ in the atmosphere and the associated global climate change (Smith et al. 2000). Net increases in above-ground non-native annual grass production and seed rain increases at elevated CO₂ levels have been demonstrated (Smith et al. 2000). Therefore increased CO₂ levels could lead to more successful establishment of non-native annual grasses which would result in commensurate declines in biodiversity and ecosystem function in the arid regions of North America (Smith et al. 2000).

Overall, the potential long-term and landscape impacts of increased weed densities will likely be more a function of increased CO₂ levels and fire induced type-conversions (Smith et al. 2000, Chambers et al. 2005) than the effects of any of the alternatives especially since livestock use levels in the eastern Sierra have been in decline since the late 1800's (Beesley 1996) and the current risk of weed seed transport is less than during those periods of more intensive livestock use.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

The modified grazing permit alternative would require that utilization of native vegetation not exceed 40% which was identified in the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000). Forty percent utilization compared to the 60% utilization identified in the Bishop Resource Management Plan (BLM 1993) has been shown to increase annual production (Van Poollen et al. 1979).

Impacts under the modified grazing permit alternative would be essentially the same as those under the no action (current management) alternative. The presence of livestock may increase the chance of invasive plant introduction and spread across the allotment; however, terms and conditions of the permit would be put in place to decrease this risk. Studies have also shown that early season grazing, normally before seed set, of annual grasses may help reduce weed invasion by reducing inputs into the seed bank of particular sites (Olson 1999, Mosley and Roselle 2006).

A potential impact of the modified grazing permit alternative which would differ from the current management alternative is that grazing may be more likely to occur early in the season (still after the 6/1 start date) because of the shortened length of the grazing season. This early season grazing could reduce the amount of cheat grass going to seed; however, increased early season grazing could also result in targeting early season native perennial grasses.

b. Impacts of Alternative 2 - Current Management/No Action

Impacts under the current management alternative would be very similar to those of the modified grazing permit alternative. Both current management and the modified grazing permit alternative allow for only 40% utilization of key species, but under current management the terms and conditions of the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000) are applied more broadly and uniformly across the allotments.

Presence of livestock may increase the chance of invasive plant introduction and spread across the allotments, but current management with the mandatory terms and conditions would not result in any additive effect to existing weed densities.

c. Impacts of Alternative 3 - No Grazing

Under the no grazing alternative, impacts from weed invasion on native plant communities would affect only small areas where weed populations currently exist, such as within roads, historic sheep bedding locations, and historic mineral exploration sites. Seed from these locations would not be transported into adjacent and currently intact communities by livestock, but would still be transported via vehicles, humans and by non-anthropogenic agents (e.g. rodents, wind, and water).

Under this alternative, impacts to weed densities and ecological function of these plant communities would be confined to environmental perturbations associated with global climate change effects, fire (Smith et al. 2000, Chambers et al. 2005), and insect damage.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Under this alternative, impacts would be very similar to that of Alternative 3 because livestock would be actively herded and restricted almost entirely to roads and the crossing would not take more than a day.

K. NATIVE AMERICAN CULTURAL VALUES

1. Affected Environment

There are 11 Native American communities who reside in or in close proximity to the eastern Sierra region administered by the Bishop Field Office. None of these communities are living on either the Dog Creek or Green Creek allotments. There are no treaty rights (hunting, fishing, etc.) associated with any of the communities or the allotments.

Some members of these communities hunt and some do subsistence collecting of materials from public lands such as, basket weaving materials, medicinal plants, etc. However, this is general use and there are no specific “traditional use areas” identified at this time by any of the Tribes on the allotments. Any other traditional uses or use areas have not been divulged to this office.

Some general concerns associated with Native American cultural values identified by the Tribes during consultation are:

- They have general concerns with overgrazing and want the BLM to control overgrazing to protect the ecosystem and ensure that it is functioning properly.
- They have concerns that water (or other) developments not impact cultural sites and that they not affect deer habitat (through de-watering streams and springs, or trampling of habitat around new troughs, etc.).
- They do not want cattle grazing on top of individual burials or grave sites or within known Native American cemeteries.
- They do not want sheep bedding on top of cultural sites.
- They do not want the BLM to use herbicides on plants that they might collect.
- They do not want the BLM to cut/remove pinyon for grazing habitat improvement.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Alternative 1 is not expected to have any impacts to Native American concerns described above. The rangeland health assessments showed the allotments currently meet rangeland health standards. The proposed terms and conditions are designed to help protect and sustain rangeland health, keep the ecosystem functioning properly, and thereby maintain or improve the natural environment upon which Native American cultural values depend. Monitoring would continue and any impacts that affect Native American sites from high congregation and concentration of livestock use would be corrected.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of the no action alternative would be the same as Alternative 1 because both alternatives are very similar. One difference between this alternative and Alternative 1 is that terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to this allotment. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on this allotment, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines.

c. Impacts of Alternative 3 - No Grazing

Removing grazing would generally result in fewer impacts to the natural environment, thus alleviating Native American concerns with overgrazing and grazing impacts to cultural resources.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be nearly the same as Alternative 3. Monitoring would continue and any impacts that affect Native American sites from high congregation and concentration of livestock use would be corrected.

L. RECREATION

1. Affected Environment

Public lands in the Dog Creek and Green Creek allotments provide numerous opportunities for a variety of outdoor recreational activities. Access is spread over a large geographic area, with no developed recreational facilities. Hiking, camping, fishing, wildlife viewing, cross-country skiing, snowmobiling, and hunting are some of the activities available to people recreating in the area. Motor touring and off-highway vehicle use is popular, and it is common for visitors to drive the loop from Virginia Creek Road to Green Creek Road near Bridgeport. Dispersed camping sites exist on public lands along Virginia Creek as well as other sites near Dynamo Pond, along Green Creek and throughout the area. Visitors to the area may encounter livestock infrequently.

2. Impacts of Alternatives

None of the alternatives would have any measurable effect on recreation opportunities because proposed facilities or management practices that could potentially alter existing recreation uses or use patterns do not exist in the allotments. Recreationists would continue to encounter livestock infrequently under alternatives 1, 2, and 4.

M. SOCIAL AND ECONOMIC VALUES

1. Affected Environment

Regionally, livestock operations in Inyo and Mono counties are dependent on federal lands (BLM and U.S. Forest Service) and nonfederal lands (state and private). The Dog Creek and Green Creek allotments have two permittees. There is a careful balance of livestock numbers and seasons of use for grazing these allotments, such that any substantial change of use, would negatively affect their overall operation. Having other permits or lease land available does not in itself lead to increased flexibility.

For 2011, the federal grazing fee for public lands managed by the BLM and the U.S. Forest Service is \$1.35 per animal unit month (AUM). An AUM is the amount of forage needed to sustain one cow and her calf, one horse, or five sheep or goats for a month. The annually adjusted grazing fee is computed by using a 1966 base value of \$1.23 per AUM for livestock grazing on public lands in the western states. The figure is then adjusted according to three factors - current private grazing land lease rates, beef cattle prices, and the cost of livestock production. The formula used for calculating the grazing fee, established by Congress in the 1978 Public Rangelands Improvement Act, has continued under a presidential Executive Order

issued in 1986. Under that order, the grazing fee cannot fall below \$1.35 per AUM, and any increase or decrease cannot exceed 25 percent of the previous year's level.

The local economy is benefited by grazing operations from capital spent to establish and maintain a ranching operation and contributions to the labor force. In 1980 for Inyo and Mono counties, livestock production grossed \$11,303,314 (1980 Annual Crop and Livestock Report). In 2009 for Inyo and Mono counties, livestock production grossed \$29,593,405 (2009 Annual Crop and Livestock Report). Agriculture production which includes livestock, field crops, miscellaneous crop production, timber, and apiaries is one of the largest industries and an integral part of both the Inyo and Mono County economies.

In Mono County for 2009, livestock and field crops were the primary production crop. Of a 100% total in agricultural values, livestock production accounted for 60%. This amounted to \$19,596,055 or 60% of the total \$32,697,305 agricultural production in Mono County.

Additionally, the allotments lie in a broad region that is largely undeveloped and rural in nature. Tourism is a primary industry of the area, attracting millions of annual visitors who enjoy the rural, isolated nature of the Bridgeport Valley situated along the eastern Sierra. Livestock grazing, for some people, complements the frontier setting they seek in their visits to the area.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

These grazing operations benefit the Mono County economy from monies spent to establish and maintain a ranching operation and contributions to the labor force. Sustaining these operations, from continued use of these allotments, would have a positive economic effect on the stability of their overall livestock operation and the county. The social value of retaining a rural, agricultural lifestyle would be preserved and would align with many of the public's perception of the eastern Sierra western culture. Alternative 1 would not adversely impact the social or economic stability of these ranching operations.

Alternative 1 could however lead to disease transmission between domestic sheep and wild sheep. If disease transferred into the wild sheep population, there could be a die-off of individual sheep or in the worst case, an entire herd. This would negatively impact all bighorn sheep organization funds spent thus far on the recovery of the species. Therefore, additional funding would be needed to recover and/or reestablish the affected herd unit(s), which could be one or more of the twelve herd units considered essential for the recovery and down-listing of the endangered Sierra Nevada bighorn sheep. Socially, a die-off of an iconic endangered species like Sierra Nevada bighorn sheep could negatively affect tourism in the area, which is a major component of the regional economy.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of Alternative 2 would be essentially the same as Alternative 1. There would be some decrease in the potential for disease transmission between domestic sheep and wild sheep; however, the potential for disease transmission to occur on these allotments would not be eliminated.

c. Impacts of Alternative 3 - No Grazing

If grazing were terminated on these two allotments, there would be adverse impacts to the two operators and the two base property owners. For the two base property owners, there would be an annual loss of income because they would most likely not be able to lease their private lands without having the public land allotments. For the operators, the grazing capacity of their other federal permits or private leases may not accommodate the increased use or meet land management requirements. The permittees may be forced to operate with fewer livestock. There would be unauthorized grazing use onto BLM lands, since most private and federal permitted lands are unfenced. Livestock trespass or drift onto BLM land would result in administrative costs to the agency. The BLM may also receive criticism of this decision from its local constituency because of potential agricultural economic losses. In addition, the input into the Mono County economy by these operations would be reduced.

However, this alternative would eliminate the threat of disease transmission between domestic sheep and wild sheep from on the Dog Creek and Green Creek allotments. Bighorn sheep organization funds spent thus far on the recovery of the species may eventually lead to the recovery and down-listing of the federally-listed, endangered Sierra Nevada bighorn sheep.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be nearly the same as Alternative 3. The operator would save money by not having to haul livestock from private land to public land allotments. By trailing livestock, the operator would forgo the need to use a semi-truck to haul and the diesel needed to fuel the truck.

Based on currently available information, this alternative would also eliminate the threat of disease transmission between domestic sheep and wild sheep from on the Dog Creek and Green Creek allotments. Bighorn sheep organization funds spent thus far on the recovery of the species may eventually lead to the recovery and down-listing of the federally-listed, endangered Sierra Nevada bighorn sheep.

N. SOILS

1. Affected Environment

The soil information for the Dog Creek and Green Creek allotments was gathered from a detailed classifications map by the Order 3 Soil Survey of the Bodie-Coleville Planning Units. The soils for these two allotments were grouped into two major areas. The first soil type is dominantly nearly level to gently sloping cool soils in closed basins that are undrained to well-drained; some are saline-alkali. The second type is dominantly moderately to steeply sloping cold soils on Sierra Foothill-slopes and glacial deposits; mostly very gravelly.

There is potential for soil erosion mainly along stream banks, in stream channel bottoms, in meadows, and at springs. However, there are no identified erosional problems for these allotments. BLM assessed these allotments in 2002 to determine if the rangeland health standards were being met. Specific soils standards relate to permeability and infiltration. All

sites examined were found to meet the standards for soils.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Alternative 1 would create no new impacts to soils because the proposed terms and conditions are designed to help maintain, protect, or sustain rangeland health including soils, and to keep the ecosystem functioning properly. For example, improvements in ecological attributes would be a result of the 40% forage utilization levels which would lead to increases in plant biomass production resulting in adequate soil protection (e.g. from wind and surface runoff erosion).

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of the no action alternative would be the same as Alternative 1 because both alternatives are very similar. The only difference between this alternative and Alternative 1 is that terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on the allotments, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines.

c. Impacts of Alternative 3 - No Grazing

The no grazing alternative would have little to no impact on soils since few impacts currently occur.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 are essentially the same as Alternative 3. Soil disturbance impacts would be confined to the designated trailing area.

O. VEGETATION/THREATENED AND ENDANGERED

Plant Communities

1. Affected Environment

Uplands

A baseline range inventory for these allotments was completed in 1984 using the BLM Site Inventory Method (SVIM). The allotments occur in the Great Basin Floristic Province. The dominant upland plant communities are Great Basin sagebrush scrub and pinyon woodland (Map 3).

Great Basin sagebrush scrub communities are dominated by sagebrush (*Artemisia tridentata* ssp. *vaseyana*, *A. tridentata* ssp. *tridentata*, *A. tridentata* ssp. *wyomingensis*, *A. arbuscula*, and *A. tridentata* ssp. *parishii*), and bitterbrush (*Purshia tridentata*). Grasses such as Indian rice grass (*Achnatherum hymenoides*), desert needlegrass (*Achnatherum speciosum*), needle and thread (*Hespirostipa comota*), western needlegrass (*Achnatherum occidentale*), and Thurber's needlegrass (*Achnatherum thurberianum*) are dominant in the understory. Additional shrub species include, but are not limited to snowberry (*Symphoricarpus rotundifolius*), currant and gooseberry species (*Ribes cereum*, *R. inerme*, *R. velutinum*), hop sage (*Grayia spinosa*), horsebrush (*Tetradymia canescens*), Nevada and green ephedra (*Ephedra nevadensis*. and *E. viridis*), and yellow and curly-leaved rabbitbrush (*Chrysothamnus nauseosus* and *C. viscidiflorus*). During years of high precipitation annual forbs are abundant and include, but are not limited to, species from the following genera: *Astragalus*, *Arabis*, *Cryptantha*, *Eriogonum*, *Gilia*, *Phacelia*, *Phlox* and genera in the Asteraceae Family.

The pinyon woodland communities are dominated by an overstory (15-20% cover) of singleleaf pinyon pine (*Pinus monophylla*) with a sagebrush/bitterbrush understory. Perennial forbs include species from the following genera: *Astragalus*, *Cryptantha*, *Eriogonum*, and *Phlox*. Pinyon pines are increasingly occupying sagebrush communities where deeper, more productive soils exist. These sites are at risk of losing integral structural and compositional components important for sagebrush community function due to increases in fire frequency (Chambers et al. 2005).

Some areas of the allotment have been moderately impacted (still less than 40% utilization) from livestock use, however because sheep are actively herded, large areas of the allotment see little use and show little or no grazing impact. Under current management the length of the season of use has allowed for some flexibility in the timing of when grazing occurs. This flexibility has allowed the livestock operator to graze during different parts of the grazing season on different years and has been a benefit to the vegetation.

Lower Montane Meadows

The two dominant ecological meadow types within the Dog Creek and Green Creek allotments are mesic graminoid and dry graminoid (Weixelman and Zamudio 1999). Mesic graminoid meadows are generally wet to moist well into the growing season. Depth to saturation averages 34 cm. Dominant species in the mesic graminoid meadow include, but are not limited to Nebraska sedge (*Carex nebrascensis*), *Carex simulata*, *Carex lanuginosa*, *Carex utriculata*, *Deschampsia cespitosa*, *Hordeum brachyantherum*, *Muhlenbergia filiformis*, *Epilobium ciliatum*, *Stellaria longipes* var *longipes* and *Aster occidentalis*. Willow stands can border these communities and include such species as *Salix geyeriana*, *S. lemmonii*, *S. lutea*, and *Salix exigua*.

Dry graminoid meadows are most commonly found on trough drainageways and stream terraces. Soils lack saturation and the most common soils are Haplocryolls indicated by dark, mollic surface horizons. Dominant species in the dry graminoid meadow include, but are not limited to *Poa secunda* ssp. *juncifolia*, *Muhlenbergia richardsonis*, *Carex praegracilis*, thin-stemmed wheatgrass (*Elymus trachycaulus*), *Carex filifolia*, Baltic rush (*Juncus balticus*), *Penstemon rydbergii*, *Gayophytum diffusum*, *Trifolium monanthum*, and yarrow (*Achillea millefolium*).

Plant community shifts within both these meadow types are driven by changes in site hydrology and soil compaction. Key compositional shifts that indicate degradation to these site characteristics include the increased dominance of more impact resistant species such as *Juncus balticus*, *Iris missouriensis*, *Taraxacum officinale* (dandelion), as well as the encroachment of shrubs such as sagebrush (*Artemisia tridentata* ssp. *tridentata*, *Artemisia cana*) and rabbitbrush (*Chrysothamnus nauseosus*) into the meadow (Weixelman and Zamudio 1999). These compositional shifts reduce the overall plant diversity of these sites and may indicate that an ecological threshold has been exceeded that may permanently impair the long-term recovery of the site to pre-disturbance community structure and ecological function.

Aspen Grove Communities

In the Green Creek allotment, aspen stands primarily occur as relatively narrow stands along Green Creek. On the Dog Creek allotment, aspen is more common and stands are generally larger than those on the Green Creek allotment. On both allotments, stands are generally even-aged with moderate to low juvenile (sucker) numbers. Understory vegetation is dominated by California brome (*Bromus carinatus*), *Hordeum jubatum*, hawksbeard (*Crepis acuminata*), *Descurania sophia*, currant (*Ribes velutinum*) and occasional snowberry (*Symphoricarpos rotundifolius*). In more impacted groves, *Bromus tectorum* and mullein (*Verbascum thapsus*) may be more common in the understory. Aspen grove monitoring plots were established in 1980, when resurveyed in 1988 a static to decreasing trend in understory composition was reported. Stand vigor and age class diversity decline was evident throughout the complex. Some juvenile (sucker) recruitment was evident on the grove periphery, but these were heavily herbivorized. These resource issues began to be discussed during preparation of allotment management plans and livestock management prescriptions were drafted in 1989. Specific management practices included no bedding or grazing within aspen groves. Following completion of the Bishop Resource Management Plan (BLM 1993), the BLM in coordination with the permittees continued to improve grazing practices including the avoidance of aspen groves with the goal of meeting desired plant community goals for aspen within these two allotments. Since 2004, select aspen stands have also been treated with either conifer removal or prescribed fire to open up the understory and encourage suckering. Initial response to these treatments has resulted in increased suckering.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

The modified grazing permit alternative would require that utilization of native vegetation not exceed 40% which was identified in the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000). Forty percent utilization compared to the 60% utilization identified in the Bishop Resource Management Plan (BLM 1993) has been shown to increase annual production (Van Poollen et al. 1979).

Specifically, the terms and conditions outlined in Alternative 1 would maintain or improve the following key floristic and ecological attributes within these allotments (BLM 2000);

- Increased cover of perennial grasses
- Better root distribution
- Increased species diversity
- Increased photosynthetic period
- Increased vegetation structure
- Increase in episodic recruitment of shrubs, grasses, and forbs

Under the modified grazing permit alternative, the season end date would be shortened from October 31 to August 31. Because of this shortened season of use, livestock operators would have less flexibility in the timing as to when they are on an allotment. The shorter season may result in livestock coming onto an allotment earlier which may result in some negative impacts to perennial grasses early in the season. However, ending livestock operations earlier will allow the vegetation more days of un-impacted growing at the end of the season.

Impacts to native vegetation, due to weed presence and localized soil disturbance, would affect very small portions (< 1-2 acres in size) of the allotment and would be associated primarily with bedding grounds. These impacts would not contribute to a large-scale reduction in ecological function of the plant communities that occur within the allotments, but would require periodic (2-5 years) monitoring to determine impact thresholds.

b. Impacts of Alternative 2 - Current Management/No Action

Like the modified grazing permit alternative, current management allows for only 40% utilization of key species. However under current management, the terms and conditions of the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000) were applied broadly and uniformly to these allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities as in Alternative 1.

Impacts under current management would be very similar to those of the modified grazing permit alternative in regards to utilization. However, as noted above, because of the length of the grazing season, current management provides the livestock operator with more flexibility from year to year in the timing of grazing. The livestock operator's ability to adjust their timing of use from season to season can be a benefit to vegetation.

c. Impacts of Alternative 3 - No Grazing

Under this alternative, livestock grazing on both allotments would cease. Individual plant populations within the communities that are commonly grazed may benefit by having an opportunity to complete all phenological stages. Slight increases in weed densities could occur due to loss of early season grazing on targeted species. Impacts to the ecological function of these plant communities would be confined to environmental perturbations associated with global climate change effects, fire (Smith et al. 2000, Chambers et al. 2005), and insect damage.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Under this alternative, the impacts would be very similar to Alternative 3. Livestock would be actively herded and restricted almost entirely to roads and crossing would not take more than one day.

Special Status Plant Species

1. Affected Environment

Prior to 2009, no BLM Special Status Plants were reported to occur on the Dog Creek or Green Creek allotments. Surveys in 2009 documented *Cusickiella quadricostata* (Bodie Hills “draba”) in rocky, low sage sites on the Green Creek allotment. Since then *C. quadricostata* has been observed in many of the low sage sites (T4N, R25E; SW½ of Sec. 27, E ¼ of Sec. 28, and N ¼ of Sec. 34, MDB&M) between Dog Town and the Green Creek Road.

Population trend has yet to be determined, however based on site observations *C. quadricostata* appears to be healthy and present in much of the potential habitat. Based on knowledge of *C. quadricostata* occurring in other allotments, the low sage sites where the species occurs are not highly frequented by sheep grazing or trailing and if they do trail through them it usually occurs on a habitually used path.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Alternative 1 would cause no new impacts associated with livestock use to *C. quadricostata* populations that occur on the Green Creek allotment. Terms and conditions of the modified grazing permit alternative specifically call for avoidance of *C. quadricostata*; avoidance would eliminate potential trampling impacts and may benefit the species. *C. quadricostata* sites would be monitored every 3-5 years to ensure plants are not being uprooted, weeds are not encroaching into populations, and that active seedling recruitment is occurring.

b. Impacts of Alternative 2 - Current Management / No Action

Current management with the terms and conditions would result in no new impacts on Special Status Plant populations. Some trampling impacts may occur from livestock trailing; however, low sage sites where the species occurs are not highly frequented by sheep trailing. In other allotments, little impact to *C. quadricostata* from domestic sheep use has been observed or documented.

Population trend of *C. quadricostata* has on the allotment has yet to be determined; however, the populations seem robust and common where appropriate habitat exists. Populations would be monitored every 3-5 years to ensure plants are not being uprooted, weeds are not encroaching into populations, and that active seedling recruitment is occurring.

c. Impacts of Alternative 3 - No Grazing

Under this alternative, livestock grazing on these allotments would cease. All portions of the plant communities in the vicinity of special status plants would not be grazed by livestock except on private lands. Under Alternative 3, large-scale impacts to the ecological function of these plant communities would be confined to global climate change, effects associated with fire (Smith et al. 2000, Chambers et al. 2005), insect damage, and drought.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Under this alternative the impact would be similar to Alternative 3. The crossing route would likely follow roads that are adjacent to *C. quadricostata* populations. Because livestock would be actively herded and restricted almost entirely to roads and crossing would not take more than one day, little or no impact is expected. Populations would be monitored every 3-5 years to ensure plants are not being uprooted, weeds are not encroaching into populations, and that active seedling recruitment is occurring.

Threatened and Endangered Plant Species

The four alternatives analyzed in this environmental assessment would have no effect on any threatened or endangered plant species, nor result in the destruction or modification of any designated critical habitat for any listed plant species, because no federally listed threatened or endangered plant species or designated critical habitats are present on the Dog Creek or Green Creek allotments.

P. WASTE, HAZARDOUS OR SOLID

None of the alternatives would generate hazardous or solid waste on the Dog Creek or Green Creek allotments.

Q. WATER QUALITY, DRINKING-GROUND

1. Affected Environment

Perennial surface water occurs in the Dog Creek and Green Creek allotments in the form of perennial streams and springs. Water quality for the allotments based on a one or two time sampling, meets standards for aquatic life and primary drinking water indices for the following constituents: turbidity, dissolved oxygen, alkalinity (as CaCO₃), pH, CO₂ and total dissolved solids. A *Domestic Water Analysis* involving numerous other water quality constituents was performed on Dog, Green, and Virginia Creeks. This one time intensive analysis found good to excellent water quality conditions in all flowing streams.

In addition, the same streams were sampled for their aquatic insect fauna (typically larval life stages of insects) on a single occasion at the time of constituent sampling. Some types of aquatic insects are generally associated with good water quality (i.e. low tolerance to persistent water quality problems). Species of insects within the Ephemeroptera, Plecoptera and Trichoptera orders are generally representative of this condition. Sampling of the mentioned streams found

the highest number of aquatic insect species recorded occurred within these groups.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Water quality at springs and perennial streams should be maintained at the current high quality with implementation and monitoring of the proposed terms and conditions.

b. Impacts of Alternative 2 - Current Management / No Action

Impacts of the no action alternative would be the same as Alternative 1 because both alternatives are very similar. The only difference between this alternative and Alternative 1 is that terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on the allotments, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines.

c. Impacts of Alternative 3 - No Grazing

With no grazing, the potential for a future change in livestock behavior relating to water source use would be eliminated. Therefore, water quality conditions would be maintained at a minimum, and likely improved from current conditions.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be similar to Alternative 3. Potential water quality impacts would be limited to the crossing of Virginia Creek in the vicinity of Dog Town.

R. WETLANDS/RIPARIAN ZONES

1. Affected Environment

The Dog Creek and Green Creek allotments contain 4 main streams; Green Creek, Dog Creek, Dunderberg Creek and Virginia Creek. These streams occur primarily in alluvium derived from a granitic source. Streams tend to be well armored with rocks and characterized by a mosaic of willow or aspen and graminoid vegetation community types (Map3). Riparian areas are generally narrow in width; aspen and willow dominate the woody over-story, deeply rooted grasses, sedges, rushes and forb species make up the under story.

Mesic graminoid meadows are generally wet to moist well into the growing season. Dominant species in the mesic graminoid meadow include, but are not limited to: Nebraska sedge (*Carex nebrascensis*), *Carex simulata*, *Carex lanuginosa*, *Carex utriculata*, *Deschampsia cespitosa*, *Hordeum brachyantherum*, *Muhlenbergia filiformis*, *Epilobium ciliatum*, *Stellaria longipes* var

longipes and *Aster occidentalis*. Willow stands can border these communities and include such species as, *Salix geyeriana*, *S. lemmonii*, *S. lutea* and *Salix exigua*.

Unimproved dirt road crossings occur along Virginia and Dog Creeks. Crossing locations have generally caused a break-down of stream bank integrity, widening of the channel for 10 to 20 ft up and downstream of the crossing, creation of shallow pools, and contribution of a minor amounts of suspended sediment into the downstream channel. Dog Creek was heavily impacted by mining activities around the 1850's. Dredging of the creek removed sinuosity of the channel which has had lasting impacts including limiting the extent of the riparian zone. Dog Creek is generally undergoing improved riparian vegetation condition.

Streams in the allotments currently incur limited annual grazing from livestock operations. While grazing by domestic sheep can be detrimental to maintaining an adequate understory vegetative canopy cover important to channel functionality, in recent years this has generally not been a problem for streams in the Dog Creek and Green Creek allotments. Because of the landform, riparian zones are generally small and armored with rocks and shrubs which reduce the potential for trampling impacts associated with livestock use.

An assessment of the functional condition for each stream was completed in 1993 using the protocol in the BLM Technical Reference 1737-9. Based on the assessment of each stream for its functional capability within the hydrologic, vegetative, and erosion deposition categories, all streams were classified as "functioning-at-risk." Meaning that the streams are in functional condition given their capability and potential for their physical setting, but existing soil, water, or vegetation attributes makes them susceptible to degradation. While no formal re-evaluation has occurred since 1993, based on recent knowledge, Dog Creek, Green Creek, Dunderberg Creek and Virginia Creek are still considered to be functioning-at-risk with an upward trend toward proper functioning condition throughout their entirety or in substantial segments.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Impacts from the modified grazing permit alternative would be similar to those of the current management alternative. Terms and conditions of the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000) state that forage utilization of native vegetation should not exceed 40% on average, which has been shown to benefit plant production and resilience (Van Poollen et al. 1979) compared to the 60% utilization identified in the Bishop Resource Management Plan (BLM 1993).

Additionally, the standards and guidelines state that grazing practices should maintain a minimum herbage stubble height of 4-6 inches on the average on all stream-side riparian and wetland areas at the end of the growing season. There should be sufficient residual stubble or re-growth at the end of the growing season to meet the requirements of plant vigor, maintenance, and bank protection.

A difference of the modified grazing permit alternative compared to current management would be that under the modified grazing alternative the season end date would be shortened. Because of the shortened season livestock operators would have less flexibility in the timing as to when they are on the allotment. The shorter season may result in livestock coming onto the allotment

earlier than they have in the past which may result in increased early season use of riparian areas and some increase in trampling effects due to them being wetter early in the season. However, ending livestock operations earlier will allow the herbaceous vegetation in riparian areas more days of un-impacted growing at the end of the season and also reduce late-season use on woody riparian species.

b. Impacts of Alternative 2 - Current Management/No Action

Under current management, no new impacts to riparian areas would occur. As in the modified grazing permit alternative, the stated terms and conditions would continue to benefit riparian conditions.

c. Impacts of Alternative 3 - No Grazing/Closure of High Risk Allotments

In the absence of grazing, achievement of proper functioning condition and the ecological function of riparian plant communities would not be affected by livestock use and would occur more rapidly than under both the modified grazing permit and current management alternatives.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Under this alternative, impacts would be similar to that of Alternative 3. Livestock would be actively herded and restricted almost entirely to roads and crossing would not take more than one day. Potential riparian impacts would be limited to the crossing of Virginia Creek in the vicinity of Dog Town.

S. WILD AND SCENIC RIVERS

1. Affected Environment

Dog Creek is located in entirely within the Dog Creek allotment, Green Creek is located entirely within the Green Creek allotment, and Virginia Creek passes through both the Dog Creek and Green Creek allotments. Dog Creek, Green Creek, and Virginia Creek were identified as eligible for wild and scenic river study in the Bishop RMP (BLM 1993). The Dog Creek segment totals 3 miles on public land, Green Creek totals 0.75 miles on public land, and Virginia Creek totals 7 miles on public land. The estimated acreage of Dog Creek and its riparian/upland corridor totals about 960 acres, Green Creek totals 240 acres, while Virginia Creek totals about 720 acres. All three creeks are potentially classified as recreational. Under the recreational river classification within wild and scenic river eligibility status, “lands may be managed for a full range of agricultural and livestock grazing use to the extent currently practiced” (BLM 1991, Appendix A3-3).

The portions of Dog, Green, and Virginia creeks designated as eligible for wild and scenic river study are the main stems of each waterway. Descriptions of the creeks and their associated outstandingly remarkable values that qualify them for further study and consideration as designated wild and scenic rivers are described in Appendix 3 of the Final Bishop Resource Management Plan and Environmental Impact Statement (BLM 1991). The main stems of the creeks currently contain the same outstandingly remarkable values identified in 1991. Grazing

currently occurs in these drainages creating some limited impacts such as reduced vegetation cover and bank trampling. However, impacts are the same or less than in 1991 due to more oversight of grazing in these areas and conformance to riparian prescriptions identified in the Bishop RMP (BLM 1993).

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Alternative 1 would maintain or improve riparian values on eligible study river segments. Adherence to the terms and conditions stated in Chapter 2, Section A of this document would result in slight to moderate improvement in riparian and wetland conditions over the long-term. Improved vegetation cover would be the primary habitat response variable. Alternative 1 would also help reduce soil compaction and negative changes in site hydrology although these improvements would lag behind any improvements in vegetation condition. Proposed grazing within the allotments would conform to the Interim Management Guidelines for Study Rivers.

b. Impacts of Alternative 2 - Current Management / No Action

Under this alternative, impacts would remain the same and no change in impacts to wild and scenic river suitability would occur, as grazing use and management of the area would continue in the manner in which it currently exists.

c. Impacts of Alternative 3 - No Grazing

Under this alternative, the health, vigor, and quality of riparian vegetation would be expected to improve since grazing would be absent within and adjacent to riparian corridors, as well as throughout the entire area within the Dog Creek and Green Creek allotments. Stream bank stability would be expected to improve due to the elimination of disturbance from livestock. Soil loss and sedimentation would also be expected to decrease, and overall water quality would most likely be increased.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Impacts of Alternative 4 would be very similar to Alternative 3. However, the trail would pass through a portion of Virginia Creek near Dog Town. Under this alternative, impacts would remain the same and no change in impacts to wild and scenic river suitability would occur for Virginia Creek.

T. WILDERNESS

None of the alternatives would have any effect on any designated Wilderness or Wilderness Study Areas (WSAs) because none are present on the Dog Creek or Green Creek allotments.

The lands affected by this project were inventoried for wilderness characteristics in 1979. They were dropped during the initial inventory stage as no blocks of roadless land approaching 5,000 acres were identified. A review conducted for this environmental assessment determined that the

area still does not meet the size criterion of 5,000 roadless acres or any of the size exceptions. Therefore, in conformance with BLM Manual 6300-2, a formal wilderness characteristics inventory is not required. Since wilderness characteristics are not present they will not be discussed further in this document.

U. WILDLIFE/THREATENED AND ENDANGERED

Wildlife Habitat and Associated Species

1. Affected Environment

The sagebrush/bitterbrush, pinyon, meadow, aspen, and riparian habitats in the area support a variety of wildlife species, including migratory birds, small mammals, mule deer (*Odocoileus hemionus*), and other species. Greater Sage-grouse (*Centrocercus urophasianus*) and pygmy rabbit (*Brachylagus idahoensis*) are addressed in the sensitive wildlife species section below.

Migratory Birds

The Willow Flycatcher (*Empidonax traillii adastus*) is a small passerine that breeds in shrubby riparian vegetation with surrounding surface water or saturated soil. This subspecies is found on the eastern side of the Sierra/Cascade crest from Oregon to Inyo County. All subspecies are listed as endangered under the California Endangered Species Act. Most of the riparian habitat within the Dog Creek and Green Creek allotments is unsuitable habitat, either bordered by cliffs, lined with conifers, or dominated by aspen. Portions of Dog Creek and Virginia Creek at the north end of the Dog Creek allotment are lined with willows and could be suitable habitat. Protocol surveys (Bombay 2003) of these areas were completed by BLM biologists during the spring of 2010. No Willow Flycatchers were detected.

Other birds using the allotments may include sagebrush-obligate songbirds such as Sage Sparrow, Sage Thrasher and Brewer's Sparrow; other birds that largely depend on shrub habitats; pinyon-nesting birds; birds nesting in riparian zones, and generalists that may utilize a combination of the listed habitats.

Small Mammals

Habitats within the allotments provide suitable habitat for many small mammal species, including sagebrush vole (*Lemmyscus curtatus*) and white-tailed jackrabbit (*Lepus townsendii*), a California species of special concern. Surveys have not been conducted in the area.

Mule Deer

The allotments provide important habitat for the Mono Lake and East Walker mule deer herds during the summer and the spring/fall migration periods as they travel to and from wintering habitat in Nevada. The allotments contain a variety of upland shrub communities for forage and cover, interspersed with meadows, riparian areas and aspen groves that also provide water, forage and cover. Forbs provide important springtime nutrients to pregnant does. Browse species, especially bitterbrush, are particularly important during the spring and fall migrations.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

The overall habitat quality, reflected in the condition of vegetation communities on these allotments, would be maintained and slightly improved from their current conditions over the long-term with implementation of this alternative. Species guilds within the small mammal and migratory bird groups would gain the most immediate benefit from improvement in the availability of food resources and cover as the result of the utilization limit on key forage species. Mule deer habitat quality would also be maintained and slightly improved as the result of the bitterbrush use limit that would ensure adequate bitterbrush leader growth is available for forage. The required use standards would also promote improved vigor and long-term maintenance of sagebrush associated upland plant communities that provide important wildlife habitat for a wide variety of species on the allotments.

The overall habitat quality of the allotments would be maintained or slightly improved with implementation of the terms and conditions under this alternative because they are designed to help protect and sustain rangeland health, which includes wildlife habitat, and to keep the ecosystem functioning properly. The principal reason for this is a lack of concentrated use in any one area of the allotments which reduces alteration impacts to soil and vegetation, thus maintaining more intact wildlife habitats.

b. Impacts of Alternative 2 - Current Management / No Action

The difference between this alternative and Alternative 1 is that terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000), under current management, were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on the allotments, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines. The overall habitat quality of the allotments would be maintained or slightly improved with implementation of the proposed terms and conditions because they are designed to help protect and sustain rangeland health, which includes wildlife habitat, and to keep the ecosystem functioning properly.

c. Impacts of Alternative 3 - No Grazing

No livestock related impacts to wildlife habitat conditions would occur since livestock would be completely eliminated from the allotments. The overall habitat quality of each allotment would be expected to improve with the removal of livestock.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Because livestock would only be trailed through a small portion of each allotment, the overall habitat quality would be improved over the majority of each allotment with the elimination of domestic sheep grazing.

Sensitive Wildlife Species

1. Affected Environment

Greater Sage-grouse

Concern over the status of sage-grouse populations throughout the western United States has resulted in several attempts to have sage-grouse listed as either threatened or endangered under the Endangered Species Act of 1973 (ESA). To date, the US Fish and Wildlife Service (FWS) has received 8 petitions to list sage-grouse as either threatened or endangered in various portions of their range (FWS 2005). On March 5, 2010 the FWS announced completion of their range-wide status review of Greater Sage-grouse (*Centrocercus urophasianus*) populations and their finding that listing the range-wide population of Greater Sage-grouse is warranted, but precluded by higher priority listing actions (FWS 2010). The Service also announced their finding that listing the Bi-State population of the Greater Sage-grouse, which meets the criteria for a distinct population segment (DPS) and occurs within the allotments, is warranted, but precluded by higher priority listing actions (FWS 2010). As a result of these findings, both the range-wide population of Greater Sage-grouse and the Bi-State DPS of the Greater Sage-grouse became candidates for listing under the ESA. The FWS will monitor and review the status of Greater Sage-grouse, both range-wide and within the Bi-State DPS, annually to determine if a change in listing status is warranted (FWS 2010). The Greater Sage-grouse is a BLM designated sensitive wildlife species in California and throughout its range.

A conservation plan for sage-grouse in the Bi-State area was created by a broad-based stakeholder group as part of the Greater Sage-Grouse Conservation Plan for Nevada and Eastern California (NDOW 2004), with the Nevada Department of Wildlife and the California Department of Fish and Game (CDFG) as lead agencies. The Bi-State portion of the plan recognizes the Bodie Hills and surrounding area as one of several Population Management Units (PMUs). Both the Green Creek and Dog Creek allotments lie within the Bodie PMU and include known sage-grouse use areas.

Sage-grouse population trends in the Bodie PMU as indicated by annual lek (strutting ground) censuses are characterized by frequent fluctuations, with the highest numbers recorded during the early 1960s and the early 1990s and the lowest numbers recorded during the mid 1950s and early 1980s. Since 1987, leks have been censused more consistently, largely as the result of a concerted effort coordinated by the BLM in cooperation with the CDFG. CDFG's analysis of short-term trends shows a strong peak during the early 1990s and low numbers during the late 1990s. From 2000 to 2003, numbers were relatively stable and increasing but remained below both the short-term and long-term averages (NDOW 2004). From 2004 to 2007, the recorded numbers were again above the short-term and long-term averages although still below the peak of the early 1990s. Habitat conditions have generally improved or remained stable throughout the Bodie PMU since the early 1990s with no measureable loss of habitat or habitat quality that correlates to documented changes in population levels. Recent trends indicate the population has been increasing since 2007 and the 2010 lek census conducted in the Bodie PMU recorded the 4th highest male attendance on record which dates back to 1953. Leks in the western portion of the PMU have exhibited strong attendance over the past few years.

The Bodie PMU includes the second-largest breeding complex in the Bi-State area. No core leks are located within the Dog Creek or Green Creek allotments; however, the lek 9 complex is located in the Stringer Meadow area just east of the Dog Creek allotment and lek 10 at Lower Summers Meadow is located less than a quarter mile from the Green Creek allotment. A small satellite lek has been observed on the Dog Creek allotment in recent years. Radio telemetry data specific to the Bodie PMU indicates that nest sites are commonly located in areas of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) with co-dominant antelope bitterbrush (*Purshia tridentata* var. *tridentata*) that contributes to greater shrub canopy cover than reported elsewhere in the species' range (BLM 2003, Kolada et al. 2009). Perennial grass height and cover, generally considered important for nesting success as it helps screen nests from predators, compares favorably with that found in the current sage-grouse habitat guidelines (Connelly et al. 2000). Recent telemetry studies also reported that shrub canopy cover and not residual grass cover or height were the principal vegetation feature used by female sage-grouse in the Bodie PMU to select nest sites. Nest success did not appear to be associated with grass cover but was positively associated with shrub cover other than sage (Kolada 2007, Kolada et al. 2009). Other tall shrub species that contribute to nesting habitat quality in the Bodie PMU include antelope bitterbrush (*Purshia tridentata* var. *tridentata*), wild currant (*Ribes* spp.) and mountain snowberry (*Symphoricarpos oreophilus*). Overall, nest success is high and compares favorably to that reported elsewhere in sage-grouse range. Nesting habitat quality or quantity is not considered to be a limiting factor for greater sage-grouse in the Bodie PMU (NDOW 2004, Appendix L).

Sage-grouse rely heavily upon insects and forbs as food during spring and summer, especially for hens' pre-laying nutritional needs and for brood rearing. They also require open water during hot, dry weather. As a result, many grouse tend to concentrate in and around high elevation or mesic habitats during the summer. Available data indicates that a relative paucity of early and mid-seral sagebrush and mesic habitats that are important as early brood, late brood, and summer habitat may be a limiting factor for Greater Sage-grouse in the Bodie PMU. Mesic habitats are relative common on the Dog Creek allotment.

Extensive winter range has not been documented, however, it is not considered to be a limiting factor for Greater Sage-grouse in the Bodie PMU and telemetry studies have shown high over-winter survival which compares favorably to that reported elsewhere in sage-grouse range.

The Bodie PMU stakeholders group identified several potential risks to sage-grouse and their habitats associated with livestock grazing during the development of the Bi-State Plan. However, livestock grazing was not identified as a high priority risk to sage-grouse in the PMU and the potential risks associated with livestock grazing were identified and evaluated primarily to ensure a rigorous risk assessment for conservation planning purposes. Potential risks associated with livestock grazing identified and evaluated as part of the planning process included; meadow and riparian habitat quality; nesting habitat quality; fences, which grouse may avoid (as potential predator perches) or may strike in low flight; potential lek disturbance and nest disturbance or trampling or disturbance; and direct loss of habitat to development resulting from reduced economic viability of permittees. The group also noted the potential for properly managed grazing to improve forb availability during the late brood and summer period and emphasized the importance of flexible strategies that address the economic viability of livestock operators along with the needs of sage-grouse. The group recommended that when revising grazing management practices in the PMU, emphasis should be given to sagebrush community

quality in known breeding areas; improvement of meadow and riparian habitats; proper design, location and development of livestock management facilities; and reducing impacts of drought (NDOW 2004, Appendix L).

Pygmy Rabbit

Pygmy rabbits (*Brachylagus idahoensis*) are a sagebrush-obligate species known to occur in the project vicinity. One of two rabbit species in North America that dig their own burrows, pygmy rabbits are dependent on areas of sagebrush growing in deep, friable soils. Pygmy rabbits remain close to their distinctive-looking burrows, so their presence or absence in a specific area may often be determined with a high degree of confidence by searching for their burrows. A portion of the Green Creek allotment was surveyed by BLM biologists in 2010. No rabbits or burrow systems were located, and the area was found to support little habitat with the requirements for the species; however, the entire area was not surveyed in detail.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

The attributes of the upland vegetation communities that define sage-grouse and pygmy rabbit habitat on these allotments would be maintained and slightly improved from current conditions over the long-term with implementation of this alternative. Implementation of proposed terms and conditions would promote continued sagebrush associated plant community vigor and long-term ecological health; and ensure the maintenance of both known occupied and potential sage-grouse habitats on these allotments. Overall sagebrush cover and composition required for sage-grouse nesting, brood rearing, summer, winter, and connectivity habitat would be maintained or slightly improved over the long-term.

Sage-grouse nesting habitat on these allotments would be maintained or slightly improved from the utilization limits on perennial grass species and bitterbrush. These use guidelines would ensure that suitable nesting cover (e.g. grass height and overstory shrub cover) is available annually for nesting sage-grouse. Since grazing would not be allowed within 2 miles of known active leks until after July 1, the potential for nest disturbance or trampling effects would be largely eliminated. Neither nesting habitat quality nor associated nesting success has been documented as limiting factors for sage-grouse in these allotments. The lack of early and mid-seral sagebrush habitats that are important as early brood, late brood, and summer habitat would likely remain the primary limiting factor for Greater Sage-grouse in the Bodie PMU.

Alternative 1 would have no effect on the potential for West Nile virus occurrence in the Bodie PMU since the availability of mosquito breeding habitat on these allotments is associated with naturally occurring springs, wet meadows, streamside riparian habitats, and extensive beaver ponds; not developed livestock waters.

b. Impacts of Alternative 2 - Current Management / No Action

The difference between this alternative and Alternative 1 is that under current management, the terms and conditions developed from the Bishop Resource Management Plan (BLM 1993) and the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing

Management (BLM 2000) were applied broadly and uniformly to the allotments. No defined implementation guidelines exist nor are they tailored to address specific vegetation communities and/or resources on the allotments, as in Alternative 1. For this alternative, it is likely that the BLM, the permittees and other interested publics may need to work together to define allotment-specific applications of the rangeland health standards and guidelines. The overall quality of habitat for sage-grouse and pygmy rabbit on the allotments would be maintained or slightly improved with implementation of the terms and conditions because they are designed to help protect and sustain rangeland health, which includes wildlife habitat, and to keep the ecosystem functioning properly.

Under Alternative 1, a slight potential for sage-grouse nest disturbance or destruction due to livestock trampling would remain; however, multiple telemetry studies conducted in the Bodie PMU to date have failed to document any such disturbance or destruction indicating impacts are likely to be minimal. The potential for West Nile virus occurrence in the Bodie PMU would be the same as described under Alternative 1.

c. Impacts of Alternative 3 - No Grazing

No adverse grazing impacts to sage-grouse or pygmy rabbit habitat conditions would occur since livestock use would be completely eliminated from the allotments. The overall habitat quality of the allotments would be expected to improve with the removal of livestock. The potential for West Nile virus occurrence in the Bodie PMU would be the same as described under alternatives 1 and 2.

d. Impacts of Alternative 4 - No Domestic Sheep Grazing / Crossing Permit Only

Because livestock would only be trailed through a small portion of each allotment, the overall habitat quality for sage-grouse and pygmy rabbit would be improved over the majority of the allotments with the removal of grazing. Trailing would not occur during the sage-grouse breeding season. Although trailing may occur within 3.2 km (2 mi.) of known active leks during the nesting season, it would be largely confined to established routes and would not be expected to disturb nesting birds or result in the direct destruction of nests or broods due to livestock trampling.

Threatened or Endangered Wildlife Species

1. Affected Environment

Sierra Nevada Bighorn Sheep

Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*) were emergency listed as a distinct population segment (DPS) of California bighorn sheep (*Ovis canadensis californiana*) at the time of listing on April 20, 1999 (FWS 1999). The final rule to list this DPS as endangered was published on January 3, 2000 (FWS 2000). Concurrent with the proposed designation of critical habitat for Sierra Nevada bighorn sheep in July 2007, the U.S. Fish and Wildlife Service (FWS) also proposed a taxonomic revision to amend the final listing rule from a DPS of California bighorn sheep to subspecies *Ovis canadensis sierrae* (FWS 2007b). The final rule to designate

critical habitat and amend the taxonomic classification for Sierra Nevada bighorn sheep was published on August 5, 2008 (FWS 2008).

At the time of emergency listing, the total population of Sierra Nevada bighorn sheep was estimated to consist of 117-122 individuals distributed among five separate areas in the southern and central Sierra Nevada in California. From 1999 to 2004, the range-wide population showed dramatic increases and by 2004 the total population was projected to include 325-350 individuals (FWS 2007a). By the summer of 2006, a minimum of 400 Sierra Nevada bighorn sheep were estimated to exist range-wide (Wehausen et al. 2007, FWS 2008). The most recent range-wide population estimates for Sierra Nevada bighorn sheep indicates the overall population appears to have stabilized at around 400 in recent years (Wehausen et al. 2008). A total of 200 adult and yearling females were documented in the Sierra Nevada during the summer of 2010 (T. Stephenson pers. comm. 2011). Despite documented population increases, the range-wide population is still below the level (305 adult females) identified as necessary for recovery in the final recovery plan (FWS 2008).

The Dog Creek and Green Creek domestic sheep grazing allotments are located east-northeast of occupied Sierra Nevada bighorn sheep habitat in the Mount Warren Herd Unit and east of unoccupied habitat in the Green Creek Herd Unit (Map 4). Neither of these allotments overlaps any currently occupied Sierra Nevada bighorn sheep habitat or designated critical habitat. To date, there have been no documented occurrences of Sierra Nevada bighorn sheep within either of these allotments.

Population surveys conducted by the California Department of Fish Game (CDFG) during the summer of 2008 and early 2009 reported 19 Sierra Nevada bighorn sheep in the Mount Warren Herd Unit. This included 5 adult females, 3 yearling females, 4 lambs and 7 adult rams. In April 2009, the CDFG augmented the Mount Warren population with 6 pregnant ewes increasing the population to 25 (T. Stephenson, pers. comm. cited in USFS 2009). A population survey in 2010 located 21 bighorn sheep in the Mount Warren Herd Unit (T. Stephenson pers. comm. 2011).

Field observations and radio telemetry data collected by the CDFG indicate that Sierra Nevada bighorn sheep in the Mount Warren Herd Unit regularly move between Mount Warren, Tioga Crest, and the north and south sides of Lundy Canyon, though they do not routinely move between them (Wehausen et al. 2008, T. Stephenson pers. comm. 2011). Radio telemetry data show that Sierra Nevada bighorn sheep occupy suitable habitat in the Lundy Canyon watershed throughout the year. Use in Lundy Canyon ranges from about 8,000 feet in elevation on the southern slopes of Copper Mountain and Mount Olsen to over 12,000 feet in elevation along the crest of the Sierra Nevada near Excelsior Mountain. Sierra Nevada bighorn rams consistently use the south slope of Mount Olsen above Lundy Lake during the spring, summer, and fall and the southern aspects of Copper Mountain during the winter and early spring. Rams have been documented using the lower elevations of Lundy Canyon in the winter and spring. Ewes residing on the north side of Lundy Canyon (both resident and recently translocated individuals) use alpine winter range and lower elevation habitat above Lundy Lake and south facing slopes that melt free of snow.

Disease transmission from domestic sheep was identified as one of the primary threats to Sierra Nevada bighorn sheep during the listing process (FWS 1999, 2000) and in the final Recovery Plan for the Sierra Nevada Bighorn Sheep (FWS 2007a). There is a substantial body of

circumstantial evidence indicating that diseases introduced by domestic sheep have likely played a role in bighorn sheep die-offs and the reduction of wild bighorn populations throughout their range (Foreyt and Jessup 1982, Goodson 1982, Coggins 1988 and 2002, Cassirer et al 1996, Martin et al 1996, Singer et al. 2001, USFS 2006, George et al. 2008). A recent experimental study has shown that bacterium responsible for pneumonia can be transferred from domestic sheep to bighorn sheep (Lawrence et al. 2010), but the transmission of pathogens remains extremely difficult to document under range conditions and not all bighorn sheep epizootic disease events can be attributed to contact with domestic sheep (USFS 2006b, FWS 2007a, WAFWA 2010).

Though not confirmed, disease transfer is suspected to have played a role in the historical decline and disappearance of some bighorn sheep herds in the Sierra Nevada beginning around 1870 when domestic sheep grazing was prevalent (Wehausen 1985, FWS 2007a). The analysis of Clifford et al. (2007) showed a significant reduction (7% to 1.2%) in the annual probability of disease transmission from domestic sheep to Sierra Nevada bighorn sheep in the Northern Recovery Unit by not grazing domestic sheep during the rut, limiting grazing days by domestic sheep, and ensuring vigilant domestic sheep management. Clifford et al. (2009) further assessed disease risk to the Sierra Nevada bighorn sheep and concluded that although outbreaks may not occur frequently, the impact of a single outbreak on the population would be significant. Their models predict 31-81% mortality in the event of a single outbreak occurring in the North Recovery Unit. The chance of a significant outbreak occurring increases with time, from 5% in the next five years to 50% within the next 70 years even under grazing restrictions.

In February 2009, a subgroup of the Sierra Nevada Bighorn Sheep Recovery Team (Risk Assessment Team) completed development of a risk assessment tool and released a document entitled *A Process for Identifying and Managing Risk of Contact between Sierra Nevada Bighorn Sheep and Domestic Sheep* (Baumer et al. 2009; Risk Assessment). Subsequent to release of that document, Croft et al. (2009 and 2010) developed additional information and recommendations to consider when interpreting and applying the information provided by the Risk Assessment Team (Application Document). The Risk Assessment provides a formula to calculate the relative risk of contact (from 0 to 1.0). Using the locations of collared bighorn rams, the Application Document found that the values for all known locations ranged from 0.833 to 1.0, implying that 0.833 can be used as a threshold, below which there is a low risk of contact between domestic and bighorn sheep and above which there is a high or unacceptable risk of contact between domestic sheep and Sierra Nevada bighorn sheep.

2. Environmental Consequences

a. Impacts of Alternative 1 - Modified Grazing Permit

Under this alternative, the relative risk of contact between domestic sheep and Sierra Nevada bighorn sheep is a maximum of 0.597 on the Dog Creek allotment and 0.573 on the Green Creek allotment. Because grazing would not occur during the Sierra Nevada bighorn sheep rut (September-December) and grazing management practices to reduce and detect domestic sheep straying would be required, the probability of contact leading to disease transmission would be lower than under Alternative 2 (current management). However, the potential for contact would not be eliminated and the impact of a just a single outbreak could cause significant population mortality and potentially the loss of entire herds (Clifford et al. 2009); which is considered an

unacceptable risk to the federally-listed, endangered Sierra Nevada bighorn sheep (Croft et al. 2010). Over the long-term, domestic sheep grazing on the Dog Creek and Green Creek allotments under the modified grazing permit alternative is likely to adversely affect Sierra Nevada bighorn sheep in the Northern Recovery Unit.

b. Impacts of Alternative 2 - Current Management/No Action

Under this alternative, the relative risk of contact between domestic sheep and Sierra Nevada bighorn sheep is calculated at a maximum of 0.949 on the Dog Creek allotment and 0.911 on the Green Creek allotment, relatively high as compared to the other allotments analyzed in the Risk Assessment. Because contact could lead to a disease outbreak that could cause significant population mortality and potentially the loss of entire herds (Clifford et al. 2009); this is considered an unacceptable risk to the federally-listed, endangered Sierra Nevada bighorn sheep (Croft et al. 2010). Over the long-term, domestic sheep grazing on the Dog Creek and Green Creek allotments under the no action (current management) alternative is likely to adversely affect Sierra Nevada bighorn sheep in the Northern Recovery Unit.

c. Impacts of Alternative 3 - No Grazing

No impacts to Sierra Nevada bighorn sheep would occur since no livestock grazing would be permitted on the allotments. The potential for contact and subsequent disease transmission between domestic sheep and Sierra Nevada bighorn on the allotments would be eliminated.

d. Impacts of Alternative 4 - Crossing Permit Only

Because trailing would only occur in two events between June 1 and September 30 and because the designated route would be located outside the “predicted area of potential contact” that poses a “high/unacceptable risk” of contact (<0.833 as described by Croft et al. 2010), this alternative is not expected to lead to disease transference between domestic sheep and Sierra Nevada bighorn sheep. Therefore, no measurable impacts to Sierra Nevada bighorn sheep are predicted. This alternative fully incorporates the recommendations outlined by U.S. Fish and Wildlife Service (FWS) in the final Recovery Plan for the Sierra Nevada Bighorn Sheep (FWS 2007a) that the “risk assessment tool” be used to guide future management decisions allowing use on previously identified high-risk allotments (Section II E, Recommendation 1, pages 64-65).

V. WILD HORSE AND BURROS

None of the alternatives would have any effect on wild horses and burros as there are no wild horse and burro populations or designated wild horse herd management areas occurring on the Dog Creek or Green Creek allotments.

W. CUMULATIVE IMPACTS

Introduction

Current conditions in the project area result from a multitude of natural events and human actions that have taken place over many decades. Cumulative effects are defined as the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” (40 CFR § 1508.7). A description of current conditions inherently includes the effects of past actions and serves as a more accurate and useful starting point for a cumulative effects analysis than by “adding up” the effects of individual past actions. “Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” (CEQ Memorandum ‘Guidance on the Consideration of Past Actions in Cumulative Effects Analysis’ June 24, 2005) By comparing the “no action” alternative (current condition) to the action alternatives, we can discern the “cumulative impact” resulting from adding the “incremental impact” of the action alternatives to the current environmental conditions and trends. The geographic scope of the cumulative impact analysis for this environmental assessment encompasses the public lands administered by the Bishop Field Office. This geographic scope was chosen because of the unique ecotone of public lands composing two distinct habitat types of the western Great Basin and Mojave Desert rangelands along the eastern flank of the Sierra Nevada. It is expected that the geographic scope of impacts would be confined to this region.

Regional Impacts

Regionally, livestock operations in Inyo and Mono counties are dependent on federal lands (BLM and U.S. Forest Service) and nonfederal lands (state and private) to maintain viable operations and healthy rangelands. Cumulative livestock impacts on rangelands are reduced when well planned grazing systems are in place. When livestock operators have various lands (federal and nonfederal) to choose from throughout a grazing year, operators and land managers then have the capacity to use grazing systems such as deferment, rest, and rotational systems that are best for the resources. Under this scenario, operators also have the flexibility to adjust for varying climatic conditions that can affect rangelands positively or negatively. The various lands (federal and nonfederal) would help supply the livestock industry with renewable resources (e.g. vegetation) which would in turn add to the agricultural production of Inyo and Mono counties.

There would not be substantive cumulative impacts to the local or regional economy of Inyo or Mono County from the implementation any of the proposed alternatives. Cumulative impacts to low income or minority populations from past, present, and reasonably foreseeable public or private actions including any actions on non federal lands would be extremely low and would not have disproportionate impacts on other segments of the population.

At a regional level, numerous resource disturbing activities in the eastern Sierra and throughout the Bishop Field Office area have created impacts similar to or greater than livestock grazing. These activities include paved and unpaved road development, Off Highway Vehicle (OHV) activities, residential and commercial development, and fire.

The development of roads and trails throughout the region originates from the area's historic settlement at the turn of the twentieth century when access was needed to develop the area's resources and transport goods/services. Settlers, miners, ranchers, merchants, etc. developed a region of small communities and road networks to meet daily sustenance needs. Throughout the latter 20th century, the region evolved from an agrarian economy to its present day tourist based economy. This altered traditional access use from survival and necessity to one that became recreation based, mostly motorized, although mountain biking, hiking and horseback riding may use similar routes. The thousands of miles of paved and unpaved roads in the region tend to be permanent conversions of sites and constitute a total loss of the site productivity. Associated infrastructure needs i.e. power lines, rest areas, etc. expand the permanency and loss of rangeland habitat. Recreation use, such as OHV activities can be short duration, but are generally repeated throughout the year reflecting the tourist value of the region. Sometimes unauthorized routes are created, especially near the rural communities by horses and/or vehicles.

The BLM, Inyo National Forest, and Humboldt-Toiyabe National Forest have embarked on motorized access efforts throughout the 1990s to implement route designations to manage for environmental issues and recreational needs. These efforts have led to localized rehabilitation projects improving various habitats and scenic vistas, many on BLM managed public lands. Additionally, the BLM works with the counties to reduce and control private subdivision proliferation and trespass onto adjoining public lands.

The dozen or so communities that occupy the Bishop Field Office area have generally been stable and small, although the Mammoth Lakes community has built high end homes and increased their housing density in the last decade. Obviously, these permanent alterations have irreversibly committed land to housing development, fragmenting plant and animal habitat, and altering scenic vistas. Overall, the greatest potential development impact to habitat would occur from housing development on remaining scattered private land tracts throughout the region. Increased property values and a housing shortage have created a strong real estate market in the eastern Sierra. This has prompted landowners to pursue subdivision development, reducing small acreages of habitat in several locations.

Construction activities, road maintenance, vehicle transport, and livestock use operations are common vectors or site modifications that can move invasive/non-native species. Potential long-term cumulative impacts of the action alternatives if weed densities increase, include a reduction in native plant cover and vigor (below and above ground production), increased erosion leading to increased germination of invasive weed seed (Evans and Young 1972), a reduction in mycorrhizal populations, and increased fire frequency. Eastern Sierra plant communities have experienced increased weed invasions in the past years due to increased precipitation levels and likely increases in atmospheric nitrogen deposition (Dukes and Mooney 1999). If this trend continues without commensurate control methods including using early season grazing (pre-seed set), weed proliferation could be exacerbated.

Unpredicted wild or arson fire can have large-scale impacts to the environment, wildlife, and to persons that use public land. These impacts include permanent changes to vegetation communities due to slow fire recovery, increasing non-native invasive populations, and loss of wildlife habitat. Fire that occurs in grazing allotments has the potential to devastate the vegetation and forage base for livestock. In heavily burned allotments, the BLM would be required to temporarily close the allotment to facilitate re-vegetation until conditions are

determined to be appropriate for the resumption of livestock grazing. If this were the case, livestock operators may be forced to find alternative forage, affecting their economic operations adversely depending on local circumstances.

None of the proposed alternatives, when considered with existing and future regional activities and impacts are expected to add to or cross a threshold of impact that would result in a significant impact on the human environment.

Site-Specific Impacts

For the Dog Creek and Green Creek allotments in this assessment, grazing issues and impacts have been minimal due to dispersed livestock use and few facilities to attract and concentrate the use.

The physical structure and ecological function of plant communities on the Dog Creek and Green Creek allotments under alternatives 1 and 2 are expected to be maintained or slightly improved as the result of vegetation utilization guidelines for key forage species. Improved condition of native bunch grasses and forbs would provide an increased forage base for rodents and passerine birds across the allotments. Populations of these smaller animals should increase in average to above average precipitation years, which would also provide an improved food base for predators. Habitat conditions, related to forage quality, forage quantity and plant physical structure for mule deer and other large mammals would also be maintained or slightly improved from the current situation. These improvements, coupled with continued coordination and consultation with the Tribes, should result in BLM addressing the Tribes' concerns in a manner agreeable to the Tribes. Under alternatives 3 and 4, all cumulative impacts occurring on native vegetation from livestock grazing within the two allotments would essentially be eliminated.

Within the two allotments, wildland fires and other natural events changing landscape conditions are expected to continue. Alternatives 1 and 2 would be adjusted to maintain rangeland health standards when fire, drought, and other uncontrollable natural events require it. Allotments would be rested for a minimum of three years. Under alternatives 3 and 4, all cumulative impacts occurring from livestock grazing following a fire would essentially be removed.

Cumulative impacts to low income or minority populations from past, present, and reasonably foreseeable public or private actions including any actions on non federal lands would be extremely low and would not be disproportionate to impacts on other segments of the population under any of the alternatives. Alternatives 3 and 4 would potentially have the most negative impact, but again, would not be disproportionate to the low income or minority population.

For the two permittees under alternatives 1 and 2, the opportunity to graze the allotments would continue and their general grazing operation would not be cumulatively impacted. The permittees would have the ability to use the allotments, providing for some flexibility throughout the years in their overall grazing plan. However, under alternatives 3 and 4, the cancellation of domestic sheep grazing on the Dog Creek and Green Creek allotments would negatively impact the two operators and would force them to look for alternative forage. There is a careful balance of livestock numbers and seasons of use for grazing these allotments, such that any substantial change of use, would negatively affect their overall operation. Also, if these two allotments are closed to sheep grazing, along with other federal allotments due to similar circumstances

regarding Sierra Nevada bighorn sheep, the permittees would additionally be impacted. The grazing capacity of their other federal permits or private leases may not accommodate the increased use or meet land management requirements. This may increase the cost of their ranching operations if similar federal lands are not acquired. If federal lands are not available, the operators may need to supplement with private lands which are often more expensive per animal unit month. Or, the permittees may be forced to operate with fewer livestock to adjust to the loss. Therefore over time, if the permittee reduces their herd to adjust to the loss of an allotment(s), this equates to less income for the permittee.

The Humboldt-Toiyabe National Forest (HTNF) also manages sheep allotments adjacent to or in the vicinity of the Dog Creek and Green Creek allotments. In the short-term, the HTNF has worked with the permittees to take non-use on the allotments that pose a high/unacceptable risk level of contact between domestic sheep and Sierra Nevada bighorn sheep. However, at time of this environmental assessment, the long-term plan for grazing on these HTNF allotments is unknown. These HTNF allotments are important allotments to the sheep operator who also leases the Dog Creek allotment. Changes in operating procedures on the HTNF allotments (e.g. allotment closure to domestic sheep) could cumulatively impact the sheep operator negatively.

Alternatives 1 or 2 would not authorize an increase in activities that would increase greenhouse gas (GHG) emissions. Therefore, GHG contributions would not have a noticeable or measurable effect, cumulatively, on a phenomenon occurring at the global scale. Alternatives 3 and 4 may reduce locally produced GHG emissions from less enteric fermentation and excretion; however, this level of reduction is likely to be minute and practically un-measurable at both the local and global scales. Under alternative 4, livestock trailing reduces GHG emissions by not using vehicles for transportation.

Recreation including Off-highway vehicle (OHV) use would continue to occur under the four alternatives. There is the potential for cumulative impacts regarding the spread of invasive weeds. However, no unregulated OHV use was identified during the allotment assessments.

Dog Creek was heavily impacted by mining activities around the 1850's. Dredging of the creek removed sinuosity of the channel which has had lasting impacts including limiting the extent of the riparian zone. No recent mining activity has occurred on either of these allotments and no substantial mining related activities are predicated in the reasonably foreseeable future. In the larger Bridgeport area, a recent environmental assessment conducted by the BLM for a mineral exploration project in the Paramount Mine vicinity of the Bodie Hills concluded that a full scale mining operation in that area was not considered a reasonably foreseeable development scenario (BLM 2009).

Some activities that have temporarily degraded water quality along small segments of some streams include vehicle travel at stream crossings (e.g. Dog Creek near the Dog Town historic site), and on occasion, large inputs of storm event runoff from asphalt based roads (e.g. Highway 395 and Virginia Lakes Road) or over bare ground (e.g. campsites along streams). Contaminants from motor oil, degradation of asphalt composition, silt and general activities in and around campsites next to streams would be likely substances contributed to the stream. Aquatic insects and primary producers within the water column would be the first organisms to suffer from these occurrences.

Sierra Nevada Bighorn Sheep

Many of the grazing allotments considered high-risk to Sierra Nevada bighorn sheep have been or are in the process of being closed, substantially decreasing the risk of contact with domestic sheep and subsequent disease transmission range-wide. Alternatives 1, 3, and 4 would all contribute to a decreased risk of disease transference from domestic sheep to Sierra Nevada bighorn, with alternatives 3 and 4 providing the greatest increase in security for this federally-listed, endangered species. However, until domestic sheep grazing is eliminated from Conway Ranch and the private lands at Sinnamon Meadow, the risk of contact in the Northern Recovery Unit remains relatively high, decreasing the overall contribution of alternatives 1, 3, and 4 to the cumulative potential benefit to Sierra Nevada bighorn sheep.

Wildlife, including Sensitive Wildlife Species

Alternatives 1 and 4 would maintain and slightly improve habitat conditions for Greater Sagegrouse, pygmy rabbit, mule deer, and a host of other wildlife species on the allotments; however, the overall small size of both allotments relative to the amount of available habitat would not significantly contribute to the cumulative benefit to the species. Of some concern is the cumulative loss of these allotments along with other allotments that may cause economic hardship to the permittees, potentially leading to the sale of base properties and potential development that would contribute to the loss and fragmentation of habitat important to wildlife species in the west (Knight 2007).

Conclusion

None of the alternatives analyzed in this environment assessment are expected to contribute to significant cumulative impacts on the human environment at either the regional or allotment scale. In general, the cumulative effects of all four alternatives would help maintain or improve rangeland health conditions incrementally and positively. In effect, any of the four alternatives would improve rangeland health conditions at a local level and further the BLM's objective to complete its rangeland condition improvement strategy for the remainder of public lands in the region as well. As a result, improvements in plant and animal habitats, water quality, cultural resources would occur at both the local and regional levels creating overall positive cumulative impacts.

Chapter 4: CONSULTATION AND COORDINATION

Livestock Operator Consultation, Cooperation, and Coordination

The following timeline summarizes actions the BLM has taken to consult, cooperate, and coordinate with affected livestock operators on implementation of the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000):

On January 27, 1997, the Bishop Field Manager sent a letter to the two permittees that at that time grazed these two allotments. The letter stated, “as a requirement of implementing the Bureau’s Healthy Rangeland Standards, regulations require that mandatory terms and conditions and other terms and conditions (43 CFR Subpart 4100, Section 4130.3-1 and Section 4230.3-2 respectively) are to be included in all permits.” The letter also stated, “Another requirement of the regulations are Standards and Guidelines (S&Gs). As of this date, the BLM in California has not completed development of statewide S&Gs and has requested that the Secretary of the Interior grant a 6 month extension to allow their completion and adoption. Therefore the Fallback Standards and Guidelines, as stated in the regulations, will not go into effect on February 12, 1997 if the extension is granted.”

On January 14, 1998, the Bishop Field Manager sent a letter to the two permittees that at that time grazed these two allotments. It stated, “enclosed is a copy of the National Fallback Standards and Guidelines (S&Gs). These S&Gs will remain in effect until the California BLM Healthy Rangelands Environmental Impact Statement is completed in 1998.” Enclosures with the letter included Background, Fundamentals of Rangeland Health, S&Gs Basic Concepts, and Fallback S&Gs.

On December 15, 1998, the Bishop Field Manager sent a letter to the two permittees who graze these two allotments which explained the rangeland health allotment assessment requirements.

On December 11, 2000, the Bishop Field Manager sent a letter to the two permittees that at that time grazed the two allotments and included a copy of the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (USDI 2000). The letter invited the permittees to attend two scheduled meetings to ask any questions or present concerns they may have had with the Central California standards and guidelines.

Personal Communication

Belenky, Lisa T., Staff Attorney, Center for Biological Diversity (CBD). January 30, 2007, Ms. Lisa Belenky requested by telephone to be notified when draft environmental assessments for grazing permit renewals were posted on the Bishop BLM website. On May 15, 2007, the BLM spoke with Ms. Belenky of CBD via telephone. Ms. Belenky requested that the BLM send her all proposed decisions on the grazing allotment renewals from the Bishop Field Office via email. On June 11, 2007, the BLM received a phone message from Ms. Belenky. Ms. Belenky again requested to be informed when draft EAs are posted on the BLM website. Ms. Belenky stated she would specifically request proposed decisions on particular allotments to be sent to her. The

BLM replied via email to Ms. Belenky, acknowledging her requests. However Ms. Belenky did not provide the BLM with a listing of specific allotments that CBD was interested in becoming an “interested public” in accordance with 4100.5. On January 18, 2008, per Ms. Belenky’s request, the BLM sent her via postal mail a copy of the Bishop Resource Management Plan Record of Decision (BLM 1993), the Final Bishop Resource Management Plan and Environmental Impact Statement Volumes I & II (BLM 1991), the Bodie-Coleville Draft Wilderness Recommendation Final Environmental Impact Statement (BLM 1987), and the Vehicle Access Strategy.

Burke, Thomas D. 1998. Owner and principal investigator of Archaeological Research Services, Inc. The BLM and Thomas discussed grazing impacts to archaeological resources. Refer to Chapter 3, Cultural Resources for further information and results.

California Native Plant Society, Bristlecone Chapter. 1999. The BLM invited the Bristlecone Chapter to the Rangeland Health Assessments that began in 1999. Members from the Chapter participated at different times between 1999 through 2003. The BLM and Bristlecone Chapter also discussed livestock grazing and invasive, non-native species.

Connor, Michael J., California Science Director, Western Watersheds Project (WWP). On February 29, 2008, the BLM responded via e-mail to Dr. Connor of WWP confirming the addition to the BLM list of interested public. The BLM sent Dr. Connor a link to the Bishop Field Office website to locate the total list of grazing allotments. On March 6, 2008, Dr. Connor of WWP sent a follow-up letter to the February 28, 2008 letter and requested to be added to the list of “interested public” for all grazing allotments and grazing management decisions from the Bishop Field Office.

Fell, Chuck. 1995. Bodie State Historic Park. The BLM and Chuck discussed grazing impacts to historic buildings and resources. Refer to Chapter 3, Cultural Resources for further information and results.

F.I.M. Fulstone Corp., Livestock Operator. On February 26, 2008, the BLM and F.I.M. Fulstone Corp. had a meeting to discuss the environmental assessment process and to provide a Sierra Nevada bighorn sheep update. The BLM planned to change the EA schedule to allow for completion of the risk assessment. We discussed proposed terms and conditions and mitigation measures for Sierra Nevada bighorn sheep. On April 16, 2009, the BLM and F.I.M. Fulstone Corp. had another meeting to discuss the 2009 grazing season and provide an update on the environmental assessment process for 10-year grazing permit renewals. The meeting also covered the recent updates on the Sierra Nevada bighorn sheep and grazing practices for reducing and detecting straying of domestic sheep. The BLM and F.I.M. Fulstone Corp. discussed the likelihood of closing the Dog Creek allotment to livestock grazing. On April 16, 2010, the BLM and F.I.M. Fulstone Corp. had another meeting to discuss the 2010 grazing season and provide an update on the environmental assessment process for permit renewals and to share the most recent information regarding Sierra Nevada bighorn sheep. The BLM explained that we delayed the EA process pending completion of the risk assessment process. Also, the BLM explained that there would be a range of alternatives from changing season of use to allotment closure. At that time, F.I.M. Fulstone Corp. agreed to take temporary no-use to allow the BLM time to complete the environmental review process.

Iturriria, Paco. Livestock Operator. On January 10, 2008, the BLM and Paco had a meeting to discuss the environmental assessment process and to provide a Sierra Nevada bighorn sheep update. The BLM planned to change the EA schedule to allow for the risk assessment process to be completed. We discussed proposed terms and conditions and mitigation measures for Sierra Nevada bighorn sheep. On April 9, 2009, the BLM and Paco had a meeting to discuss the 2009 grazing season and to provide an update on the environmental assessment process for 10-year grazing permit renewals. The meeting also covered recent updates on Sierra Nevada bighorn sheep and grazing practices to reduce and detect straying of domestic sheep. Also, the BLM discussed the likelihood of closing the Green Creek allotment to livestock grazing. On April 12, 2010, the BLM and Paco had a meeting to discuss the 2010 grazing season and provide an update on the environmental assessment process for permit renewal and share the most recent information regarding the Sierra Nevada bighorn sheep. The BLM explained that we delayed the EA process until the risk assessment process was completed. The BLM also explained that there would be a range of alternatives from changing season of use to allotment closure. Paco agreed to take temporary non-use on the Green Creek allotment during the 2010 grazing season to allow the BLM time to complete the environmental assessment.

Milovich, George. 1999 through 2007. Agricultural Commissioner for Inyo and Mono Counties. The BLM and George discussed the process for issuing the fully processed 10-year grazing permits. The BLM also explained the general changes in terms and conditions to the expiring grazing permits due the incorporation of the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000). Annual Crop and Livestock Reports were obtained by visiting the Counties of Inyo and Mono Agriculture Department located in downtown Bishop.

Parker, Jim and Mike Slates. 2000 and 2007. Great Basin Unified Air Pollution Control District (GBUAPCD). The BLM and Jim discussed the environmental assessments (EAs) and livestock grazing authorizations to be considered in the future. The BLM received language from the GBUACD to be included within the EA's along with maps of federal non-attainment/maintenance areas under jurisdiction of the GBUAPCD. The BLM received an updated federal non-attainment/maintenance area map from Mike in 2007.

Presto, Beatrice. Base Property Owner for the Green Creek allotment. 2009. Discussed the environmental assessment process and Sierra Nevada bighorn sheep issues in regard to the Green Creek allotment.

Snyder, Roy. Base Property Owner for the Dog Creek allotment. 2009. Discussed the environmental assessment process and Sierra Nevada bighorn sheep issues in regard to the Dog Creek allotment.

Native American Communities

There are 11 Native American communities in the Eastern Sierra region, eight of which are federally recognized, which reside near or inhabited aboriginal homelands.

During the initialization of the allotment assessment process in FY 1999, seven Native American communities residing within the area administered by the Bishop Field Office (Bridgeport, Mono Lake, Benton, Bishop, Big Pine, Ft. Independence, and Lone Pine) were contacted by letter

(January 11, 1999), with a follow-up phone call, to determine if there were any Native American concerns with the grazing program and if they would like to participate in the allotment assessment process. The communities either said that there were no impacts or decided not to formally comment or participate. None indicated a desire or need to participate in the assessment process. (Consultation log available for FY 1999).

Each of the local tribal offices was contacted again by phone on 11/30/00 and the letter of January 1999 was sent to them again via fax. Several phone calls were made to each Tribe to follow up after they received the letter. Various individuals stated some general concerns which are addressed in Chapter 3, Native American Cultural Values; but again, they stated that there are no direct specific impacts to their communities or to their community members from the grazing program. (Consultation log available for FY2001).

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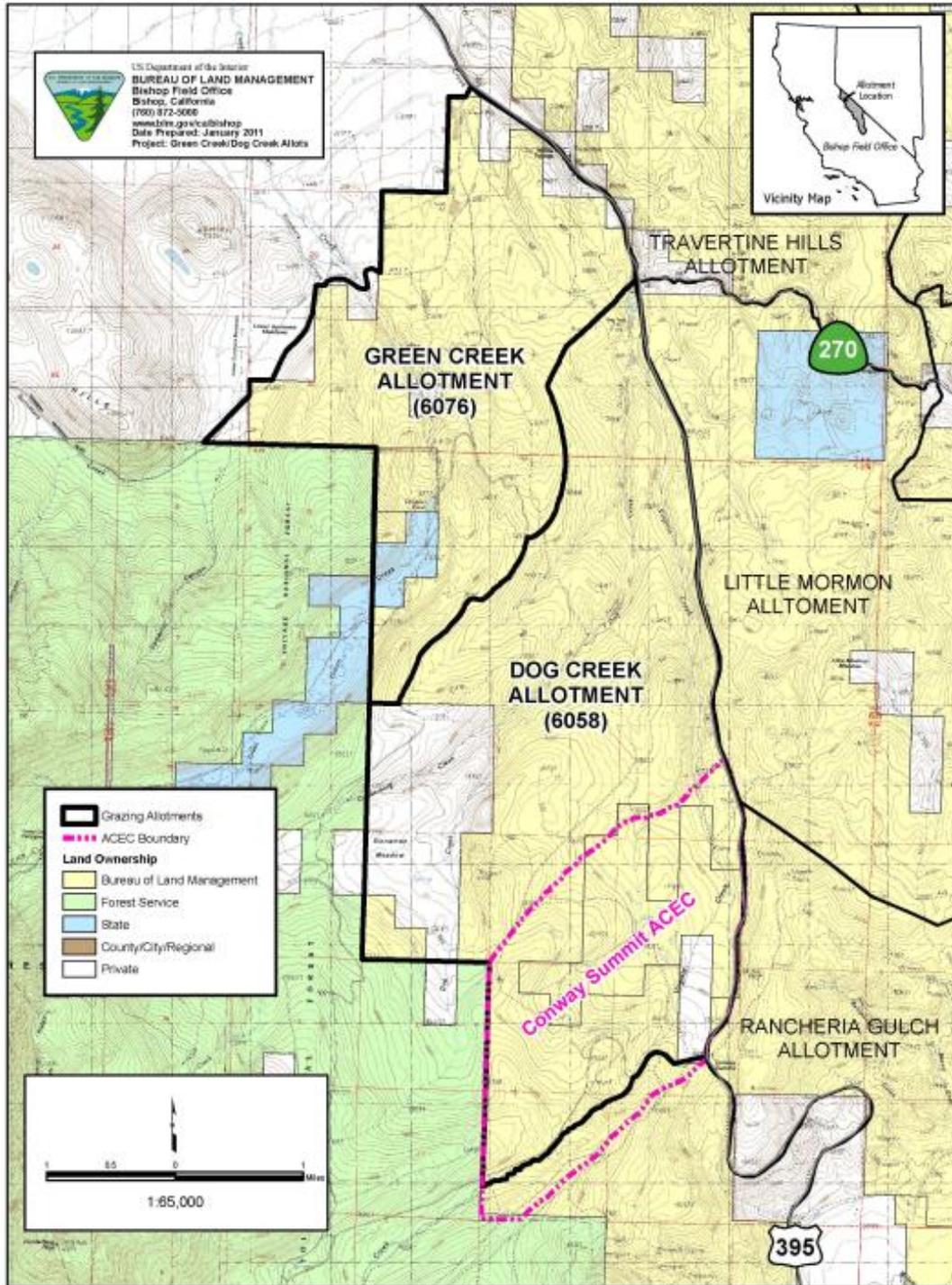
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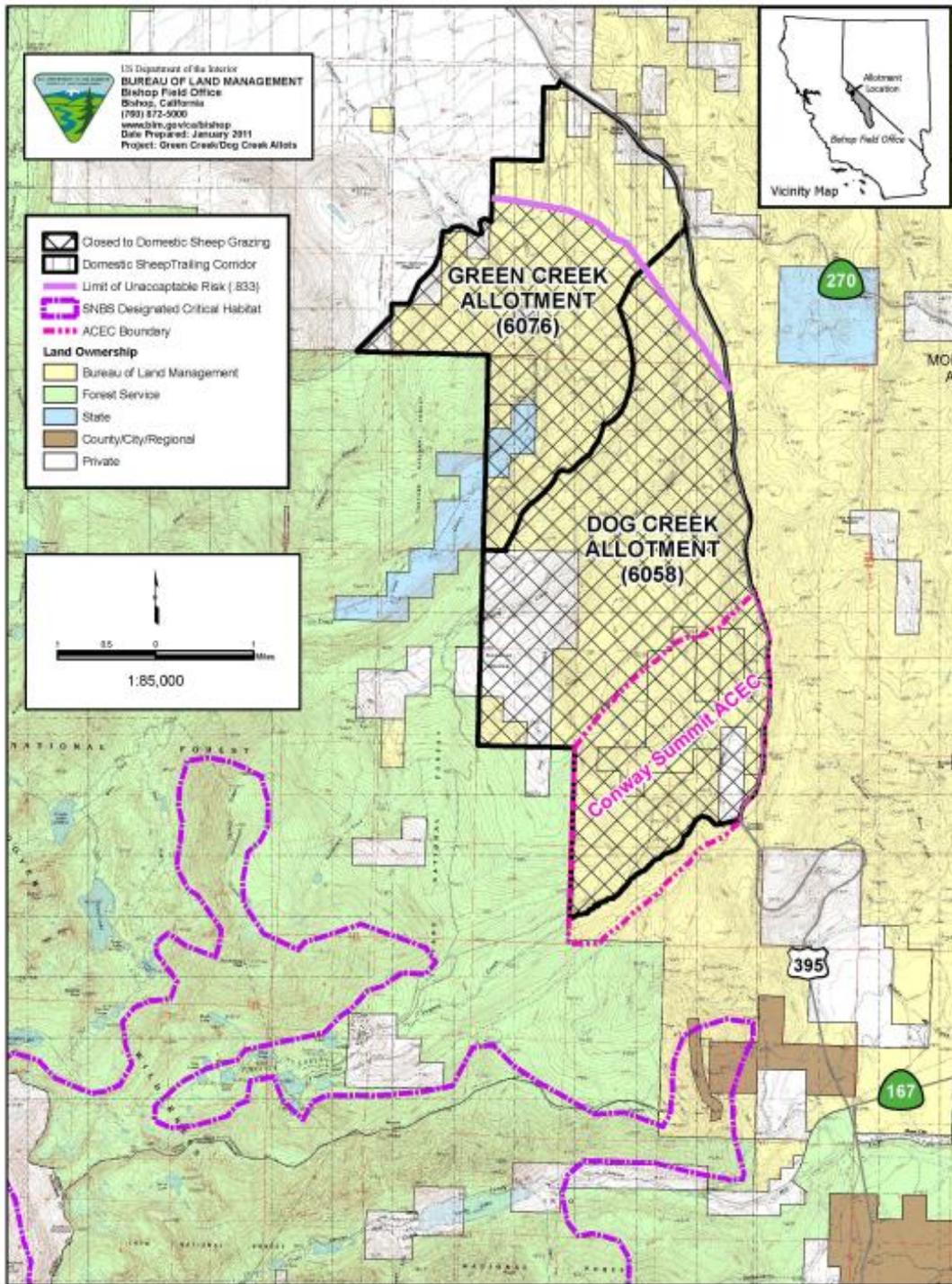
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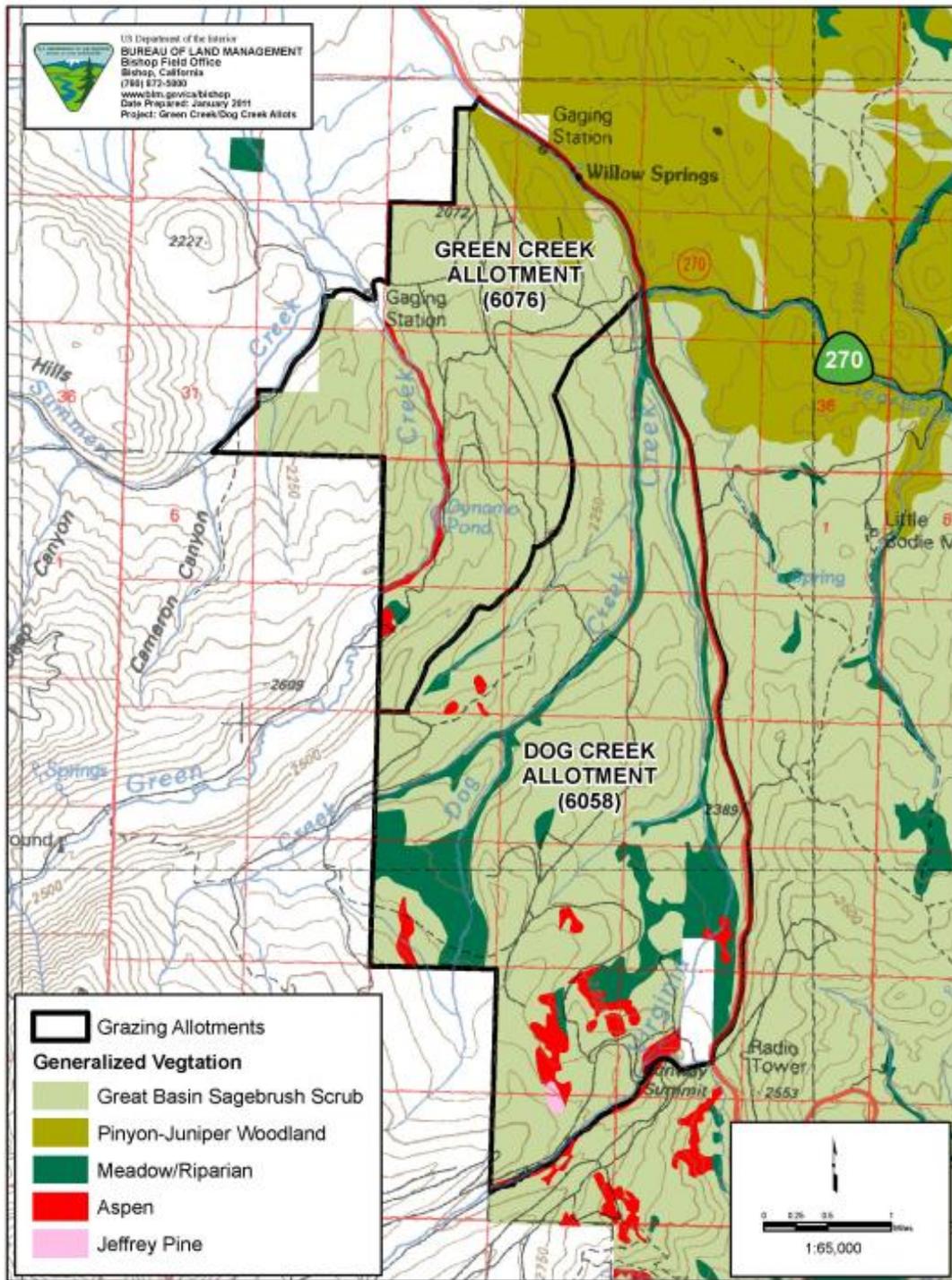
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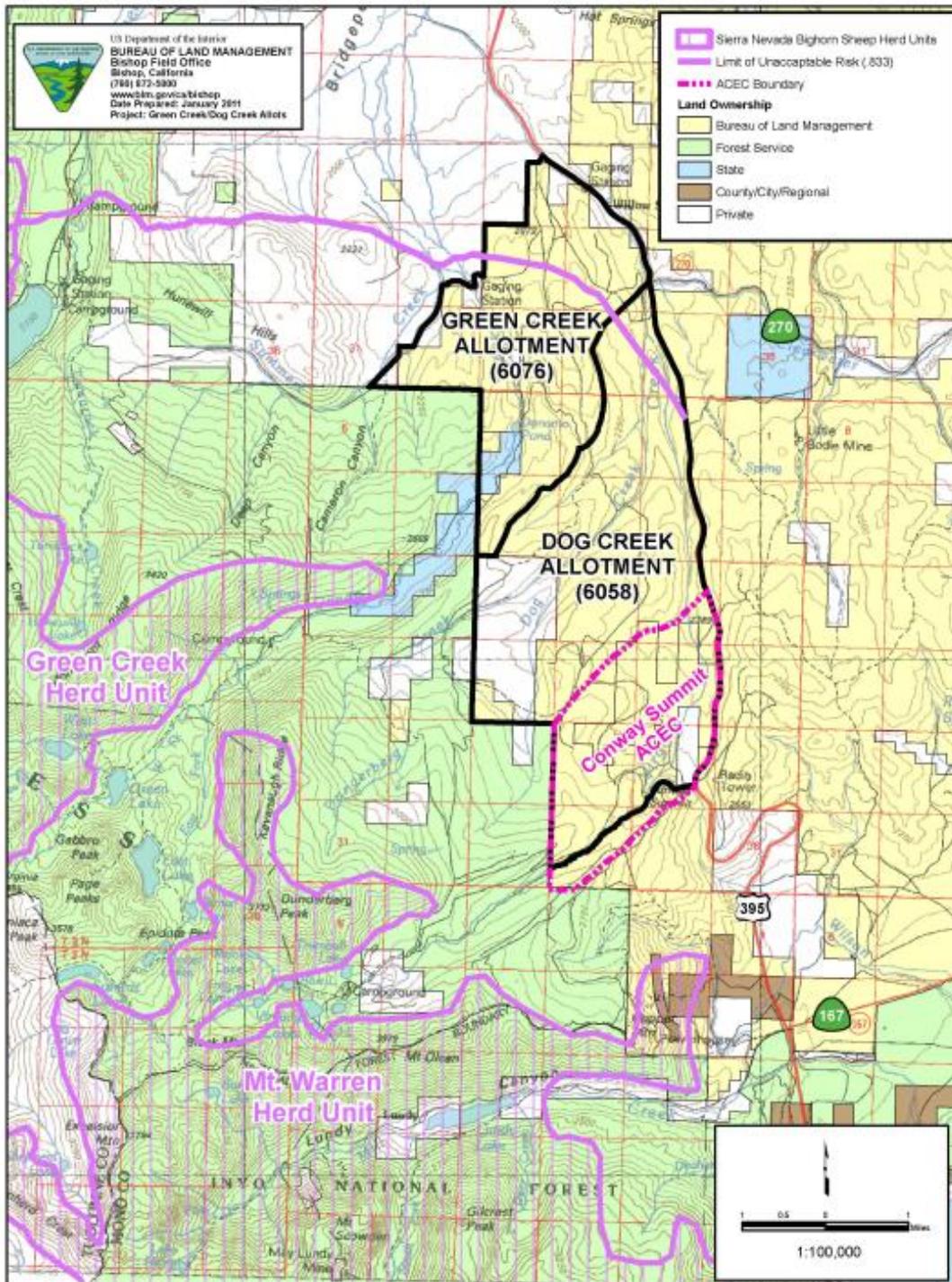


Map 1. Overview of the Dog Creek and Green Creek Allotments, Mono County, California. Bureau of Land Management, Bishop Field Office, Bridgeport Valley Management Area.



Map 2. Alternative 4 - No Domestic Sheep Grazing/Crossing Permit Only.





Map 4. Overview of Green Creek and Dog Creek Allotments in reference to Sierra Nevada Bighorn Sheep Herd Units.