Appendix A

Applicable Laws and Management Guidance

Appendix A. Applicable Laws and Management Guidance

Decisions contained in this Final EIS and RMP comply with all applicable laws, regulations, and management guidance that direct the BLM in its resource management activities. This appendix lists the major legal authorities relevant to BLM land use planning.

1. The Federal Land Policy and Management Act of 1976 (FLPMA), as amended, 43 U.S.C. 1701 et seq., provides the authority for BLM land use planning.
   a. Sec. 102 (a) (7) and (8) and 103(c) sets the policy of the United States concerning the management of BLM lands.
   b. Sec. 201 requires the Secretary of the Interior (the Secretary) to prepare and maintain an inventory of all BLM lands and their resource and other values; and, as funding and workforce are available, to determine the boundaries of the public lands, provide signs and maps to the public, and provide inventory data to State and local governments.
   c. Sec. 202 (a) requires the Secretary, with public involvement, to develop, maintain, and when appropriate, revise land use plans that provide by tracts or areas for the use of the BLM lands.
   d. Sec. 202 (c) (9) requires that land use plans for BLM lands be consistent with tribal plans and, to the maximum extent consistent with applicable Federal laws, with State and local plans.
   e. Sec. 202 (d) provides that all public lands, regardless of classification, are subject to inclusion in land use plans, and that the Secretary may modify or terminate classifications consistent with land use plans.
   f. Sec. 202 (f) and Sec. 309 (e) provide that federal agencies, state and local governments, and the public be given adequate notice and an opportunity to comment on the formulation of standards and criteria for, and to participate in, the preparation and execution of plans and programs for the management of the public lands.
   g. Sec. 302 (a) requires the Secretary to manage BLM lands under the principles of multiple use and sustained yield, in accordance with, when available, land use plans developed under Sec. 202 of FLPMA, except that where a tract of BLM lands has been dedicated to specific uses according to any other provisions of law, it shall be managed in accordance with such laws.
   h. Sec. 302 (b) recognizes the entry and development rights of mining claimants, while directing the Secretary to prevent unnecessary of undue degradation of the public lands.
   i. Sec. 505(a) requires that "...each right-of-way shall contain terms and conditions which will ... minimize damage to the scenic and esthetic values...".

2. The National Environment Policy Act of 1969 (NEPA), as amended, 42 U.S.C. 4321 et seq., requires the consideration and public availability of information regarding the environmental impacts of major federal actions significantly affecting the quality of the human environment. This includes the consideration of alternatives and mitigation of impacts.

3. The Clean Air Act of 1990, as amended, 42 U.S.C. 7418, requires federal agencies to comply with all federal, state, and local requirements regarding the control and abatement of air pollution. This includes abiding by the requirements of State Implementation Plans.

4. The Clean Water Act of 1987, as amended, 33 U.S.C. 1251, establishes objectives to restore and maintain the chemical, physical, and biological integrity of the Nation's water.

5. The Federal Water Pollution Control Act, 33 U.S.C. 1323, requires the federal land manager to comply with all federal, state, and local requirements; administrative authority; process; and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any non-governmental entity.

6. The Safe Drinking Water Act, 42 U.S.C. 201, is designed to make the Nation's waters "drinkable" as well as "swimmable." Amendments establish a direct connection between safe drinking water, watershed protection, and management.

7. The Endangered Species Act of 1973 (ESA), as amended, 16 U.S.C. 1531 et seq.:
   a. Provides a means whereby the ecosystems upon which endangered and threatened species depend may be conserved and to provide a program for the conservation of such endangered and threatened species (Sec. 1531 [b], Purposes).
   b. Requires all federal agencies to seek the conservation of endangered and threatened species and utilize applicable authorities in furtherance of the purposes of the Endangered Species Act (Sec. 1531 [c] [1], Policy).
   c. Requires all federal agencies to avoid jeopardizing the continued existence of any species that is listed or proposed for listing as threatened or endangered or destroying or adversely modifying its designated or proposed critical habitat (Sec. 1536 [a], Interagency Cooperation).
   d. Requires all federal agencies to consult (or confer) in accordance with Sec. 7 of the Endangered Species Act with the Secretary of the Interior, through the Fish and Wildlife Service and/or the National Marine Fisheries Service, to ensure that any federal action (including land use plans) or activity is not likely to jeopardize the continued existence of any species listed or proposed to be listed under the provisions of the Endangered Species Act, or result in the destruction or adverse modification of designated or proposed critical habitat (Sec. 1536 [a], Interagency Cooperation, and 50 CFR 402).

8. The Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq., requires the federal land management agencies to identify river systems and then study them for potential designation as wild, scenic, or recreational rivers.

9. The Wilderness Act, as amended, 16 U.S.C. 1131 et seq., authorizes the President to make recommendations to the Congress for federal lands to be set aside for preservation as wilderness.

10. The Antiquities Act of 1906, 16 U.S.C. 431-433, protects cultural resources on federal lands and authorizes the President to designate national monuments on federal lands.

11. The National Historic Preservation Act (NHPA), as amended, 16 U.S.C. 470, expands protection of historic and archaeological properties to include those of national, state, and local significance and directs federal agencies to consider the effects of proposed actions on properties eligible for or included in the National Register of Historic Places.

12. The American Indian Religious Freedom Act of 1978, 42 U.S.C. 1996, establishes a national policy to protect and preserve the right of American Indians to exercise traditional Indian religious beliefs or practices.

13. Federally Recognized Tribes and Tribal Reserved Rights - Federally recognized tribes are sovereign nations that maintain a unique government to government and trust relationship with the United States (American Indian Resources Institute 1988:26). The trust relationship is essentially one in which Indian tribes trust the federal government to honor the reserved rights made in treaties or other agreements in exchange for Indian lands[1].

    In the past, this relationship has been acknowledged in one of three ways; by treaty ratification, Congressional Act, or executive order[2]. The various treaties, congressional acts, and executive orders that have been crafted during the past 150 years have established a unique legal relationship with the three federally recognized tribes and the United States government. Part of that legal relationship may be found in the tribes' reserved rights and privileges to harvest and utilize traditional resources, to visit and maintain sacred sites, and to participate in ceremonies that preserve the essential elements of their culture. Those resources and sacred sites, located on ancestral lands and ceded to the federal government, now constitute a large part of the public domain.

14. The Recreation and Public Purposes Act of 1926, as amended, 43 U.S.C. 869 et seq., authorizes the Secretary of the Interior to lease or convey BLM lands for recreational and public purposes under specified conditions.

15. The Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. 1201 et seq., requires application unsuitability criteria prior to coal leasing and also to proposed mining operations for minerals or mineral materials other than coal.

16. The Mineral Leasing Act of 1920, as amended, 30 U.S.C. 181 et seq., authorizes the development and conservation of oil and gas resources.

17. The Onshore Oil and Gas Leasing Reform Act of 1987, 30 U.S.C. 181 et seq., stipulates that:
    a. Potential oil and gas resources be adequately addressed in planning documents;
    b. The social, economic, and environmental consequences of exploration and development of oil and gas resources be determined; and
    c. Any stipulations to be applied to oil and gas leases be clearly identified.

18. The General Mining Law of 1872, as amended, 30 U.S.C. 21 et seq., allows the location, use, and patenting of mining claims on sites on public domain lands of the United States.

19. The Mining and Mineral Policy Act of 1970, 30 U.S.C. 21a, establishes a policy of fostering development of economically stable mining and minerals industries, their orderly and economic development, and studying methods for disposal of waste and reclamation.

20. The Materials Act of 1947, as amended (30 U.S.C. 601–604, et seq.), provides for the sale of common variety materials for personal, commercial, or industrial uses and for free use for local, state, and federal governmental entities. The sales of mineral materials are controlled by the regulations listed in 43 CFR 3600.

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[1] Pevar, S.L. 1992. The Rights of Indians and Tribes: The Basic American Civil Liberties Union Guide to Indian and Tribal Rights. Southern Illinois University Press, Carbondale and Edwardsville.

[2] Zucker, J., K. Hummel, and B. Hogfoss. 1983. Oregon Indians: Culture, History and Current Affairs, an Atlas and Introduction. Western Imprints, the press of the Oregon Historical Society. Portland.

21. The Taylor Grazing Act of 1934, 43 U.S.C. 315, "[T]he Secretary of the Interior is authorized, in his discretion, by order to establish grazing districts or additions thereto... of vacant unappropriated and unreserved lands from any part of the public domain...which in his opinion are chiefly valuable for grazing and raising forage crops[.]..." The Act also provides for the classification of lands for particular uses.

22. The Public Rangelands Improvement Act of 1978, 43 U.S.C. 1901, provides that the public rangelands be managed so that they become as productive as feasible in accordance with management objectives and the land use planning process established pursuant to 43 U.S.C. 1712.

23. The Wild Free Roaming Horse and Burro Act of 1971, 43 U.S.C 1331–1340, provides for the management, protection, and control of wild horses and burros on public lands and authorizes "adoption" of wild horses and burros by private individuals. Regulations applicable to wild horse and burro management on BLM-administered lands are provided in 43 CFR 4700.

24. The Archaeological Resources Protection Act of 1979, 16 U.S.C. 470, secures the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before October 31, 1979.

25. The Native American Graves Protection and Repatriation Act of 1990, 25 U.S.C. 3001, addresses the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony. It requires federal agencies and museums to provide information about Native American cultural items to parties with standing and, upon presentation of a valid request, dispose of or repatriate these objects to them.

26. The Migratory Bird Conservation Act of 1979, as amended, 16 U.S.C. 715 et seq., establishes a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

27. The Bald Eagle Protection Act of 1973, 16 U.S.C. 668, establishes the eagle as a protected species.

28. The Energy Policy and Conservation Act Reauthorization of 2000, as amended, Public Law 106–469. For more information, please visit: http://www.doi.gov/epca/.

29. The National Trails System Act of 1968, as amended (16 U.S.C. 1241–1249), establishes a national trails system and requires that federal rights in abandoned railroads be retained for trail or recreation purposes, or sold with the receipts to be deposited in the Land and Water Conservation Fund.

30. Executive Order 11644 as amended by Executive Order 11989 (Off-Road Vehicles on Public Lands) established policies and procedures for controlling the use of off-road vehicles on public lands.

31. Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), 49 Fed. Reg. 7629, requires that each federal agency consider the impacts of its programs on minority populations and low income populations.

32. Executive Order 13007 (Indian Sacred Sites), 61 Fed. Reg. 26771, requires federal agencies to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions to:
    a. Accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and
    b. Avoid adversely affecting the physical integrity of such sacred sites.

33. Executive Order 13084 (Consultation and Coordination with Indian Tribal Governments) provides, in part, that each federal agency shall establish regular and meaningful consultation and collaboration with Indian tribal governments in the development of regulatory practices on federal matters that significantly or uniquely affect their communities.

34. Executive Order 13112 (Invasive Species) provides that no federal agency shall authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions.

35. Executive Order 11990 (Protection of Wetlands) requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

36. Executive Order 11988 (Floodplain Management) provides for the restoration and preservation of national and beneficial floodplain values, and enhancement of the natural and beneficial values of wetlands in carrying out programs affecting land use.

37. Executive Order 13186 (Migratory Birds) establishes the responsibilities of federal agencies to protect migratory birds.

38. Secretarial Order 3175 (incorporated into the Departmental Manual at 512 DM 2) requires that if Department of the Interior agency actions might impact Indian trust resources, the agency explicitly address those potential impacts in planning and decision documents, and the agency consult with the tribal government whose trust resources are potentially affected by the federal action.

39. Secretarial Order 3206 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act) requires Department of the Interior agencies to consult with Indian tribes when agency actions to protect a listed species, as a result of compliance with the Endangered Species Act, affect or may affect of Indian lands, tribal trust resources, or the exercise of American Indian tribal rights.

40. Executive Order 12548 provides for establishment of appropriate fees for the grazing of domestic livestock on public rangelands and directs that the fee shall not be less than $1.35 per animal unit month.

Appendix B

Record of Decision
Northeastern California
and
Northwestern Nevada

STANDARDS for Rangeland Health

and

GUIDELINES for Livestock Grazing Management

Prepared by the Bureau of Land Management
California State Office
June 1999

ABSTRACT

NE California and NW Nevada

Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Draft ( ) Final( ) Record of Decision (X)

United States Department of the Interior, Bureau of Land Management (BLM)

1 Type of Action: Administrative (X) Legislative ( )

2 Abstract: This is the Record of Decision for the environmental impact statement (EIS) documenting the effects of adopting regional standards for rangeland health and guidelines for livestock grazing management on BLM-administered lands in parts of California and NW Nevada. This Record of Decision covers that part of California and Nevada formerly known as the Susanville District.

The Preferred Alternative described in the final EIS (Alternative 5), with modifications for clarification, has been chosen as the Standards and Guidelines for California. The changes reflected in this Decision are within the scope and analysis of the EIS.

There Standards and Guidelines will be recommended to the Secretary of the Interior for final approval. They will take effect immediately upon that approval.

This document contains the actual Decision establishing Rangeland Health Standards and Guidelines for California and NW Nevada. It includes the following:

-Decision on Plan Amendments
-Standards and Guidelines for NE California and NW Nevada (formerly the Susanville District)
-Implementation
-Assessments and Monitoring

Al Wright 6.14.99

Al Wright, Acting State Director Date Bureau of Land Management California State Office

SUMMARY

This is the Record of Decision (Decision) recommending Rangeland Health Standards and Livestock Grazing Management Guidelines for NE California and NW Nevada. These recommendations will be submitted to the Secretary of the Interior (Secretary) for his approval, and will become effective immediately upon that approval.

The Decision amends BLM land use plans in NE California and NW Nevada to include the Standards and Guidelines and directs evaluation of existing, and development of new, Desired Plant Community (DPC) standards to ensure conformance of the DPCs with the Standards.

The Decision selects the Preferred Alternative described in the final EIS (Alternative 5), with minor changes for clarification, as the Rangeland Health Standards and Guidelines to be submitted to the Secretary for his approval.

The Decision describes how the Standards and Guidelines will be implemented and how rangeland health conditions will be monitored to assure achieving the Standards.

For further information contact:

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Map 1 --Map of Public Lands in California and Nevada
Map 2 --Map Showing the RAC Areas -- Central California, Northwestern California, and Northeastern California and Northwestern Nevada

APPENDICES

1. **Implementation**
2. **Assessments and Monitoring**

DECISION

1. INTRODUCTION

There were five alternatives considered and analyzed in the EIS. Alternative 1 consisted of the standards and guidelines developed by the three Resource Advisory Councils (RACs) for their representative areas. Alternative 2 consisted of the state-wide standards developed by BLM, in consultation with representatives from each of the RACs, but without concurrence by the entire RAC membership. The guidelines for Alternative 2 were essentially the same as those for Alternative 1. Alternative 3 was adoption of the national "fall-back" standards and guidelines listed in the regulations. Alternative 4 (the environmentally preferred alternative) was a rapid improvement or rapid recovery alternative developed by BLM, with suggestions from several interest groups. The Standards in Alternative 4 were the same as those in Alternative 2, except for Water Quality; however, the implementation would have occurred much faster than under other alternatives. Alternative 5 was a modified version of Alternative 1, with changes based upon suggestions and new information from the public, the RACs, and BLM.

The Decision is to select Alternative 5, with some minor changes and clarifications, all of which are within the scope of the analysis. This decision will become effective immediately upon approval by the Secretary of the Interior.

This Alternative was selected for a number of reasons, including (1) it meets the requirements of the regulations at 43 CFR 4180.1 and 4180.2 to address the principles of rangeland health; (2) it was based upon and incorporates a large portion of the regional standards and guidelines recommended by the Resource Advisory Council; (3) it incorporates some good suggestions by other agencies and the public; (4) it is based upon sound science as requested repeatedly by the different parties who commented on the process; and (5) it can be implemented within BLM's existing budgets without undue economic impacts to the grazing operators and the surrounding communities.

2. PLAN AMENDMENTS

In accordance with the grazing administration regulations at 43 CFR 4100, existing land use plans (Resource Management Plans and Management Framework Plans) have been examined to determine their compliance with the new regulations and the principles of rangeland health. In most cases, these plans do comply.

The land use plans identified below, as well as allotment management and other activity level plans, are hereby amended to include the standards and guidelines as adopted in this decision. The standards and guidelines will become effective immediately upon approval by the Secretary of the Interior and will be incorporated into the Plans at that time. Where there are plan decisions that are contrary to the new regulations, the principles of rangeland health, and the standards and guidelines, those decisions will be deleted from the plans or amended to comply.

Where "desired plant community" (DPC) objectives have been determined through the BLM planning and NEPA processes, the DPCs will be evaluated to ensure they meet the standards of rangeland health. Where DPCs have not yet been determined for a pasture or allotment, they will be developed through the BLM planning and NEPA processes to meet local and regional management objectives, and the standards of rangeland health.

Each Field Office will make the physical changes to their land use plans prior to the next grazing season. As this is merely plan maintenance, further NEPA analysis will not be necessary to complete this administrative action.

LAND USE PLAN	PLAN DATE	FIELD OFFICE
Tuledad / Home Camp Management Framework Plan (MFP)	1978	Surprise -- south part
Cowhead / Massacre MFP	1980	Surprise -- north part
CAL / NEVA MFP	1982	Eagle Lake -- NE part
Willow Creek MFP	1983	Eagle Lake -- NW part
Honey Lake MFP	1983	Eagle Lake -- south part
Eagle Lake MFP Amendment	1990	Eagle Lake -- Eagle Lake area
Alturas Resource Management Plan	1983	Alturas -- most of area
Ash Valley Amendment		Alturas -- part only
Mount Dome MFP	1981	Alturas -- part only
Redding (old) MFP	1983	Alturas -- part only

3. STANDARDS AND GUIDELINES for RANGELAND HEALTH in NORTHEASTERN CALIFORNIA and NORTHWESTERN NEVADA

The Preferred Alternative described in the final EIS (Alternative 5), with minor changes for clarification, has been chosen as the Standards and Guidelines for Northeastern California and Northwestern Nevada. The changes reflected in this Decision are within the scope and analysis of the EIS. These Standards and Guidelines will take effect immediately upon their approval by the Secretary of the Interior.

These standards and guidelines were developed for, and are hereby adopted for, that part of northeastern California and northwestern Nevada formerly known as the Susanville District.

Preamble

Healthy rangelands contribute to the social and economic well being of rural communities in Northeastern California and Northwestern Nevada, and they provide, over the long term, the most reliable harvest of rangeland resources. The objective of rangeland resource planning is to integrate BLM resources with other resources to achieve the mandate of multiple-use and sustained yield management of renewable resources in an environmentally sound and cost-effective manner.

The **Standards** of rangeland health are expressions of physical and biological condition or degree of function required for healthy, sustainable rangelands. The Standards are applied on a landscape scale. Some standards may not apply to all acres. For example, a mosaic of vegetation types and age classes may produce the diversity associated with healthy rangelands; however, some individual vegetation communities within the mosaic may lack diversity.

The Standards always relate to the capability or potential of a specific site. The land will not be expected to produce vegetation or support habitats not attainable due to climate, soils, or other limiting attributes. In instances where site capability or potential has changed due to human-caused or natural disturbance, recognition will be given to the modified capability when setting or assigning a standard to (for) the site. The Standards are designed to establish the threshold for healthy rangelands. In some circumstances, an exception to the Standards or Guidelines may be necessary or unavoidable; however, **these instances should be under extreme conditions only** and fully justified (documented) in order to be acceptable.

The **Guidelines** for grazing management are the types of grazing management methods and practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard. The Guidelines were designed to provide direction, yet offer flexibility for implementation through activity plans and terms and conditions for grazing permits. The Bureau of Land Management (BLM) must operate within the constraints of other regulatory requirements that may affect how standards and guidelines are applied for livestock grazing, for example the Wild Free-Roaming Horse and Burro Act (1971).

STANDARD 1: UPLAND SOILS

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform, and exhibit functional biological, chemical and physical characteristics.

Meaning that:

Precipitation is able to enter the soil surface and move through the soil profile at a rate appropriate to soil type, climate, and landform; the soil is adequately protected against human-caused wind or water erosion; and the soil fertility is maintained at, or improved to, the appropriate level.

Criteria to Meet Standard:

* Ground cover (vegetation, litter, and other types of ground cover such as rock fragments) is sufficient to protect sites from accelerated erosion.
* Evidence of wind and water erosion, such as rills and gullies, pedestaling, scour or sheet erosion, and deposition of dunes is either absent or, if present, does not exceed what is natural for the site.
* Vegetation is vigorous, diverse in species composition and age class, and reflects the potential natural vegetation or desired plant community for the site.

STANDARD 2: STREAMS

Stream channel form and function are characteristic for the soil type, climate, and landform.

Meaning that:

Channel gradient, pool frequency, width to depth ratio, roughness, sinuosity, and sediment transport are able to function naturally and are characteristic of the soil type, climate, and landform.

Criteria to Meet Standard:

* Gravel bars and other coarse textured stream deposits are successfully colonized and stabilized by woody riparian species.
* Stream bank vegetation is vigorous and diverse, mostly perennial, and holds and protects banks during high stream flow events.

* The stream water surface has a high degree of shading, resulting in cooler water in summer and reduced icing in winter.
* Portions of the primary floodplain are frequently flooded (inundated every 1-5 years).

STANDARD 3: WATER QUALITY

Water will have characteristics suitable for existing or potential beneficial uses. Surface and groundwater complies with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California and Nevada State standards, excepting approved variances.

Management Objective: For water bodies, the primary objective is to maintain the existing quality and beneficial uses of water protect them where they are threatened, and restore them where they are currently degraded. This objective is of even higher priority in the following situations:

a. where beneficial uses of water bodies have been listed as threatened or impaired pursuant to Section 303(d) of the Federal Clean Water Act;
b. where aquatic habitat is present, has been present, or is potentially present for Federal threatened or endangered, candidate, and other special status species dependent on water resources; and
c. in designated water resource sensitive areas such as riparian and wetland areas.

Meaning That:

BLM will:

Maintain the physical, biological, and chemical integrity of waters flowing across or underlying the lands it administers.

Protect the integrity of these waters where it is currently threatened.

Insofar as is feasible, restore the integrity of these waters where it is currently impaired.

Not contribute to pollution and take action to remedy any pollution resulting from its actions that violates California and Nevada water quality standards, Tribal water quality standards, or other applicable water quality requirements (e.g., requirements adopted by SWRCB or RWQCB in California, or U.S. EPA pursuant to Section 303(d) of the Clean Water Act or the Coastal Zone Reauthorization Act). Where action related to grazing management is required, such action will be taken as soon as practicable but not later than the start of the next grazing year (in accordance with 43 CFR 4180.1).

Be consistent with the non-degradation policies as identified by the States.

Develop and execute a Management Agency Agreement with the States of California and Nevada for the efficient protection of water quality associated with BLM's management.

Work with the States' water quality administrative agencies and U.S. EPA to establish appropriate beneficial uses for public waters, establish appropriate numeric targets for 303(d) listed water bodies, and implement the applicable requirements to ensure that water quality on public lands meets the objectives for the designated beneficial uses of the water.

Develop and implement Best Management Practices (BMPs) approved by the States to protect and restore the quality and beneficial uses of water, and monitor both implementation and effectiveness of the BMPs. These BMPs will be developed in full consultation, coordination, and cooperation with permittees and other interests.

State or Tribal approved variances or exceptions to water quality standards may be applicable within their Basin Plans for specific types of activities or actions. BLM will follow State or Tribal administrative procedures associated with variances.

As Indicated By:

* The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., indicator macroinvertebrates, fish, algae, and plants).
* Achievement of the standards for riparian, wetlands, and water bodies.
* Monitoring results or other data that show water quality is meeting the standard.

STANDARD 4: RIPARIAN and WETLAND SITES

Riparian and Wetland areas are in properly functioning condition and are meeting regional and local management objectives.

Meaning that:

The riparian and wetland vegetation is controlling erosion, stabilizing stream banks, shading water areas to reduce water temperature, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater and increasing recharge of ground water that is characteristic for these sites. Vegetation surrounding seeps and springs is controlling erosion and reflects the potential natural vegetation for the site.

Criteria to Meet Standard:

Riparian vegetation is vigorous and mostly perennial, and diverse in species composition, age class and life form sufficient to stabilize stream banks and shorelines.

Riparian vegetation and large woody debris are well anchored and capable of withstanding high stream flow events.

Negligible accelerated erosion as a result of human related activities is evident.

Age class and structure of woody riparian and wetland vegetation are appropriate for the site.

Exceptions and Exemptions to Standard 4 (where Standard 4 is not applicable)

- Structural facilities constructed for livestock/wildlife water or other purposes are not natural wetland and/or riparian areas. Examples are: water troughs, stock ponds, flood control structures, tailings ponds, water gaps on fenced or otherwise restricted stream corridors, etc.

STANDARD 5: BIODIVERSITY

Viable, healthy, productive and diverse populations of native and desired plant and animal species, including special status species, are maintained.

Meaning that:

Native and other desirable plant and animal populations are diverse, vigorous, and able to reproduce, and support nutrient cycles and energy flows.

Criteria to Meet Standard:

* Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations.
* A variety of age classes is present for most species.
* Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur.
* Distribution of plant species and their habitats allow for reproduction and recovery from localized catastrophic events.
* Natural disturbances such as fire are evident, but not catastrophic.
* Non-native plant and animal species are present at acceptable levels.
* Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar habitat areas.
* Adequate organic matter (litter and standing dead plant material) is present for site protection and decomposition to replenish soil nutrients and maintain soil health.

GUIDELINES FOR LIVESTOCK GRAZING

The following guidelines are meant to apply to one or more of the standards for rangeland health.

Guideline 1: Adequate stubble will be present on all stream-side areas at the end of the growing season, or at the end of the grazing season if grazing occurs after fall dormancy. The residual or regrowth should provide sufficient herbaceous forage biomass to meet the requirement of plant vigor maintenance, bank protection, and sediment entrapment. Stubble height thresholds will be set on a site-specific basis, except for those allotments to which Guideline 16 applies (see Guideline 16 for an explanation of when Guideline 16 applies).

Utilization of stream-side herbaceous and woody plants should be limited to a specified amount of the current growth, and/or livestock should be removed to allow sufficient time for plant regrowth.

a. Late season use (summer or fall grazed pastures) requires more restrictive utilization based on site specific situations.

b. Special situations such as fragile fisheries habitats or easily eroded stream banks may require more restrictive utilization thresholds.

c. Hoof action impacts or chiseling on stream banks will not exceed specified thresholds so that stream bank stability is maintained or improved.

Guideline 2: Desired seral states will be determined through the Allotment Management Plan development process; generally the goal will be to achieve advanced ecological status in the riparian zone, except where site-specific objectives call for lower ecological status (such as meadows in important sage grouse habitat, where the objective might call for a pattern of meadows in different seral stages from mid-seral to the potential natural community). These site-specific objectives will be determined through allotment management plans or other plans and analyzed through the NEPA process.

Guideline 3: Periods of rest from livestock grazing or other avoidable disturbances must be provided during/after periods of stress on the land (e.g.: fire, flood, drought) and during critical times of plant growth.

Guideline 4: Plans for grazing on any allotment must consider other uses (recreation, archaeological sites, wildlife, horses and burros, mineral resource extraction, etc.) and be coordinated with the other users of public lands so that overall use does not detract from the goal of achieving rangeland health.

Guideline 5: Intensity, frequency, season-of-use, and distribution of grazing shall provide for growth and reproduction of desired plant species and the achievement of the potential natural vegetation or desired plant community.

Guideline 6: Grazing permits will include site-specific, measurable terms and conditions.

Guideline 7: Design and work towards implementation of a grazing management strategy for livestock for each grazing unit (pasture) within I (Improvement) and M (Maintenance) category allotments, to maintain or improve rangeland health. This may consist of, but not be limited to, season-of-use, rotation, or by setting utilization levels for desirable plants. Each management plan implemented will incorporate the factors necessary to maintain the health of desirable plants.

Guideline 8: Determination of grazing use by livestock must provide for the habitat requirements of fish and wildlife.

Guideline 9: Grazing management practices must sustain biological diversity across the landscape. A mosaic of seral stages, vegetation corridors, and minimal habitat fragmentation must be maintained.

Guideline 10: Take aggressive action to reduce the invasion of undesirable exotic plant species into native plant communities. The spread of noxious weeds will be controlled through appropriate methods such as grazing management, fire management, and other management practices.

Guideline 11: Prescribed fire and (natural) prescribed fire will be utilized to promote a mosaic of healthy plant communities and vegetative diversity.

Guideline 12: Grazing and other management practices shall take advantage of transitional opportunities (e.g., drought, flood, fire) to enhance or establish populations of desirable tree, shrub, herbaceous and grass species. Utilization levels will be established for desired seedlings, saplings, and/or mature plants to promote their presence in the plant community.

Guideline 13: Development of springs, seeps, and other water related projects shall be designed to promote rangeland health. Wherever possible, water sources shall be available year long for use by wildlife.

Guideline 14: Apply the management practices recognized and approved by the States of California and Nevada as Best Management Practices (BMPs) for grazing related activities to protect and maintain water quality.

Guideline 15: In watersheds draining into water bodies that have been listed or are proposed for listing as having threatened or impaired beneficial uses, and where grazing activities may contribute to the pollutants causing such impairment, the management objective is to fully protect, enhance, and restore the beneficial uses of the water.

Guideline 16: Utilization Levels to be Applied to those Allotments Not Meeting or Making Significant Progress Toward Meeting the Standards
If monitoring or documented observation indicates that one of more of the standards is not being met, and if significant progress is not being made toward meeting all of those standards that are not being met, and if there is evidence that current grazing practices are causing or contributing to this unsatisfactory condition, then the following utilization levels will be applied.

Utilization of key upland herbaceous species

UTILIZATION GUIDELINES (adapted from Holechek 1988 and Holechek et al. 1998)	
Community Type	Percent of Use of Key Herbaceous Species
Salt desert shrubland	25-35
Semi-desert grass and shrubland	30-40
Sagebrush grassland	30-40
California annual grassland	50-60*
Perennial grass communities within the California annual grassland vegetation type	30-40
Coniferous forest	30-40
Mountain shrubland	30-40
Oak woodland	30-40
Pinyon-juniper woodland	30-40
Alpine tundra	20-30

*Residual dry matter (RDM) guidelines will be used instead of these utilization levels for management of annual species in the California annual grassland. These RDM levels correspond approximately with these utilization levels. The RDM levels given in the table in the Final EIS under Alternative 5, Ukiah RAC Recommended Standards and Guidelines (Section 2.92), will be used for those few annual allotments within the area covered by this ROD.

Utilization of key upland browse species

There will be no more than 20 percent utilization of annual growth on key browse species prior to October 1 within identified deer concentration areas. These concentration areas are those areas within mule deer habitat where mule deer numbers are most likely to be concentrated during the winter season (winter season normally occurs from December 16 through March 31). These areas have been identified through State Fish and Game Agency fall and spring counts over a period of several years. Maps of these deer concentration areas are on file at the BLM Eagle Lake Field Office.

Utilization of key riparian species

A 4-6 inch minimum stubble height will remain at the end of the growing season in most riparian areas.

There should be no more than 20% utilization on key riparian trees and shrub species in those areas where the presence of woody riparian species is necessary to meet standards.

Application of the above utilization levels

These utilization guidelines will be applied to those areas of the allotment responsible for the determination that the allotment is not meeting the standards. For example, an allotment has 10 riparian areas, of which 6 have been determined to be in proper functioning condition and 4 have been determined to be functional–at risk. The utilization guidelines for riparian species given above would be applied to the 4 riparian areas that are functional–at risk, not to the 6 that are in proper functioning condition (although *all* of the riparian areas will be managed to meet the standards). Also, only those guidelines that are applicable to making progress toward meeting the standards that are not being met would be applied. For example, if only riparian standards are not being met, then only the guidelines applicable to utilization and stubble height of riparian vegetation would be applied.

These utilization levels will be implemented unless and until a current site-specific analysis is completed and new utilization levels are developed for specific allotments and documented in allotment management plans, other management plans, and/or in terms and conditions of grazing permits/leases. New site-specific utilization levels that are developed may be more restrictive than the guidelines presented above, consistent with achieving the desired resource conditions (as prescribed in land use plans and activity plans) and progress toward meeting the standards.

Implementation of this guideline

1. Uplands (including perennial grass and browse communities).

Guideline 16 will be implemented only on those upland areas that are responsible for the determination that the allotment is not meeting one or more of the standards and for which lighter utilization would be expected to move these areas toward meeting the standard(s).

Management changes (such as changes in season of use, timing, duration, and/or intensity; rotational grazing; fencing; herding; and/or adjustments in stocking rates) will be implemented if utilization guidelines on the average of the upland key areas across the pasture (or allotment if there is only one pasture) are exceeded for 2 consecutive years or in any 2 years out of every 5 years. In addition, at least 70% of upland key areas on the pasture (or allotment) are not to exceed maximum utilization guidelines in most years. Because of the potential long-term damage to perennial grass species associated with severe grazing, severe grazing use (>70% utilization) in any upland key area in any year will result in a management change the following year.

If any particular key area fails to meet the guidelines for more than 2 consecutive years, then management action will be taken to remedy the problem in the area of the allotment that key area represents. The average (mean) utilization on key species will be estimated at each key area and used to determine if the guidelines have been met. There are indications that the median may be a better statistic to use than the mean; we will calculate both statistics from the same data sets and make a determination on which statistic to use after examining the data over a period of a few years. See Appendix 20 of the Final EIS for further discussion on this issue.

The management options to be implemented to meet this guideline will be determined in full consultation, cooperation, and coordination with affected permittees and other interests.

For allotments not meeting or making significant progress toward meeting the standards (and for which lower utilization levels of perennial upland species would be expected to help move these allotments toward the standards), utilization data already in hand will be used to determine whether a management change is necessary. Thus, for example, if utilization on a particular key area has exceeded the thresholds for the two years previous to the approval of these standards and guidelines, a management change will be implemented prior to the first grazing year following this approval.

In addition to implementing management changes that are expected to bring utilization levels within threshold values, close monitoring will follow to ensure that the grazing use levels are not exceeded during the grazing period following the management changes. If utilization levels are exceeded or expected to be exceeded during this period, a reduction or curtailment of further grazing in the area represented by the key area will be required for the remainder of the grazing season. In addition, further management changes will be implemented prior to the start of the next grazing season to bring utilization levels within thresholds.

2. Riparian areas (including herbaceous and woody plant communities).

Guideline 16 will be implemented only on those riparian areas that are nonfunctional or functional--at risk and lighter utilization levels would be expected to move these areas toward meeting the standards. The guideline will apply where the riparian area in a healthy state has the capability to produce vegetation of the prescribed height. The stubble heights will be measured at the end of the growing season to determine if the guideline has been met. Management changes (such as changes in season of use, timing, duration, and/or intensity; rotational grazing; fencing; herding; and/or adjustments in stocking rates) will be implemented if stubble heights on the average of the key riparian areas across the pasture (or allotment if there is only one pasture) fall below the guidelines for 2 consecutive years or in any 2 years out of every 5 years. In addition, at least 70% of riparian key areas on the allotment are to exceed minimum stubble heights in most years. If any particular key area fails to meet the guidelines for more than 2 consecutive years, then management action will be taken to remedy the problem in the area of the allotment that key area represents.

Because stream banks may be inadequately protected by heavy use in any one year and because stubble heights below 3 inches result in cattle shifting their preference to shrubs, stubble heights below 2 inches in any one year will require a management change in the following year.

The mean stubble height on key riparian species will be estimated at each riparian key area and used to determine if the guidelines have been met. There are indications that the median may be a better statistic to use than the mean; we will calculate both statistics from the same data sets and make a determination on which statistic to use after examining the data over a period of a few years. See Appendix 20 of the Final EIS for further discussion on this issue.

For allotments not meeting or making significant progress toward meeting the standards (and for which higher stubble would be expected to help move these allotments toward the standards), stubble height data already in hand will be used to determine whether a management change is necessary. Thus, for example, if stubble heights on a particular key area have fallen below the thresholds for the two years previous to the approval of these standards and guidelines, a management change will be implemented prior to the first grazing year following this approval. In addition to implementing management changes that are expected to bring stubble heights within threshold values, close monitoring will follow to ensure that the grazing use levels are not exceeded during the grazing period following the management changes. If utilization levels are exceeded or expected to be exceeded during this period, a reduction or curtailment of further grazing in the area represented by the key area will be required for the remainder of the grazing season. In addition, further management changes will be implemented prior to the start of the next grazing season to bring utilization levels within thresholds.

The management options to be implemented to meet this guideline will be determined in full consultation, coordination, and cooperation with affected permittees and other interests.

If reductions in permitted use are required: Any reductions in permitted use required as a result of implementing this guideline will be held in suspension and apportioned back to the permittee(s) or lessee(s) authorized to graze in the affected allotment if rangeland health improves to the extent that the authorized officer determines additional forage to be available (see Implementation, Appendix 1, for more information on this).

Guideline 17: Rangeland monitoring to determine utilization of forage resources and trend of rangeland health will be conducted in each allotment based on current accepted practices and techniques as directed in the Interagency Technical References: *Utilization Studies and Residual Measurements* (BLM et al. 1996b) and *Sampling Vegetation Attributes* (BLM et al. 1996a). Monitoring methodologies will be applicable to local conditions and developed in consultation with permittees and interested publics.

To the extent possible, monitoring methods will be simple and easily accomplished. BLM, permittees, or others will do the monitoring. BLM will be responsible for ensuring that the monitoring is conducted in accordance with currently accepted practices and techniques, for analyzing and interpreting the data collected (in consultation, coordination, and cooperation with affected permittees and other interests), and for the accuracy of the data.

Existing key areas will be used where they exist. New key areas will be selected in full consultation, coordination, and cooperation with affected permittees and other interests. BLM will periodically review established key areas to determine if they continue to be appropriate to management. This review will be done in full consultation, coordination, and cooperation with affected permittees and other interests. If there is disagreement between BLM, permittees, and other interests over the location of key areas, the RAC will be asked for ideas on resolution. The final decision on the placement of key areas, however, rests with BLM.

BLM, in cooperation with other agencies, including Cooperative Extension, the Natural Resources Conservation Service, and the Forest Service, will provide training for permittees and other interested parties on rangeland monitoring methods.

4. IMPLEMENTATION

BLM will fully implement the grazing standards and guidelines as directed in the rulemaking. The rule states that, "The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining that grazing practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform to the guidelines...."(43 CFR 4180.2(c)).

Determination of the "appropriate action," and the actual scheduling of the implementation, will be the responsibility of the local Field Managers. However, it will be done using the priority system described in Appendix 1.

5. ASSESSMENTS and MONITORING

Field Offices will conduct assessments of all allotments according to the priority described in Appendix

1. These assessments will be done using an interdisciplinary approach and the findings and reasons for the findings will be documented. The format and content of this documentation will be left to the discretion of the individual Field Manager. (Examples are in the Final EIS.)

Field Offices will monitor allotments according to the priority described in Appendix 1. The monitoring will be done using an interdisciplinary approach, using methods described in Appendix 2. Also see Guideline 17. Both assessments and monitoring will be done in consultation, coordination, and cooperation with permittees and other interests.

Rangeland health conditions will be reported annually for each grazing allotment. This information will include the determinations of rangeland health conditions through assessments and monitoring and the progress made towards meeting rangeland health standards. Specifically, for each allotment an identification will be made of what standards, if any, are not met or where significant progress is not being made toward meeting the standard; what progress has been made regarding determining and implementing needed management changes; and the results of making the management changes as determined from monitoring information. Additionally, any changes in the management categories of the allotments will be identified and an explanation of the reasons for the change will be made.

The above information will be gathered at the Field Office which administers the respective allotment(s). A summary of this information will be consolidated for all of the allotments in the state (exclusive of the California Desert District) and made available to the public annually.

6. PUBLIC INVOLVEMENT and RESPONSE to PROTESTS

BLM has had extensive public involvement throughout the process of developing the Standards and Guidelines. Early phases of this involvement were described in the Draft EIS, and in Chapter 5 of the Final EIS. Further, we have consulted extensively with the three Resource Advisory Councils (RAC) on content and wording of the Standards and Guidelines.

As stated in the Final EIS, "following the comment period on the draft EIS, the RAC members were sent copies of all of the comment letters. The RACs discussed the comments and the draft EIS in their meetings. Representatives of the three RACs then met with BLM staff in a workshop setting and made recommendations for modification of their original proposals."

Comments made by the public following the Draft EIS were individually analyzed by BLM, and responded to in the Final EIS. The Proposed Action (Alternative 5) in the Final EIS was based upon the original RAC proposals, with changes suggested by the RACs and by BLM, based upon analysis of the public comments. There were several meetings with the Susanville RAC and other interested parties prior to issuing the Final EIS because there were items in the Standards and Guidelines that caused concern to RAC members and ranchers in NE California and NW Nevada.

Following release of the Final EIS, BLM received 5 protests, all of which applied to Northeastern California and Northwestern Nevada (3 of these applied only to this area, while the other 2 applied to this area and to the rest of the EIS area). The major concerns were that there were changes made in the Final EIS that the public had not been allowed to review in the Draft; that the water quality guidelines were inappropriate; that utilization guidelines should not be imposed throughout the region; that there was no "no grazing" alternative; and that the Bureau does not have enough staff to implement the Standards and Guidelines.

As a result of these protests, BLM has added some language to this ROD to clarify how the standards and guidelines will be implemented. However, no substantive changes have been made to the Northeastern California and Northwestern Nevada Standards and Guidelines from that contained in the Final EIS. Based on the clarification language, three of the protestors subsequently withdrew their protests. The remaining two protests were dismissed by the Director of BLM, who sent letters to the two protestors explaining the reasons for the dismissals.

APPENDIX 1: IMPLEMENTATION

The fallback standards (43 CFR 4180.2(f)(1)) have been in effect in since August 12, 1997. An initial screening of allotments was made, based on existing information, to determine the status of each allotment with respect to meeting the fallback standards. Each allotment was placed into one of four categories as follows:

Category 1: Areas where one or more standards are not being met, or significant progress is not being made toward meeting the standards(s), and livestock grazing is a significant contributor to the problem.

Category 2: Areas where all standards are being met or significant progress is being made toward meeting the standard(s).

Category 3: Areas where the status for one or more standards is not known, or the cause of the failure to not meet the standard(s) is not known.

Category 4: Allotments where one or more of the standards are not being met or significant progress is not being made toward meeting the standards due to causes other than (or in addition to) livestock grazing activities. (Those allotments where current livestock grazing is also a cause for not meeting the standards is included in Category 1 in addition to this category.) The authorized officer should take appropriate action based on regulation or policy; however, these actions not related to livestock grazing are outside the scope of this implementation plan and will not be addressed in this document.

An assumption has been made by the BLM field managers that, with few possible exceptions, the implementation needed for the regulatory fallback standards and guidelines will essentially be the same as for any anticipated set of final approved standards and guidelines implemented pursuant to this Record of Decision (ROD). Consequently, the categorization of allotments under the standards in this ROD is likely to be the same as the categorization under the fallback standards and guidelines. Existing allotment assessments and their resulting determinations as to category will be reviewed to ensure that the determination is correct under the standards set in place by this ROD.

New allotment assessments, reviews of existing allotment assessments, and determination of allotment category will be conducted in full consultation, coordination, and cooperation with permittees and other interests.

We intend to conduct rangeland health assessments on all allotments within the next 5 years. First priority for these assessments will be given to those allotments where we already know or suspect one or more of the standards are not being met. These include those allotments placed in Category 1 under the fallback standards and those allotments currently in Category 3 that we have reason to believe may not be meeting standards. After these allotments have been assessed, the remaining allotments will be assessed using the BLM I, M, and C priority management system, with first priority to I, second to M, and last to C.

For those allotments where the standards are not being met (Category 1), management actions will be implemented to correct the situation prior to the next grazing season turn-out period for the allotment. The management options will be determined in full coordination, consultation, and cooperation with permittees and other interests.

Monitoring will be conducted to evaluate the progress towards improving rangeland health and to evaluate the success of the specific management measures applied (see Guideline 17).

APPLICATION OF GUIDELINES

Once the guidelines are approved by the Secretary of the Interior, they will be applicable to the management of livestock grazing on all allotments not meeting the health standards. Some guidelines will be applicable regardless of the specific rangeland health condition, as they are designed to help protect and sustain rangeland health and are not intended to be applied only to remedy problems. Many of the guidelines will need to be more specifically identified and then applied as terms and conditions of a permit or lease, based upon the specific needs for meeting rangeland health standards. There will be instances where specific terms and conditions will be applied to grazing use authorizations for reasons other than those directly related to rangeland health, such as to accommodate other resource needs and land uses or to meet administrative requirements. Examples of this may include protecting cultural resource sites, requiring a specific breed of livestock to be used that is compatible with the needs of other permittees or lessees using the same allotment, or for meeting various regulatory requirements for grazing administration purposes. In some instances, existing terms and conditions will be carried over from previously made plans and commitments, such as those identified in allotment management plans or coordinated management plans. In these instances, the terms and conditions may or may not be related to rangeland health needs.

Any terms or conditions specified for a permit or lease must be consistent with and support appropriate BLM land use plans or other land use plans applicable to the public lands. BLM will also adhere to requirements such as those identified as terms or conditions from a biological opinion for protecting the habitat of a plant or animal under the Endangered Species Act.

Terms and conditions will be applied to grazing permits, leases, or other grazing authorizations as the authorized officer (Field Manager) determines the need. The determination of what terms and conditions will be applied will be made in full consultation, coordination, and cooperation with the respective permittees/lessees and other interested parties involved in the particular allotment. The same process will be used for making needed changes to any existing terms and conditions. Information from assessments and evaluations of monitoring data will be used to determine the management changes needed. Management options that would be expected to move allotments toward meeting the standards will be determined in full coordination, consultation, and cooperation with permittees/lessees and other interested parties.

Alternative management changes will be considered and evaluated through the NEPA process prior to making final determinations. It is anticipated that in most instances, the terms and conditions will be identified cooperatively and be agreed upon by the affected permittee/lessee and all interested parties. Where an agreement cannot be reached, then a formal decision (which is appealable) will be issued.

If reductions in permitted use are necessary to achieve the standards or meet the guidelines, the animal unit months (AUMs) by which the permitted use is reduced will be held in suspension. Once the authorized officer determines that rangeland health has recovered to an extent that all or part of the suspended permitted use can be restored, this suspended permitted use shall first be apportioned in satisfaction of suspended permitted use to the permittee(s) or lessee(s) authorized to graze in the allotment in which the forage is available (this is in accordance with 43 CFR 4110.3-1(b)).

REPORTING PROGRESS IN RANGELAND HEALTH ACHIEVEMENTS

Rangeland health conditions will be reported annually for each grazing allotment. This information will include the determinations of rangeland health conditions through assessments and monitoring and the progress made towards meeting rangeland health standards. At a minimum the report will identify, by allotment: (1) what standards, if any, are not being met; (2) whether significant progress is being made toward meeting those standards that are not currently being met; (3) the magnitude of those standards not being met, in terms such as acres, miles of stream, number of sites, etc.; (4) the progress that has been made in determining and implementing needed management changes; and (5) the results of making the management changes as determined from monitoring and assessment information. Additionally, any changes in the management categories of the allotments will be identified, accompanied by an explanation of the reasons for the change.

The above information will be gathered at the field office which administers the respective allotment(s). A summary of this information will be consolidated for all of the allotments within the EIS area and made available to the public annually.

Tables were provided in the Final EIS that showed all allotments in the State and the category to which they were assigned in 1997. Since that list was compiled, management changes have been implemented and additional assessment and monitoring work has been completed that makes those lists obsolete. When the annual report is compiled each year, an updated list of all allotments, by category, will be provided as part of the report.

Throughout all processes the public is encouraged to participate in the identification of rangeland health conditions, developing management remedies, monitoring results, and reviewing progress towards achieving rangeland health standards.

APPENDIX 2: ASSESSMENT AND MONITORING

Assessment to Determine if Allotments are Meeting Standards

"Assessment" means the analysis, synthesis, and interpretation of information, including monitoring data, to characterize the health of an allotment or other management unit. Gathering new information in the field may be necessary as part of the assessment process. "Monitoring" means the periodic gathering of information.

In some cases, quantitative monitoring data, gathered over a period of years, may be essential to determine whether an area meets the standards and whether livestock grazing is a significant factor contributing to a failure to meet the standards. However, quantitative monitoring data is not always required to make these determinations nor to implement actions to improve grazing management. The preamble to the 1995 grazing regulations (BLM 1995) states that managers may "use a variety of information, including monitoring records, assessments, and knowledge of the locale." The 1995 regulations also require the manager to "reduce permitted grazing use or otherwise modify management practices...when monitoring or field observations show grazing use or patterns of use are not consistent with the provisions of 43 CFR subpart 4180" (43 CFR 4110.3-2(b); subpart 4180 includes the standards and guidelines). Changes in permitted use are to be "...supported by monitoring, field observation, ecological site inventory, or other data acceptable to the authorized officer." Therefore, actions needed to improve grazing management in order to comply with guidelines or meet standards should not be delayed solely because monitoring data are lacking. Rangelands will not be allowed to deteriorate while prolonged monitoring studies are conducted, when reliable indicators of rangeland health demonstrate a need for corrective action.

Assessments should employ the minimum information needed to determine whether the standards are being met and whether livestock grazing is a significant factor in failing to meet the standards. All resource information or data collected should be tied directly to the standards, guidelines, or resource objectives.

Field Offices will conduct assessments of all allotments according to the priority described in Appendix

1. These assessments will be done using an interdisciplinary approach and the findings and reasons for the findings will be documented. The format and content of this documentation will be left up to individual Field Managers, but the form used by the Eagle Lake Field Office (Appendix 24 in the Final EIS) is one example of the type of documentation that could be employed.

The term "assessment," when used by itself, has the meaning described above; that is, it considers all available information, whether from inventory, monitoring, or qualitative assessments. "Qualitative assessment" refers to a particular method used to rapidly assess whether allotments or areas within allotments are meeting standards. The Proper Functioning Condition (PFC) procedure is the qualitative assessment method that is applied to riparian/wetland areas (BLM 1993b and 1994). The Qualitative Procedure to Assess Rangeland Health (Appendix 25 in the Final EIS) is the qualitative method that will be applied to upland rangelands. The use of these procedures, and their relationship to monitoring, will be discussed in more detail below.

Application of Traditional Rangeland Monitoring to Assessing Whether Standards are Being Met

Many rangeland monitoring studies have been in place and read on a regular basis by BLM personnel in California for many years. These studies involve using qualitative or quantitative procedures, or both, and often are directed at determining the condition and trend of key species in key areas. The basic types of studies, as well as the use of the key species and key area approach, are described in Chapter 3, Section 3.2.5, of the Final EIS. The purpose of these studies has primarily been to determine if management objectives relative to particular grazing allotments are being met or if the trend is toward meeting these objectives. For example, a management objective might be to increase the frequency of a key species such as squirreltail (*Elymus elymoides* ssp. *elymoides*) by 10% in Pasture A of Allotment Z in 5 years. Some method of frequency monitoring is then set up in one or more key areas in Pasture A and read on a regular basis (this could be annually but might be once every five years; in this example the frequency of monitoring would have to be at least every five years). In another example, the objective might be to increase the basal cover of the key species bluebunch wheatgrass (*Pseudoregneria spicata* ssp. *spicata*) in Pasture B of Allotment X by 5 percent over the next 6 years. A method of monitoring that measures cover is then set up in one or more key areas of Pasture B and read on a regular basis (this could be annually or on some other schedule, but must be at least every 6 years).

Management objectives have not always been directed at key species. Objectives to increase the total vegetation cover on particular pastures or allotments have also been applied, as well as objectives to decrease the cover of shrubs or trees. In both of these examples, monitoring methods are chosen that measure or estimate cover. These methods might be quantitative in nature or qualitative; the latter might involve taking photographs, either on the ground or aerially.

A second monitoring objective of traditional rangeland monitoring has been to determine the "condition and trend" of rangelands. The condition is determined by comparing the current species composition and production of a given ecological site to the species composition and production of the potential natural community of that site (see Chapter 3, Section 3.3.3 in the Final EIS for a more complete description of the process).

Trend is recorded as upward, downward, or static, based on whether species composition and production are moving toward, away, or not at all, respectively, from the potential natural community. Ecological site inventory (ESI) is used to determine condition at any one point in time. A second ESI can then be used to determine trend; other monitoring studies, however, can also be used for this purpose, if they yield information on species composition.

Although much of the monitoring currently is being conducted will have applicability to determining the effectiveness of implementation of the rangeland standards, some old methods will have to be modified and new methods introduced. This is because the standards require monitoring of certain rangeland attributes that are not assessed under current methodology.

Table 1 is a list of rangeland attributes that may be assessed in order to determine whether standards are being met.

Table 1. List of rangeland attributes that may be assessed in order to determine whether standards are being met, along with the actual wording of the indicator(s) to which each attribute applies (parentheses following each indicator show the standard to which it applies). Several indicators apply to more than one attribute and therefore are listed under each of the appropriate attributes.
1. Ground cover a. "Gravel bars and other coarse textured stream deposits are successfully colonized and stabilized by woody riparian species" (Streams) b. "Stream bank vegetation is vigorous and diverse, mostly perennial, and holds and protects banks during high stream flow events" (Streams) c. "Ground cover (vegetation, litter, and other types of ground cover such as rock fragments) is sufficient to protect sites from accelerated erosion" (Soils) 2. Litter/residual dry matter "Adequate organic matter (litter and standing dead plant material) is present for site protection and decomposition to replenish soil nutrients and maintain soil health" (Biodiversity) 3. Plant species diversity a. "Vegetation is vigorous, diverse in species composition and age class, and reflects the potential natural vegetation or desired plant community for the site" (Upland Soils) b. "Stream bank vegetation is vigorous and diverse, mostly perennial, and holds and protects banks during high stream flow events" (Streams) c. "Riparian vegetation is vigorous and mostly perennial, diverse in species composition, age class and life form sufficient to stabilize stream banks and shorelines." (Riparian and Wetland) d. "Riparian vegetation and large woody debris are well anchored and capable of withstanding high stream flow events" (Riparian and Wetland) e. "Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar habitat areas" (Biodiversity) 4. Plant vigor a. "Vegetation is vigorous, diverse in species composition and age class, and reflects the potential natural vegetation or desired plant community for the site" (Upland Soils) b. "Stream bank vegetation is vigorous and diverse, mostly perennial, and holds and protects banks during high stream flow events" (Streams) c. "Riparian vegetation is vigorous and mostly perennial, diverse in species composition, age class and life form sufficient to stabilize stream banks and shorelines." (Riparian and Wetland) d. "Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur." (Biodiversity)

Table 1, continued

5. Plant structure
   a) "Vegetation is vigorous, diverse in species composition and age class, and reflects the potential natural vegetation or desired plant community for the site" (Upland Soils)
   b) Gravel bars and other coarse textured stream deposits are successfully colonized and stabilized by woody riparian species" (Streams)
   c) "Riparian vegetation is vigorous and mostly perennial, diverse in species composition, age class and life form sufficient to stabilize stream banks and shorelines." (Riparian and Wetland)
   d) "Age class and structure of woody riparian and wetland vegetation are appropriate for the site" (Riparian and Wetland)
   e) "A variety of age classes are present for most species" (Biodiversity)
   f) "Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations" (Biodiversity)

6. Spatial distribution of plants and their habitats
   a) "Distribution of plant species and their habitats allow for reproduction and recovery from localized catastrophic events" (Biodiversity)
   b) "Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations" (Biodiversity)
   c) "Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar habitat areas" (Biodiversity)
   d) Natural disturbances "Natural disturbances such as fire are evident, but not catastrophic" (Biodiversity)
   e) Non-native plants and animals, including noxious and invasive species "Non-native plant and animal species are present at acceptable levels" (Biodiversity)
   f) Special status species
   g) "Habitat areas are sufficient to support viable populations and are connected adequately with other similar habitat areas" (Biodiversity)
   h) "Healthy, productive and diverse populations of native plant and animal species, including special status species, are maintained" (Biodiversity)

7. Tree and shrub canopy cover "The stream water surface has a high degree of shading, resulting in cooler water in summer and reduced icing in winter" (Streams)
   a) Woody debris "Riparian vegetation and large woody debris are well anchored and capable of withstanding high stream flow events" (Riparian and Wetland)

8. Streambank stability
   a) "Stream bank vegetation is vigorous and diverse, mostly perennial, and holds and protects banks during high stream flow events" (Streams)
   b) "Riparian vegetation is vigorous and mostly perennial, diverse in species composition, age class and life form sufficient to stabilize stream banks and shorelines." (Riparian and Wetland)

9. Chemical constituents of water "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)
   a) Water temperature
   b) "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)
   c) "The stream water surface has a high degree of shading, resulting in cooler water in summer and reduced icing in winter" (Streams)

10. Nutrient loading "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)

11. Fecal coliform "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)
    a) Turbidity "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)

12. Suspended sediment "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)

13. Dissolved oxygen "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)

14. Aquatic and riparian organisms "The following do not exceed the applicable requirements for physical, chemical, and biological constituents including, but not limited to: temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen, aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants)" (Water Quality)

15. Soil erosion
    a) "Evidence of wind and water erosion, such as rills and gullies, pedestaling, scour or sheet erosion, deposition of dunes is either absent or if present does not exceed what is natural for the site" (Upland Soils)
    b) "Negligible accelerated erosion as a result of human activities is present" (Riparian and Wetland)

16. Degree of floodplain flooding "Portions of the primary floodplain are frequently flooded (inundated every 1-5 years)" (Streams)

Monitoring of Vegetation and Physical Attributes

Vegetation monitoring (including soil crusts). Table A.22.2 in the Final EIS lists the trend monitoring methods currently in use or described in the Interagency Technical Reference, Sampling Vegetation Attributes (BLM et al. 1996a) and the plant and vegetation attributes they measure. Of the attributes listed in Table 1 in this appendix, the following can be monitored using a combination of the methods from the technical reference:

- Ground cover
- Litter/residual dry matter
- Plant species diversity
- Plant vigor
- Soil crusts
- Plant structure

- Spatial distribution of plants and their habitats
- Natural disturbances (although not specifically identified by a column heading on Table A.22.2, these can be tracked under the heading "spatial distribution")
- Non-native plants (these can be monitored by measuring or estimating density, frequency, or cover)
- Special status plants (these can be monitored by measuring or estimating density, frequency, or cover)
- Tree and shrub canopy cover

Note, however, that in some cases these attributes are not measured or estimated as part of the standard procedure. For example, the typical way in which the Daubenmire method (which estimates canopy cover in either 6 or 10 categories in a series of plots) is used yields measurements of the cover of bare ground, vegetation, litter, gravel/rock, as well as frequency and species composition. Other attributes, such as the cover of biological, physical, and chemical crusts, cryptogams, production, and vigor *can* be incorporated into the standard procedure with proper planning.

Monitoring of Guidelines Associated with Utilization, Residue, and Stubble Heights.

For the reasons given in Section 3.2.5 in the Final EIS, it is important to set and monitor guidelines on utilization levels, minimum residues, and minimum stubble heights. Guidelines have been set for the entire EIS area where standards are not being met; site-specific guidelines may be set by Field Offices. Existing monitoring of utilization, residue, and stubble heights will continue, and new studies will be established as needed. On upland perennial rangelands not meeting the standards, utilization will be measured on key species in key areas, with the average (mean) utilization used to assess whether the portion of the allotment or pasture represented by the key area is meeting the utilization guideline (there are indications that the median may be a better statistic to use than the mean; we will calculate both statistics from the same data sets and make this determination after examining the data over a period of a few years). We recognize that residue, in terms of stubble height and litter, is a better measure of utilization in upland perennial grass communities than percent utilization, but we do not have sufficient information at this time to develop guidelines that use these attributes. We intend to investigate this matter further, however, as time and funding permit, and to eventually replace the utilization guidelines on perennial uplands (which specify percent of key species removed) with guidelines specifying minimum amounts of residue to be left. A very preliminary study proposal is given in Table 2.

Table 2. Preliminary Study Proposal: Developing Residue and Stubble Height Guidelines for Major Vegetation Types in the Great Basin

Objective:	Develop upland residue and stubble height guidelines for the major vegetation types in the Great Basin Conduct a literature review. This review would look at material published in peer-reviewed publications and "gray" literature as well as information collected by field offices. In addition, range scientists at universities and in other agencies (e.g., NRCS, ARS, Forest Service) would be interviewed.

Conduct the following study.
A study would be conducted to fill in the gaps in information that are expected to exist following the literature review. Over a period of several years the residue left following known levels of utilization will be measured at several sites in different vegetation types. This will entail measuring total above ground production in ungrazed areas (using either cages or exclosures), measuring utilization after the grazing season on key species, and measuring the amount of standing and fallen dead plant material (separately) at that level of use. The stubble heights of key species will also be measured both in grazed and ungrazed condition. Photographs will be taken both of the key species and the landscape, both in grazed and ungrazed areas. As much as possible, sites should be selected that are close to existing weather stations (NOAA, RAWS stations, etc.) so the total production can be related to the amount of precipitation received.

The study should be conducted over several years in order to show a range of residue, stubble heights, and utilization levels as related to different amounts of precipitation. This study should enable field personnel to develop either State or regional guidelines on the appropriate residue and stubble height levels that should be left following grazing.

Following is a list of the utilization and residue studies from the Interagency Technical Reference, *Utilization Studies and Residual Measurements* (BLM et al. 1996b) that may be applied to public lands within the EIS area:

Browse Utilization Methods:
- Twig Length Measurement Method
- Cole Browse Method
- Extensive Browse Method

Residue Measuring Methods
- Stubble Height Method
- Visual Obstruction Method
- Comparative Yield Method

Herbaceous Utilization Methods
- Paired Plot Method
- Ocular Estimate
- Key Species Method
- Height-Weight Method
- Actual Weight Method
- Grazed-Class Method
- Landscape Appearance Method

Exact methods to be used to monitor utilization, residue, and stubble heights will be determined by the Field Offices.

The above utilization and residue monitoring studies are usually applied to key areas (see the glossary in the Final EIS for a definition of key area and the discussion of key areas in Chapter 3, Section 3.2.5 of the Final EIS). Utilization pattern mapping is another important monitoring tool. This method entails canvassing the entire allotment or individual pasture and mapping the area into several classes based on the level of utilization (e.g., no use, light use, moderate use, and heavy use) on key species (see Chapter 3, Section 3.2.5 for more information). These studies will continue where necessary.

Actual use monitoring. Actual use studies (BLM 1984) are another form of traditional range monitoring that will continue. These studies track the actual use made by livestock in pastures and/or allotments based on the numbers of livestock and the length of time livestock are present. These numbers are usually provided by lessees/permittees but are sometimes also estimated from counts by BLM professionals. The actual use made by other herbivores such as wild horses and burros and wildlife is often estimated as well. These data are important in determining what changes should be made when objectives and standards are not being met.

Climate monitoring. It is important to consider climate when interpreting monitoring data. Climate monitoring most often consists of compiling precipitation and temperature information collected by the National Oceanic and Atmospheric Administration at the many weather stations in the EIS area. In some cases, precipitation data are collected through the placement of rain gauges in allotments. Additionally, both temperature and precipitation data are collected from 14 Remote Automated Weather Stations (RAWS) within the EIS area.

Riparian-wetland monitoring. The vegetation attributes of riparian-wetland areas are monitored using one or more of the techniques described in Table A.22.2 in the Final EIS. The Greenline Riparian-Wetland Monitoring Method (BLM 1993a) is also used by some field offices. The following physical attributes are also monitored on some riparian-wetland areas:

Bankfull discharge
Sinuosity
Riparian zone width
Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody debris)
Width/depth ratio

Use of Qualitative Assessments to Determine if Standards are Being Met

As noted above, traditional range monitoring studies can help assess whether standards are being met. The standards, however, call for the assessment of indicators that are not addressed by these traditional monitoring studies. Where the status of these indicators cannot be inferred from existing monitoring information, other monitoring or assessment methods must be employed. The following qualitative assessment procedures were developed to rapidly assess all the physical and biological components of rangeland health.

Qualitative Upland Assessment. For uplands, the qualitative assessment method will be used. Although a technical reference has not yet been finalized on the method, a draft has been prepared and field tested. The details were given in Appendix 25 in the Final EIS. Field Offices may adapt this method as necessary to meet local needs.

The results of the qualitative assessment will be used in conjunction with all other available information to determine if an allotment is meeting the standards. If it is not, and does not appear to be making significant progress toward meeting the standards, and grazing has been determined to be a significant factor, changes will be made to the management of livestock grazing. To assess whether these management changes are effective in moving toward meeting the standards, monitoring will be initiated (or, if already being conducted, will be continued) that is directed toward those indicators that caused the allotment to not meet the standards. For example, if the qualitative assessment indicates that insufficient litter is present, subsequent monitoring will focus on measuring the amount of litter (either the cover of litter or the amount in weight of litter).

Qualitative Riparian/Wetland Assessment. A qualitative procedure, called proper function condition (PFC) assessment (see Appendix 23 of the Final EIS), is already in place to help assess whether riparian and wetland areas are meeting the standards (BLM 1993b and 1994). This PFC assessment has already been applied to many riparian/wetland areas within the EIS area. Its use will be continued. Just as with the upland qualitative assessment procedure, when the PFC results in one or more indicators being responsible for an allotment not meeting the standards, subsequent monitoring will focus on those indicators. For example, if the width/depth ratio is the main reason a stream is determined to be not meeting the standard of proper functioning condition, subsequent monitoring would focus on the width/depth ratio of the stream.

Wildlife Monitoring for Rangeland Health

The standards for rangeland health include a "biodiversity" standard. They also include several indicators of animal habitats and populations that are attributes of a healthy rangeland ecosystem. These indicators can be divided into those related to habitat and those related to animal populations. The habitat indicators include habitat seral stages, vegetation structure and patch size, spatial distribution of habitats, habitat size, how habitats are connected, and the habitat's ability to support viable populations. The animal population indicators include the spatial distribution of animals, special status species numbers, stable to increasing populations, viable populations, and levels of non-native animals.

The BLM recognizes that determining the biodiversity health for each allotment is an impossible task involving the gathering of species-specific data at many locations and scales. However, a more achievable option is to design monitoring programs that evaluate ecosystem components, structures and processes as indicators of a habitat's *capability* to support healthy animal communities. We would then rely on focused studies to more directly monitor species of management concern.

There are different scales of monitoring and management to evaluate the relationships between habitat management from livestock grazing and animal populations. It is critical to evaluate the assumptions that habitat management at the allotment (or pasture) level will actually affect animal presence and abundance at the monitoring site(s). It is necessary to determine the appropriate scale of monitoring: coarse scale regional monitoring of several allotments for some animal community indicators; fine scale monitoring at the allotment level for some special status, game animals, and keystone species; and site-specific scale for some special status species and ecosystem health indicators that are restricted to very small habitat areas. Monitoring plans should consider these issues of scale when designing allotment monitoring programs.

Habitat mapping and vegetation monitoring would usually suffice to evaluate whether the allotments are providing *adequate opportunities* for wildlife communities in meeting the standards. Spot checking for selected species at the appropriate habitats over several allotments would evaluate rangeland health for many species. At a finer scale of analysis, population censuses at the allotment scale may be needed to determine if the standards are being met.

This finer scale monitoring would be directed at special status animals or at species with a very restricted habitat requirement as a rangeland health indicator.

Most allotment monitoring will evaluate the habitat capability for species of management concern. Vegetation characteristics of habitat structure (for example, ground cover, vertical layering, form of trees and shrubs), plant composition, age structure of plants (young, reproducing, old, or decadent trees or shrubs), plant vigor, and the distribution of plant communities across the landscape will be the focus of BLM's monitoring.

Field assessments should emphasize the use of habitat quality checklists to identify significant problems at the appropriate scale (allotment or landscape levels). These checklists can be designed to evaluate habitat quality for a particular species, group of species, or general animal community composition. The elements of such a checklist are given in Table 3. More focused studies or monitoring protocols may be developed where habitat monitoring indicates standards are not being met and where management priority is high.

The BLM will consider existing information on soils, habitats, scientific literature, historic records, fire history, and disturbance regimes to assess habitat capability. When more detailed information regarding a particular species is required, wildlife information systems and species records may be used to conduct assessments of habitat quality for animals of management concern. The California Wildlife Habitat Relationships System (CWHR) and Habitat Evaluation Procedures (HEP) models may be used for these assessments. These models are based on the assumptions that through habitat assessments, habitat capability (quality) for a particular species or group of species can be determined. The California Natural Diversity Data Base will be used to help assess the significance of BLM actions on special status animal species and rare plant communities.

The rangeland health indicators for animal (wildlife) populations cannot be assessed separately for each species. Evaluating animal numbers and distributions for each species would require an extensive amount of monitoring of hundreds of animal species, a task far beyond the capability of the BLM and our State and private management partners. Instead, monitoring must be focused on a subset of animal "indicator" species that represent wildlife communities and populations in general as indicators of ecosystem health. While this method of monitoring has been criticized as flawed since each species has its own niche in the ecosystem that cannot be represented by another species, this approach gives the BLM the opportunity to focus wildlife monitoring within our capability. The indicator species may be threatened or endangered, game animals, species of regional or special concern, keystone species, abundant, or rare. The selection of the indicator species will depend on the allotment management objectives, land use plan objectives, and/or BLM commitments to regional plans. The monitoring of the indicator species may include general distribution or abundance surveys or more focused research to better evaluate the relationships between the animals and their habitats and grazing effects. In many cases, data collection may not be required within each allotment, but across the landscape in habitats with similar characteristics.

Table 3. Elements of a Biodiversity and Species Checklist for Wildlife.

Habitats

CWHR Habitats and seral stage (es) present:

Habitat composition and seral stages related to management objectives:

- Seral stages meet management objectives
- Plant community composition indicates good rangeland health
- Native species present at acceptable levels
- Non-native species at acceptable levels
- Invasive weeds at acceptable levels

Habitat structure related to management objectives:

- Plant cover is adequate, within natural range
- Plant height adequate: herbaceous shrub trees
- Plant density is adequate
- Plants distributed normally
- Ground cover is within normal range

Age-class indicates community maintenance
Form-class indicates normal growth characteristics

Distribution of Habitats across landscape:
Patch size is adequate
Fragmentation is not excessive
Habitats are connected within site capability

Species

Management indicators selected:
Habitats meet requirements of indicator species:
Elements are considered acceptable:
Elements lacking:

Key management areas present:
Listed species habitats
Riparian
Wetlands
Seasonal ranges (winter, migratory, calving/fawning, etc)
Breeding/nesting sites

Focused Studies

Focused studies in progress:
Focused studies needed:

Evaluation:

Habitats are meeting management objectives Habitats promote diverse and viable wildlife populations Seral stages present Composition

Structure Distribution Habitats can withstand catastrophic events (flood/fire/windstorm) Species present indicate healthy ecosystem function Habitats meeting species/diversity standards Habitats not meeting species/diversity standards Livestock grazing/management is (is not) significant factor Management changes needed to meet standards

Water Quality Assessment and Monitoring

Most often, when riparian areas and wetlands are healthy, the quality of water for most beneficial uses meets standards. Many of the attributes assessed and monitored for riparian and wetland areas also affect the quality of the water, at least indirectly. There are exceptions, however, where this may not always be true, particularly with regard to the chemistry and physical properties of the water. Biological assessments and monitoring of aquatic organisms in water bodies serve to identify important attributes reflecting the quality of water for many beneficial uses and will be used when it is determined that the quality of the water may be in question.

In most situations BLM will depend upon the State and Regional water quality agencies to either identify, or assist BLM in identifying, where water quality is impaired or has a high probability of being impaired. For those areas where livestock grazing activities on public land are known to cause or are suspected of causing water quality impairment, BLM will closely coordinate with these agencies in obtaining any needed water quality monitoring and assessment information. Where sufficient information is not

available, BLM will also closely coordinate with these agencies in the selection and design of the attributes to be assessed and monitored by BLM. Since the states have primary responsibility and primacy regarding the Clean Water Act and the Safe Drinking Water Act, it is important that any water quality assessment or monitoring information obtained by BLM meet the acceptance of those state agencies responsible for identifying the specific requirements of those Acts.

Effectiveness Monitoring of Guidelines

Effectiveness monitoring is used to evaluate whether a particular activity, when carried out as planned, results in the desired effect (MacDonald et al. 1991). In the context of rangeland standards and guidelines, effectiveness monitoring will be used to evaluate whether guidelines, if followed, result in either meeting or making progress toward meeting the standards. This type of monitoring will be employed when the other types of monitoring and assessment discussed in this appendix determine that progress is not being made toward meeting standards despite compliance with guidelines. For example, a grazing system is implemented in order to move an allotment toward meeting standards, but after five years of monitoring no progress is detected. The management system will then be evaluated to determine why it is not producing the desired effects and changed accordingly. Utilization and stubble height guidelines provide another example. If, after several years of compliance with these guidelines, allotments are not moving toward meeting standards, these guidelines will be evaluated and supplanted by new ones as appropriate.

Application of New Technology to Monitor and Assess Rangeland Health

Traditional transect-based techniques for measuring vegetation and other indicators of rangeland health provide detailed information at a plot level. Care must be used when using plot-based measurements to characterize large areas because of problems in extrapolating information from small samples to large areas. Methods for assessing rangeland health at multiple scales are currently in their infancy. The use of remotely-sensed data, primarily satellite imagery, will hopefully become a rapid and inexpensive method for measuring rangeland health on larger areas.

One pilot effort recently initiated in the northeastern portion of the EIS area is a cooperative project between BLM, the National Resource Conservation Service, and the Forest Service's Pacific Northwest Experiment Station. It involves the transitioning from traditional Soil Surveys to Resource Surveys, which are multi-resource, map-based surveys of soil, vegetation, water, and wildlife characteristics. Part of the project will include development of a set of tools that will be designed to assess rangeland health at multiple scales and areal extent.

As new methodologies such as this one are developed, they will be applied to monitoring and assessing rangeland health standards within the EIS area.

Monitoring and Assessment Plans

Each Field Office will develop a plan that will direct its monitoring and assessment activities relative to making determinations on whether standards are being met, whether progress is being made toward meeting the standards if they are not currently being met, and whether livestock grazing is the reason for standards not being met. These plans need not be elaborate, but at a minimum they will include a list of the attributes that will be monitored, the monitoring methods that will be used (with reference to a complete description of the method), the allotments that will be monitored using these methods, the frequency at which the allotments will be monitored, and how often interdisciplinary assessments will be made of all the information collected (including monitoring data, qualitative assessment information, inventory data, etc.). A monitoring and assessment schedule will also be included. These monitoring and assessment plans will be made available to all interested parties.

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Appendix C

Northeast California Resource Advisory Council Recommended Off-Highway Vehicle Management Guidelines

Bureau of Land Management

Northeast California Resource Advisory Council
Recommended Off-Highway-Vehicle Management Guidelines

Adopted and Forwarded to the Bureau of Land Management
at a Regularly Scheduled Business Meeting
August 29, 2000
Susanville, California

The guidelines for Off-Highway-Vehicle management are the methods and practices determined to be appropriate to ensure that BLM Land Health Standards can be met, or that significant progress can be made toward meeting the standards. The guidelines were designated to provide direction, yet offer flexibility, for implementation through OHV designations, activity plans and permit terms and conditions.

Guideline 1: OHV use will not be allowed on streams, riparian/wetland areas. Where needed, crossings will be bridged or hardened.

Guideline 2: OHV use will not degrade ecological status.

Guideline 3: OHV use requires review/action during/after periods of high use and or stress (fire, flood, drought). OHV closure may be appropriate in response to factors such as accelerated erosion or loss of natural barriers to off-road use.

Guideline 4: Plans for OHV use must consider other resources and uses (livestock grazing, recreation, archaeological sites, wildlife, horses and burros, mineral resources extraction, etc.) and be coordinated with other users of public lands. Management of OHV Use should be sensitive to the creation and management of areas for quiet activities.

Guideline 5: OHV use will be managed to provide for the maintenance and reproduction of desired plant species and the achievement of the potential natural vegetation or desired plant communities.

Guideline 6: OHV special events will require permits that will include site specific, measurable terms and conditions.

Guideline 7: OHV projects that are subject to California OHV grant funding shall comply with that program's requirements as well as Land Health Standards. Tread Lightly concepts and non-proliferation principles will be included in permits.

Guideline 8: OHV use must consider habitat requirements for fish and wildlife

Guideline 9: OHV management practices must consider soil erodiblity. Route designation and OHV management will be based on erosion hazard ratings.
Guideline 10: The spread of noxious weeds by OHV use will be combated through public education efforts, and vehicle cleaning requirements, or other measures, where appropriate.

Guideline 11: Locate routes, trails and developments away from sensitive areas.

Guideline 12: OHV related activities will be managed to protect and maintain watershed and water quality.

Guideline 13: Use various communication and interpretive measures and user groups to inform public land visitors about an ethic of public land use.

Guideline 14: OHV utilization and impacts will be monitored using currently accepted practices and techniques.

Guideline 15: "Open" OHV use areas must be specifically designated.

Appendix D

Energy and Minerals

Reasonably Foreseeable Development in the Eagle Lake Field Office

Introduction

This appendix describes scenarios for the reasonably foreseeable development of leasable, locatable, and saleable mineral commodities. The scenario for reasonably foreseeable development estimates the level and type of future mineral activity in the planning area and provides a basis for the analysis of cumulative effects. The scenario first describes the steps in developing a mineral deposit, with presentation of hypothetical exploration and mining operations. Current levels of activity are discussed in Chapter 3. Trends and assumptions affecting mineral activity are discussed in this appendix, followed by estimates for future mineral exploration and development.

Scope

The scenario for reasonably foreseeable development is based on known or inferred mineral resource capabilities and applies the conditions and assumptions discussed below. Changes in available geologic data or economic conditions would alter reasonably foreseeable development, and some deviation should be expected over time. The development scenario is limited to BLM-administered land.

Leasable Mineral Resources

Reasonably Foreseeable Development of Oil and Gas

Future trends and assumptions: Based on the history of minimal interest for oil and gas exploration and the limited development potential of the planning area, activity over the next 15 to 20 years is likely to be sporadic. Oil and gas activity will probably consist of the issuance of some competitive and over-the-counter leases, a few geophysical surveys, and perhaps the drilling of two or three exploratory wells.

Geophysical exploration: Geophysical exploration is conducted to determine the subsurface structure of an area and the potential for mineral resources. Three geophysical survey techniques are generally used to define subsurface characteristics through measurements of the gravitational field, magnetic field, and seismic reflections.

Gravity and magnetic field surveys—involve small, portable measuring units that are easily transported by light off-highway vehicles, such as 4-wheel drive pickup trucks and jeeps, or aircraft. Both off and on-highway travel may be necessary. Although these two survey methods can take measurements along defined lines, it is more common to have a grid of distinct measurement stations. Surface disturbance resulting from these surveys is negligible, consisting almost exclusively of soil or vegetation compaction that persists no more than a few months.

Seismic reflection surveys—are the most common of the geophysical methods, and they produce the most detailed subsurface information. Seismic surveys are conducted by sending shock waves, generated by a small explosion or by mechanically beating the ground with a thumping or vibrating platform. In the mechanical technique, four large trucks are usually used, each equipped with pads about 4-feet square. The pads are lowered to the ground, and the vibrations are electronically triggered from the recording truck. Once information is recorded, the trucks move forward a short distance and the process is repeated. Surface disturbance includes flattening of vegetation and compaction of soils.

The explosive method —requires that small charges be detonated on the surface or in a shallow drill hole. Holes for the charges are drilled using truck-mounted or portable air drills. In general, this method uses 4 to 12 holes per mile of line, and a 5 to 50-pound explosive charge is placed in each hole, covered, and detonated. The shock wave created is recorded by geophones placed in a line on the surface.

In rugged terrain, a portable drill carried by helicopter can sometimes be used. The vehicles used for a drilling program may include heavy truck-mounted drill rigs, track-mounted drill rigs, water trucks, a computer recording truck, and a light pickup.

Existing roads and trails are used where possible, but off-road travel is necessary in some cases. Several trips per day are made along a seismograph line, usually resulting in a well defined two-track trail. The surface charge method uses 1 to 5-pound charges attached to wooden laths 3 to 8 feet above the ground. Placing charges lower than 6 feet usually results in destruction of vegetation, whereas placing the charges higher, or on the surface of deep snow, results in little visible surface disturbance.

It is expected that three to five notices of intent, involving seismic reflection and gravity/magnetic field surveys, would be filed under all Alternatives and the Proposed RMP during the life of this plan. The total expected surface disturbance would be approximately 1 acre.

Drilling phase: After an application to drill is approved, the operator may begin construction in accordance with lease stipulations and conditions of approval of the drilling permit. When a site requires construction of an access road, the shortest feasible route is usually selected to reduce the haul distance and construction costs. Environmental factors or a landowner's wishes may dictate a longer route in some cases. Drilling in the planning area is expected to be done using existing roads and construction of only short (approximately 0.5 mile) roads to access drill site locations.

Based on the history of oil and gas exploration in the planning area, it is projected that two or three exploratory wildcat wells would be drilled on BLM-administered land in the planning area during the life of this plan. The estimated success rate would be no greater than 10 percent, based on the average wildcat success rate. Drilling is expected to occur in areas of low oil and gas potential, the highest level of potential in the planning area. There is a low probability that a field will be discovered during the life of this plan, with a strong likelihood that the discovery would be natural gas because most of the occurrences, in surrounding areas, are gas. There are no known occurrences in the actual planning area.

During the first phase of drilling, the operator would move construction equipment over existing maintained roads to the point where the access road begins. Less than 0.5 mile of moderate duty access road with a gravel surface 18 or 20 feet wide is expected for construction. With ditches, cuts, and fill, the total width of surface disturbance would average 40 feet. The second part of the drilling phase is the construction of the drill pad (platform). The likely duration of well development, testing, and abandonment is 3 or 4 months per site. The total disturbance for each exploratory well and any new road is estimated to be less than 5 acres. The total surface disturbance caused by exploratory drilling over the life of this plan is expected to be about 13 acres.

Field development and production: Exploratory drilling is not expected to lead to the development of a producing field in the planning area. Nonetheless, the following scenario describes the operations and effects associated with field development. Any oil and gas deposits found in the planning area will probably be too small to be economically developed.

The minimum size considered economically feasible would be a field containing reserves of 50–60 billion cubic feet of gas with a productive life of 10 years. The total area of the field would be 800 acres, with a likely well spacing of 160 acres. The field would require four development wells in addition to the discovery well. Each development well would require 0.25 mile of road. Development well access roads would have a surface of crushed aggregate or gravel and would be approximately 20 feet wide (total disturbed width of 40 feet). Gas produced would be carried by pipelines that could be linked to existing and proposed gas transmission lines in the planning area.

Average pipeline length is estimated to be 40–50 miles. The width of the surface disturbance for pipelines would average 30 feet. Any oil produced would be trucked to refineries outside of the local area. Established companies would service the wells.

The total surface disturbance would be 8 acres for well pads, 5 acres for roads, 13 acres for field development; and 725 acres for pipelines (145 acres/well site). The total surface disturbance caused by exploration and development would be 761 acres.

Plugging and abandonment: Wells that are completed as dry holes are plugged according to a plan designed for the condition of each well. Plugging involves placing cement plugs at strategic locations in the hole. Drilling mud is used as a spacer between the plugs to prevent communication between fluid-bearing zones. The drill casing is cut off at least 3 feet below ground level and capped by welding a steel plate on the casing stub. After plugging, all equipment and debris would be removed and the site restored as near as reasonably possible to its original condition. It is projected that one exploratory well that may be drilled would be plugged and abandoned.

Reasonably Foreseeable Development of Geothermal Resources Future trends and assumptions: Because environmental protection and enhancement are major concerns for the BLM, sources of energy with a small environmental impact are becoming increasingly important. The geothermal energy resources known to exist in the region are essentially undeveloped, especially in the planning area. With recent interest in geothermal resources expressed by some governmental and private entities, geothermal exploration may be initiated in the planning area which could possibly lead to development of the resource.

Geophysical/geochemical exploration: As with oil and gas, geophysical/geochemical operations can take place on leased or unleased public land. The operator must comply with all terms and conditions of permits, NEPA, regulations, and other requirements, including reclamation, prescribed by the authorized officer. Monitoring for compliance with these requirements would be done during operations and upon their completion. In addition to geophysical methods discussed in the previous section on oil and gas, the following exploration techniques are often employed in geothermal prospecting:

Microseismic: Small seismometers buried at a shallow depth (hand-dug holes) transmit signals from naturally occurring, extremely minor seismic activity (microearthquakes) to an amplifier on the surface. Stations are located away from roads to avoid the effects of traffic. These units are often backpacked into areas inaccessible to vehicles.

Resistivity: Induced polarization techniques are used to measure the resistance of subsurface rocks to the passage of an electric current. A vehicle-mounted transmitter sends pulses of electric current into the ground through two widely spaced electrodes (usually about 2 miles apart). The behavior of these electrical pulses as they travel through underlying rocks is recorded by small devices that receive the current at different locations. The electrodes are either short rods (2–3 feet long) driven into the ground or aluminum foil shallowly buried over an area of several square feet. Two or three small trucks transport a crew of three to five people to transmitting and receiving sites.

Telluric: A string of receivers record the variations in the natural electric currents in the earth. No transmitter is required. Small trucks are used to transport the crew and equipment.

Radiometric: Radioactive emissions (generally radon gas) associated with geothermal resources are measured using a hand-held scintillometer, often at hot spring locations. Another method involves placing plastic cups containing small detector strips sensitive to alpha radiation either on the surface or in shallow hand-dug holes.

If holes are dug, they are covered, and the cups are left in place for 3 to 4 weeks. At the end of the sampling period, the cups are retrieved and all holes are backfilled. These surveys can be conducted by walking to the sites or with the aid of light vehicles.

Geochemical surveys: Geochemical surveys are usually conducted at hot springs by taking water samples directly from the spring. Mercury associated with geothermal resources is often sampled using hand tools. These surveys can be conducted by walking to the sites or with the aid of light vehicles.

Temperature gradient drill hole surveys: Temperature gradient holes are used to determine the rate of change of temperature with respect to depth. Temperature gradient holes usually vary in diameter from about 3.5 to 4.5 inches, and from a few hundred feet to 5,000 feet in depth. They are drilled using rotary or coring methods. Approximately 0.1 to 0.25 acre/drill hole would be disturbed. A typical drill site could contain a drill rig (most likely truck-mounted), water tank(s), fuel tank, supply trailer, and a small trailer for the workers. Drilling mud and fluids would be contained in earthen pits or steel tanks. Water for drilling would be hauled in water trucks, or if suitable water sources are close, could be piped directly to the site. Water consumption could range from about 2,000 to 6,000 gallons/day, with as much as 20,000 gallons/day under extreme lost circulation conditions.

Other equipment that could be used includes large flatbed trucks to haul drill rod, casing, and other drilling supplies; in some cases special cementing and bulk cement trucks; and two small vehicles for transporting workers. In most cases, existing roads would be used. It is likely that short spur trails (usually less than 500 yards) would be bladed for less than 10 percent of these holes. All holes would be plugged and abandoned to protect both surface and subsurface resources, including aquifers, and reclamation of disturbed areas would be required, unless some benefit to the public could be gained (for example, a water well or camping area). Depending upon the location and proposed depth of the drill hole, detailed plans of operation that cover drilling methods, casing and cementing programs, well control, and plugging and abandonment could be required. Based upon past geothermal exploration in California and Nevada and a projected increase in power demand, it is expected that 6 notices of intent for surface geophysical surveys and 5 notices of intent to drill 30 temperature gradient holes would be filed under all Alternatives during the life of this plan. These notices of intent would most likely be filed in the Known Geothermal Resource Area (KGRA). Total surface disturbance resulting from geophysical surveys over the life of the plan is expected to be about 0.5 acre, and disturbance resulting from temperature gradient holes is expected to be about 5.5 acres.

Drilling and testing: Drilling to detect, test, develop, produce, or inject geothermal resources can be done only on land covered by a geothermal lease.

A typical geothermal well drilling operation would require 2–4 acres for a well pad, including reserve pit, and 0.5 mile of moderate duty access road with a surface 18 to 20 feet wide (total disturbed width, with ditches, cuts, and fills, of 40 feet). Existing roads would be used whenever possible. Total surface disturbance for each well and any new road is expected to be less than 6 acres. In some cases, more than one production well could be drilled from one pad. Well spacing would be determined by the authorized officer after considering topography, reservoir characteristics, the optimum number of wells for proposed use, protection of correlative rights, potential for well interference, interference with the multiple uses of the land, and protection of the surface and subsurface environment. There would be close coordination with the State of Nevada and/or California. The expected duration of well development, testing, and abandonment (if dry) would be 6 months. It is estimated that eight exploratory wells would be drilled under all alternatives and the Proposed RMP during the life of the plan, resulting in a total surface disturbance of 34 acres.

Plugging and abandonment: Before abandonment, the operator would be required to plug the hole to prevent contamination of aquifers and any effects to subsurface and surface resources. Cement plugs would be placed at strategic locations in the hole using the same techniques as for exploratory oil and gas wells. Any new roads not needed for other purposes would be reclaimed.

Geothermal power plant development: It is projected that one power plant generating 25 megawatts of electricity (gross) may be constructed within a Known Geothermal Resource Area under all alternatives during the life of the plan and employing an estimated 30 people. It is expected that the developed geothermal power plant would be water-dominated and that the geothermal power conversion system would either be single or double flash, or binary cycle. Before geothermal development could occur, site specific baseline studies and environmental analyses, with public involvement, would be done. The scenario below describes the level of disturbance that would most likely occur from the development of a 25-megawatt power plant.

Five to seven production wells and one or two injection wells would be drilled. Access would be provided by existing roads and new, short roads (0.5–1 mile) 18 to 20 feet wide (up to 40 feet total disturbed width). Surface disturbance from well pad and road construction would probably range from 2 to 6 acres per well. The power plant, including separators, energy converters, turbines, generators, condensers, cooling towers, and switchyard, would cover an estimated 10 to 15 acres. Pipelines and power lines would disturb an additional 3 to 6 acres. If a water cooling system is employed, one to three water wells, requiring approximately 0.25 acre per well, would be drilled, unless the cooling water was obtained from the geothermal steam condensate. Depending upon the location, terrain, geothermal reservoir characteristics, and type of generating facility, the total surface disturbance would probably range from 25 to 75 acres, most likely about 50 acres. After construction, approximately one-third to one-half of the disturbed area would be revegetated. The remaining disturbed area would be reclaimed before abandonment.

Direct use of geothermal energy: Low and moderate-temperature (300 to 500 ˚F) geothermal resources may have direct applications, including space heating and cooling of residences and businesses; applications in agriculture and industry; and recreational and therapeutic bathing. Depending on the type of use and magnitude of operation, surface disturbance could range from a few acres for a well and greenhouse or food processing facility, to tens of acres for larger agricultural or aquacultural developments. Although geothermal resources are found throughout the planning area, the small, somewhat isolated population makes any direct use of geothermal energy on public land unlikely.

Locatable Mineral Resources

Reasonably Foreseeable Development Scenarios

The major commodities of interest over the next 15 to 20 years will probably be gold/silver and zeolites. Other commodities that may be present in the field area are diatomite, bentonite and perlite. This assessment is based on market conditions (especially for precious metals) and the favorable geologic environment for mineral occurrences. Reclamation science will continue to advance due to experience and research. More detailed design will be required for the reclamation of mined land in the future. This will likely increase reclamation costs but should also increase long-term reclamation success. The economics of mining in the planning area will be driven by the relationship between production costs and the market price of the commodity. Whereas production costs can be controlled, or anticipated through management and technology, the price of a commodity is difficult to predict over time. The overall profitability of an operation—and hence the level of activity at the prospecting, exploration, and mining stages—for development of ore bodies is closely related to the price of the mineral commodity.

Over the next 15 to 20 years, it is expected that two mines may be developed in the planning area: one open-pit gold mine using chemical heap leaching, at least in part; and one mine of zeolites.

Background on the Development of a Locatable Minerals Mine

Typically, the development of a mine goes through five stages, with each stage using progressively more sophisticated (and more expensive) techniques over a successively smaller area to identify, develop, and produce an economic mineral deposit. The full sequence of developing a mineral project involves reconnaissance, prospecting, exploration, economic evaluation, and development.

Reconnaissance: Reconnaissance is the first stage in exploring for a mineral deposit. This involves an initial literature search for the area of interest using available references, such as publications, reports, maps, and aerial photographs. Because the study area is usually large, varying from hundreds to thousands of square miles, this stage normally involves large-scale mapping, regional geochemical and/or geophysical studies, and remote sensing with aerial or satellite imagery. These studies are generally undertaken with minimal surface disturbance, which usually consists of stream sediment, soil, or rock sampling. Minor off-highway vehicle use may be required.

Prospecting: If reconnaissance identifies anomalous geochemical or geophysical readings, rare or unusual geological features, evidence of mineralization, or a historical reference to mineral occurrence, a prospecting area of interest is identified. This area could range from a single square mile to an entire mountain range of several hundred square miles.

Activity to locate a mineral prospect includes more detailed mapping, sampling, and geochemical and geophysical study programs. This is the time when property acquisition efforts usually begin and most mining claims are located to secure ground while trying to make a mineral discovery. Surface-disturbing activities associated with prospecting include more intense soil and rock chip sampling, using mostly hand tools; frequent off-highway vehicle use; and placement and maintenance of mining claim monuments. This activity is usually considered casual use (43 CFR 3809.1-2) and does not require BLM notification or approval.

Exploration: Upon location of a sufficiently anomalous mineral occurrence or favorable occurrence indicator, a mineral prospect is established and subjected to more intense evaluation through exploration techniques. Activities during exploration include those used during prospecting, but at a more intense level and in a small area. In addition, road construction, trenching, and drilling take place. In the later stages of exploration, an exploratory adit or shaft may be driven. If the prospect already has underground workings, these may be sampled, drilled, or extended. Exploration activities use mechanized earth-moving equipment, drill rigs, etc., and may involve the use of explosives.

Typical exploration projects in the planning area could include in-stream dredging with portable suction dredges; exploratory drilling, which could include construction of new roads; use of explosives to sample rock outcroppings; and excavation of test pits. If the exploration project disturbs 5 acres or less, it is conducted under a notice (43 CFR 3809.1-3) which requires the operator to notify the BLM at least 15 days prior to beginning the activity. If a project disturbs more than 5 acres, it is conducted under a plan of operations (43 CFR 3809.1-4) and requires NEPA compliance prior to approval.

Economic evaluation: If an exploration project discovers a potentially economic deposit, activity would intensify to obtain detailed knowledge of the deposit (such as ore grade and deposit size), possible mining methods, and mineral processing requirements. This would involve applying all the previously used exploration tools in a more intense effort.

Once enough information is obtained, a feasibility study would be made to decide whether to proceed with mine development and what mining and ore processing methods would be used.

Mine development: Once the decision to develop a property has been made, the mine permitting process begins. Upon approval, work begins on development of the mine infrastructure. This includes constructing the mill, offices, and laboratory; driving development workings if the property is to be an underground mine, or prestripping if it is to be an open-pit mine; building access or haul roads; and placing utility services. Evaluations of ore reserves may be refined at this time.

Once enough facilities are in place, production begins. Satellite exploration efforts may be conducted simultaneously to expand the mine's reserve base and extend the project life. The property is reclaimed concurrently with the mining operation or upon its completion. Often uneconomic resources remain unmined and the property dormant until changes in commodity prices or production technology makes these resources economically feasible to mine.

Activities on these lands include actual mining, ore processing, tailings disposal, waste rock placement, solution processing, metal refining, and placement of support facilities, such as repair shops, laboratories, and offices. Such activities require the use of heavy earth-moving equipment and explosives for mining and materials handling, exploration equipment for refining the ore reserve base, hazardous or dangerous reagents for processing requirements, and other equipment for general construction.

The size of mines varies greatly, and not all mines require all of the previously mentioned facilities and equipment. The amount of land involved can range from only a few acres to several hundred, with most projects disturbing 5 acres or less and requiring a notice pursuant to 43 CFR 3809.1-3. Projects disturbing more than 5 acres require an approved plan of operations pursuant to 43 CFR 3809.1-4.

Reasonably Foreseeable Development

Gold/Silver

Exploration: Based on mineral exploration activity over the past 10 years and known occurrences in the planning area of hot springs type gold deposits, exploration for gold is expected to take place during the life of this plan.

Depending on the market for gold, up to 25 exploration projects for hot springs gold deposits are expected over the next 15 to 20 years. A typical hot springs exploration project would involve six drill holes and approximately 0.5 mile of new road 12 feet wide (total disturbed width of 20 feet) for each drill hole, resulting in 4.2 acres of disturbance/project, or 105 acres of total disturbance.

Economic evaluation/mine development: Exploration activity may result in the discovery 1 open-pit deposit, employing about 170 people. The possible deposit would be located in or adjacent to areas of known potential for gold/silver.

The open-pit mine is expected to contain between 10 and 90 million tons of ore, with a probable size of 15 million tons, averaging 0.06 troy ounces of gold per ton. Detailed exploration and feasibility studies would involve the construction of about 30 miles of road 12 feet wide (total disturbed width of 20 feet with ditches, cuts, and fills), and 300 drill sites, for a total disturbance of 75 acres.

Development of the deposit would involve creation of an open pit, 2,100 feet in diameter and 800 feet deep; a mill complex; a cyanide heap leach pad; a tailings disposal facility; a waste disposal facility; approximately 5 miles of internal graveled haul road 90 feet wide with a total disturbance of 100 feet; and 15 miles of all-weather access road 20 feet wide (total disturbed width of 36 feet). Surface disturbance would cover 85 acres for the pit, 40 acres for the mill complex, 65 acres for the heap leach pad, 140 acres for the tailings disposal facilities, 260 acres for the waste disposal facilities, 60 acres for internal haul roads, and 65 acres for access roads. Total surface disturbance caused by this project would be 715 acres.

Industrial Minerals

Exploration: Based on mineral exploration activity over the past 10 years and known occurrences in the planning area, a moderate amount of exploration for industrial minerals—mainly zeolite—is expected during the life of this plan. Depending on market conditions, up to three projects are expected for zeolite. Exploration for this commodity consists of auger holes or trenching and road construction. An average project would involve up to 10 auger holes; 5 trenches 20–25 feet wide, 60–125 feet long, and 15–25 feet deep; and 1,000 feet of road 12 feet wide (total disturbed width of 20 feet), for a disturbance of 0.8 to 1 acre/project.

Economic evaluation/mine development: Exploration activity is not expected to result in the discovery of an economically viable deposit. In spite of the low probability of discovery the following scenario would be appropriate based on mine models developed by the U.S. Bureau of Mines. The zeolite deposit would be expected to contain between 50,000 and 120,000 tons of ore, most probably about 85,000 tons, with an assumed moisture content of 25 percent. Development of the deposit would involve an open pit approximately 1,000 feet long by 130 feet wide by 30 feet deep, with a zeolite bed 20 feet thick; a mill complex, assumed to be on public land 15 miles off-site and adjacent to a paved road; a stockpile near the pit; 100 feet of haul road 20 feet wide (total disturbed width of 36 feet); and 10 miles of access road 20 feet wide (total disturbed width of 36 feet). Surface disturbance resulting from this mine would be 3 acres for the pit, 1 acre for the stockpile, 0.1 acre for the haul road, 44 acres for the access road, and 5 acres for the mill.

Saleable Mineral Resources

Reasonably Foreseeable Development Scenarios

The major use of saleable minerals (primarily sand and gravel and crushed/broken rock) would continue to be for road construction and maintenance by Washoe County Road Department, Nevada and Modoc County Road Department, California. Most of this activity would be routine seasonal maintenance on county roads which would result in a moderate increase in demand for the materials. Because the population of the area is expected to increase over the life of this plan, it is likely that public demand for saleable minerals will increase slightly over current levels, with the highest demand for decorative stone.

Existing sources of material would handle some of the increased demand. Many of the sites, however, have a small reserve base and could be depleted in a few years. Consequently, up to 20 new sources of material—10 sand and gravel pits, 5 rock quarries and 5 collecting areas for decorative stone—may need to be developed during the next 15 to 20 years.

Background on the Development of Saleable Mineral Deposits

Development of a saleable mineral deposit goes through a sequence similar to that for locatable minerals and includes reconnaissance, prospecting, exploration (sampling and testing), and development. Unlike the process for locatable minerals, however, written approval (such as a permit) must be obtained from the BLM and the material must be purchased by the operator (in the case of a private citizen or commercial operator) before the deposit can be developed, as required by the 1947 "Materials Act" as amended (30 U.S.C. 601 et seq.). The act also grants the Federal government discretionary authority to deny permission to develop a deposit if the damage to public land or resources would outweigh the economic benefits of development.

Reconnaissance and prospecting for saleable minerals involves a literature search, field examination, geologic mapping (if necessary), and surface sampling. Surface disturbance is usually negligible. Exploration is usually confined to a small area and generally involves drilling or core drilling to determine whether the material meets construction standards. Because exploration is normally limited to areas with good access to major roads, little or no road construction is involved. A typical operation usually involves a number of small trenches or core holes and would disturb less than 0.01 acre/site. Mine development normally involves a pit or quarry, space for processing (crusher, stockpile, and occasionally an asphalt plant), and a staging area for trucks (loading and a turnaround area). Disturbance normally covers about 2 to 3 acres/ project.

Reasonably Foreseeable Development

Exploration

During the next 15 to 20 years, up to 30 exploration projects are expected within the planning area in areas of known or suspected occurrences of mineral materials. Approximately 15 projects may be conducted for sand and gravel, 10 for rock aggregate (crushable or naturally broken material), and 5 for decorative rock.

A typical sand and gravel operation would involve up to five trenches, perhaps 8 by 10 feet and up to 20 feet deep, disturbing about 100 square feet per trench, or about 0.01 acre/project; total disturbance would be approximately 0.15 acre. A typical rock aggregate exploration project would involve up to eight core holes, disturbing about 0.01 acre/hole, or 0.1 acre/project; total disturbance would be about 1 acre. A typical decorative rock exploration project would use no mechanized equipment and would be limited to surface sampling, essentially identical to a prospecting project; surface disturbance would be negligible.

Development

Sand and gravel: During the life of the plan, it is expected that 10 new sand and gravel deposits with good quality material will be developed in easily accessible areas (such as within a few miles of major roads). Site-specific assessments required by NEPA and inventories of cultural resources and threatened and endangered species would be conducted prior to development. Existing pits would continue to be used as much as possible, with up to 20 percent closed due to depletion. A typical development of a sand and gravel deposit would contain a pit, stockpile area, processing area (crusher, washer, screener, conveyor, and perhaps asphalt plant), truck loading and turnaround area, and about 0.5 mile of new road 20 feet wide (36 feet total disturbed width). Disturbance for each project would be 2 acres for the pit, processing, and gravel and waste stockpile and 2 acres for the access road, or approximately 4 acres/project. Total disturbance would be 40 acres.

Rock aggregate: During the life of this plan, it is expected that 5 new deposits of good quality material will be developed in easily accessible areas (such as within a few miles of major roads). When the County Highway Departments need additional sources of material for major projects, highway material rights-of-way will be granted under title 23 of the "Federal Highway Act" for an estimated five deposits adjacent to highways.

Like sand and gravel, rock aggregate deposits would require site-specific NEPA assessments and inventories of cultural resources and threatened and endangered species prior to development.

A typical rock aggregate quarry would be essentially the same as a sand and gravel operation and would contain a pit, stockpile area, truck turnaround and loading area, processing area (crusher, screener, washer, conveyor, asphalt plant, etc.), and about 2,500 feet of new access road 20 feet wide (36 feet total disturbed width). Disturbance would cover 2 acres for the quarry operations and 2 acres for the access road, or 4 acres per project. Total disturbance would be 20 acres.

Decorative stone: A population increase over the next 15 to 20 years will result in a moderate increase in demand for decorative material. It is expected that five new collecting sites would be designated to meet the increase in demand. These sites would be scattered throughout the planning area and would generally be reached by existing roads. Site-specific NEPA assessments and inventories for cultural resources and threatened and endangered species would be required prior to designation.

Extraction of the material would be by surface methods only, such as loading onto pickup or flatbed trucks or pallets, by hand or by rubber-tired front-end loaders. Surface disturbance resulting from these operations would be negligible.

Appendix E

Relevance and Importance Criteria for Areas of Critical Environmental Concern in the Eagle Lake Field Office

Areas of Critical Environmental Concern (ACEC) Relevant and Importance Criteria

Aspen Woodlands and Thickets

Quaking aspen (*Populus tremuloides*) is one of North America's most widespread tree species. Within the Eagle Lake Field Office area aspen are sparsely distributed, usually in small stands of a few trees. Aspen thickets form near the crest of mountains, where trees are bent into grotesque shapes by the weight of snow during winter.

"Quaking aspen usually occupies elevations between six thousand and eight thousand feet, where skiers can gain access in winter, deer hunters in the fall, and campers and fishermen in summer. Thus even the least tree-conscious of recreationists in our area is on familiar terms with these graceful, smooth-barked trees. Their round, silver dollar-sized leaves tremble in the faintest breeze on long, vertically flattened stalks, creating a rustling sound that serenades the ear, while the shimmering play of light between dark upper surfaces and silvery undersides offers beauty" (Lanner 1984).

Aspen are unique in that they do not usually grow randomly as individuals scattered in a forest matrix. Instead they occur in well-defined groves that range in size from a few clumped stems to many thousands of stems covering a large area. Each stem has its origin as a sprout from an existing root. Therefore, all stems, or sprouts of a grove are genetically identical, organically connected, vegetative off-spring of a single parent tree. The grove is collectively a clone, and individual stems are ramets, or branches. In effect, the clone consists of a great underground mass of interconnected roots that have given rise to leafy sprouts (Lanner 1984). But recent research (Romme and others. 2001) has found that aspen stands can be a single clone or contain more than one clone, which gives the stand a greater genetic diversity.

After inventorying 53 aspen stands east of Highway 395, Achtley (1993) determined that the most of those stands were aspen/snowberry/tall forb communities as described by Mueggler (1988). Atchley (1993) further determined that this type of community is in a mid-seral stage of development. This mid-seral stage appeared to be a result of historical grazing practices that allowed livestock to graze on young shoots and did not allow aspen to grow to the point of entering the stand. Domestic sheep were also allowed to bed in these stands on a yearly basis.

More recent changes in grazing patterns that provide for rest have not resulted in rapid recovery in the stands because of the highly competitive invasive understory species. Lack of wildland fire in other parts of the Eagle Lake Field Office area has led to invadion by western juniper and growth into single-age stands (Gruell 2001). These conditions limit an aspen stand's ability to support the variety of wildlife species usually found in healthy stands. Healthy stands provide multi-level tree cover and structure that benefit wildlife that depend on tree structure in a sea of sagebrush or within juniper-invaded stands.

Although not large in area, aspen stands within the field office area provide habitat for many wildlife species and wildlife biodiversity. Of the 14 mammals that should use aspen as their habitat, Atchley (1993) found six: deer mice, Nuttall cottontail, least chipmunk, bushy-tailed woodrat, long-tailed weasel, and North American porcupine. A total of 109 birds use aspen stands for habitat either seasonally or year round. Atchley (1993) found western tanagers, common nighthawks, mourning doves, Swainson's hawks (state listed), mountain bluebirds, hermit thrushes, and several species of flycatchers to be common during the breeding season.

Birds commonly inhabiting aspen stands during the winter are ruby-crowned kinglet, Townsend's solitaire, rough-legged hawk, Cooper's hawk, sharp-shinned hawks, purple and Cassin's finches, and cedar waxwings. Besides the Great Basin rattlesnake, 10 other reptiles and amphibians are known to use aspen stands for habitat.

Buffaloberry Stands

Silver buffaloberry (*Sheperdia argentea*) is an erect spiny shrub or small tree, 4 to 20 feet high, with shaggy gray bark and brown or silvery-scurfy twigs and branches that terminate in stout thorns (McMinn 1939). What makes buffaloberry unique within the Eagle Lake Field Office area is its rarity. Silver buffaloberry is widespread in other parts of the west and the Great Plains. It grows along streams, river banks, and deep soils. Emigrants traveling the Overland Trail used the sour berries to make a paste or sauce eaten with buffalo meat. The fruit is also made into jelly.

There are perhaps five small stands of buffaloberry within the field office area. The largest stand (about 5 acres) along Smoke Creek Road has been fenced to protect it and another sensitive plant species found in the area. This stand of buffaloberry grows around a small seep. It is unknown whether the small size of the unfenced stands is a result of abuse or soil and climatic conditions along the edge of this species' range.

Although livestock do not eat the forage they do use the shade of the buffaloberry and the shaggy bark on the trunk as scratching posts. Mule deer do eat the leaves and fruit, as do many birds and small mammals (Stuart and Sawyer 2001).

California Black Oak Woodlands

California black oak (*Quercus kelloggii*) woodlands are unique to the Eagle Lake Field Office area because, although this species is widely distributed west of the Sierra Nevada crest, it only moves onto the east side of the Sierras in a few places (Lanner 1984). Schoolcraft and Osborne (1995) place the geographical locations for California black oak on BLM-administered lands on the lower slopes of the Diamond Mountains, Susanville Peak and the Susan River Canyon along the Bizz Johnson Trail. No known pure stands of California black oak occur in the field office area on BLM-administered lands.

California black oak is found within the Eastside Pine Forest vegetation communities described by Schoolcraft and Osborne (1995). Black oak dominates the Black Oak/Eastside Pine community, with co-domination from Jeffrey pine, and ponderosa pine. In the Eastside Pine/Black Oak community, Jeffrey and ponderosa pine dominate the understory with heights to 100 feet. Black oak makes up the mid-tree layer with a canopy height at 20-50 feet. Within the Eastside Pine Forest Community Jeffrey and ponderosa pine provide a canopy cover of 50-100%, and black oak is an associated species.

California black oak serve as 'nurse trees' for conifer seedlings that become established in their shade until their growth pushes them above the oak (Lanner 1984). Gray squirrels, mule deer, black bears, and scrub and Steller's jays appear to be the main consumers of acorns. One other species, the acorn woodpecker, hammers thousands of holes into tree trunks, fence posts, and utility poles. When there is a bumper crop of acorns, the acorn woodpecker waits until they are mature and pounds them into its storage holes for consumption later (Lanner 1984). Indians also consumed acorns by pounding them into a mush or baking the mush into a form of bread. Oak acorns provide 42 to 52 percent carbohydrates, 3 to 5 percent protein, and 4 to 14 percent fats, with the Black oak's acorns being on the high end in fat. During years of high acorn production, Indians gathered large amounts of acorns and stored them in granaries for future use.

Historical logging that resulted in the California black oak being removed and treated as a "weed" caused a decline in this woodland species. Wildland fire control has resulted in almost closed canopy of coniferous forests, which can result in a loss of black oak presence in these forests (Gruell 2001). Black oak is a popular source of firewood in some parts of California, which has led to its decline in some areas. Cutting black oak for firewood is not allowed in the Eagle Lake Field Office area. After wildland fires, black oaks are left alone to recover and are not removed as part of post-burn salvage operations.

1. Buffalo Creek Canyons ACEC

BLM recommends designating the Buffalo Creek Canyons area as an ACEC to protect this geographically distinctive area by retaining:

- high scenic values,
- its current undeveloped character, and
- the setting of the historic Buffalo Hills Toll Road route, which passes through the North Fork of Buffalo Creek Canyon.

Studies and management plans have not focused special management attention on this visually distinct area in part because the North Fork of Buffalo Creek and its side canyons are within an area administered by three BLM field offices–Eagle Lake, Surprise and Winnemucca. Administrative responsibilities have, at times, precluded looking at the geographic whole and instead have focused on the individual administrative parts, which by themselves have not been considered distinctive enough to warrant special management attention.

Wilderness study area (WSA) boundaries are defined by roads, and the rough dirt road through the North Fork of Buffalo Creek divides the canyon complex into two WSAs, Buffalo Hills and Poodle Mountain. Wilderness evaluations by the Eagle Lake and Surprise Field Offices for the Buffalo Hills WSA and the Winnemucca Field Office for the Poodle Mountain WSA did not recommend wilderness designation for either of these WSA's because each WSA's overall area had many roads and ways on the more level uplands outside the Buffalo Creek canyon area and also included many parcels of private land. However, portions of both WSAs within the Buffalo Creek Canyon complex are steep walled canyons that are mainly roadless and highly scenic. When looked at geographically rather than administratively, the Buffalo Creek Canyons are a unique and highly scenic area within the region and warrant special management through designation as an ACEC to protect the area's unique scenic and historic values.

The following factors justify ACEC designation:

Historic Values

The Buffalo Hills Toll Road passed through the North Fork of Buffalo Creek. As part of a main transportation route between Reno and Cedarville during the mid 1880s, this toll road was also used by the military as a supply and patrol route between Fort Churchill, Nevada, east of Carson City, and Fort Bidwell, California, 25 miles north of Cedarville. The road was operated as a toll road for a portion of that period, but the military was not charged to use it. The toll gate was probably near Buffalo Meadows Ranch. The toll road served the region and is of more than local significance.

The North Fork of Buffalo Creek and the adjoining canyons are physically unchanged from their appearance when the Buffalo Hills Toll Road operated. Visitors with historical interests who seek back country discovery experiences have the unique opportunity to travel through and experience this rugged and dramatic canyon complex on an existing rough dirt road and view a landscape largely unchanged since the days when the Buffalo Hills Toll Road was in use.

Interest in history is increasing as our population ages and more people of retirement age seek to explore and learn about our history. Heritage tourism and sightseeing are in the top 10 activities that Americans now enjoy (Roper Starch Worldwide 2000). Protecting the canyon will allow people interested in backcountry travel, sightseeing, and history to travel through Buffalo Creek Canyon on a rough rocky road, enjoy BLM public lands and learn about regional history tied to the Fort Churchill to Fort Bidwell Military Supply Route and the Buffalo Hills Toll Road.

Scenic Values

The scenic values of the Buffalo Creek Canyons are unique throughout the northwest portion of the Great Basin region. The canyons are visually distinct and unusual in the mixture of formation, depth, and the concentration of steep narrow side canyons in a relatively small area. These canyons contain many distinctive features that, when combined in one area, create a highly unique and scenic area. The following statements describe the notable scenic aspects of this area.

- The North Fork of Buffalo Creek is the main canyon with many steep narrow side canyons feeding into the main canyon from the east and the Middle and West Forks of Buffalo Creek feeding in from the west.
- The North Fork of Buffalo Creek consists of a narrow inner canyon, a benched area in the mid level of the canyon, and steep upper slopes rising to the high surrounding uplands.
- Riparian species line the small creek within the inner canyon of the North Fork of Buffalo Creek Canyon and also grow along parts of many of the side canyons.
- Canyon depths vary from a few hundred to more than 1,000 feet deep.
- Many side canyons add to the visual interest of the Buffalo Creek Canyons area.
- Many steep narrow canyons dissect the west flank of Poodle Mountain on the east side of the North Fork of Buffalo Creek.
- Many short steep side canyons rise from the mid level bench to the top of the Buffalo Hills on the west side of the North Fork of Buffalo Creek Canyon.
- The Middle and West Forks of Buffalo Creek are visually distinct narrow steep-walled canyons lined with dark blocky talus slopes and topped with nearly vertical basalt rims.
- Thick riparian vegetation fills the bottom of the West Fork of Buffalo Creek Canyon.

Special Management Attention

Special management of the canyon complex is warranted under an ACEC designation to assure that the current undeveloped character of the canyons remain unchanged. The area is highly scenic and is proposed to be managed to meet BLM Visual Resource Management Class II objectives which require retention of the character of the existing landscape. (Under BLM's WSA Interim Management Policy that applies to this area until Congress acts to designate it as wilderness or release it to multiple use management, the Buffalo Hills Canyon's area is managed to meet VRM Class I objectives. These objectives require preserving the existing landscape character).

Most of the area adjoining the Buffalo Hills Toll Road is recommended for designation as Primitive under the Recreation Opportunity Spectrum (ROS) classifications proposed by the Preferred Alternative of this RMP. If Congress releases these areas from WSA status, BLM's intent in designating them as Primitive areas is to continue managing the roadless areas adjoining the Buffalo Hills Toll Road route for their roadless character. This designation would help retain the undeveloped character of the area currently enjoyed by chukar hunters and backcountry sightseers who use the Buffalo Creek Canyons. Protecting

the Buffalo Hills Toll Road is also proposed as part of the Preferred Alternative in this RMP under provisions of the Historic Trails and Visual Resources Management portions of this RMP.

Designating the area as an ACEC would give further management emphasis to retaining the area's existing character under VRM Class II objectives for protecting both scenic and historic values.

The Buffalo Creek ACEC is a large (36,000 acres) remote area that receives some livestock grazing each year. Grazing use, however, is significantly less today as compared to historic (pre 1960's) grazing levels. Current permitted use is 2 to 3 months as compared with 8 to 10 months historically. Presently, the area receives rest and/or deferment during each grazing season. Grazing in specific areas is alternated from spring use one year to late summer/fall use the next grazing cycle. Present management is focused on reducing impacts from livestock in the deep canyons where livestock seek water and forage. It has been determined, however, that most impacts (heavy utilization) in the canyons are a result of wild horses and burros remaining in the area year-long. The concentrated horse and burro use continues after livestock have left the area, which tends to cancel any benefit provided by moving livestock out of these areas.

Most of the uplands within the ACEC currently meet land health standards. There are some areas, however, where invasive plants (cheatgrass and medusahead) are present to the extent that they limit or prevent natural recovery of native species. The riparian areas in the ACEC have been assessed and found to vary in condition from 'properly functioning' to 'at risk with static to upward trend'. Areas with static or downward trends typically reflect year-long horse use.

The continuing growth of the Reno/Sparks/Carson City area is stimulating water development and future water resource development efforts are likely to evaluate all possible water storage locations in this area. If a dam were built in the North Fork of Buffalo Creek, the canyon area would change, and the existing character of the canyons would be permanently altered. Also, if deep wells were drilled to pump water from the Buffalo Creek Canyons aquifer for use as either cooling water for the proposed Granite Fox Power Plant west of Gerlach or for domestic water supplies in the Reno/Sparks/Carson City area, the many springs and riparian areas within the many canyons of the Buffalo Hills Canyons ACECs would likely be significantly altered if not dried up entirely, substantially changing the character of the canyon complex.

Vulnerability to Change

A proposal calls for the use of ground and surface water for a power plant on the other side of the Buffalo Hills at the base of the Granite Mountain Range. Such efforts could include a dam on Buffalo Creek or ground water pumping that could deplete surface springs critical for wildlife survival.

If a dam were built in the North Fork of Buffalo Creek, the existing character of the canyons would be significantly altered, disturbing the historical integrity of the Buffalo Hills wagon road route and the scenic setting of the North Fork of Buffalo Creek. A dam could not be built unless the existing wilderness study area (WSA) designations surrounding the canyon (Buffalo Hills WSA on the west and Poodle Mountain WSA on the east) are released by Congress from their interim protection under BLM's WSA requirements. BLM did not recommend either WSA for wilderness designation in the two wilderness study reports completed for these areas – Buffalo Hills WSA by the Eagle Lake Field Office (BLM 1987b) and Poodle Mountain WSA by the Winnemucca Field Office (BLM 2001d).

2. Eagle Lake ACEC

Cultural and Historic Values

- Eagle Lake Basin has many areas eligible for listing on the National Register of Historic Places.
- The lake was a seasonal hunting and gathering area for Maidu and Paiute peoples, and many sites are located within the basin.
- The basin also contains the historic Merrilleville-Beiber Wagon Road, a hand-built 1875 wagon road still readily evident along the 7 miles of the north shore of Eagle Lake.
- Between the 1890s and 1935 Eagle Lake was the site of three attempts to export the lake's water for irrigation through pumping, ditches, and tunnels.
- The third water exportation attempt at Eagle Lake resulted in completion of the Bly Tunnel in 1923. The tunnel drained water from the lake between 1923 and 1935. It lowered the lake 30 feet and disturbed the lake's fishery and biological health for decades.

Fish and Wildlife Resources

Eagle Lake is a closed basin, typical of the Great Basin, with a water pH that can reach into the low 9.0 range during low-water years. Unlike most Great Basin lakes Eagle Lake supports a unique endemic fishery.

- Eagle Lake fishery includes the Eagle Lake rainbow trout, Lahontan redside, Tahoe sucker, and tui chub.
- The Eagle Lake rainbow trout are endemic to Eagle Lake.
- Tahoe sucker, tui chub, and Lahontan redside are endemic to ancient Lake Lahontan.
- The California Department of Fish and Game operates a fish trap on Pine Creek, Eagle Lake's main tributary to rescue fish during period of low water. The agency has operated the trap since the 1950s, when the fishery was at risk of being lost due to past changes in the lake level and other watershed actions that adversely affected the lake and the fishery.
- The Eagle Lake rainbow trout are a very popular sport fish and the fishery is sustained by the California Department of Fish and Game's hatchery program.
- A coordinated resource management planning group has also completed many actions to restore Pine Creek to a viable spawning creek.
- Eagle Lake supports a large population of western grebes, eared grebes, waterfowl, and other water-dependent bird species.
- Nesting areas in the large tule beds in the shallow bays of the lake's north end are productive nesting areas and support one of the West's largest eared grebe rockeries.
- The lake supports a large population of osprey with a large area of the west shore on National Forest land designated as the Osprey Management Area with seasonal restrictions on human entry during the nesting season.
- BLM lands along the east and north shorelines and adjacent uplands provide large undeveloped areas for wildlife with little human disturbance since human activity centers mainly on the lake and near vehicle-accessible shorelines.
- A small number of bald eagles nest at the lake, and more than 150 have been observed wintering at the lake in January.

Importance

Eagle Lake, 28,000 acres, is the second largest natural lake entirely within the State of California. Eagle Lake's largely undeveloped shoreline is mostly in public ownership administered by Lassen National Forest (40%) and BLM (40%). The lake is a one-of-a-kind natural resource. It is a closed hydrologic basin that supports a unique trophy trout fishery and is home to a wide variety of waterfowl and other avian species, including large populations of western and eared grebes, white pelicans, osprey and bald eagles.

The Eagle Lake Basin is largely undeveloped, highly scenic, and a destination attraction for thousands of visitors annually. (Eagle Lake attracted an estimated 117,000 visitors on federal lands in 2003 and many more on private lands.) Visitors regularly travel to Eagle Lake from throughout the California, Nevada, and Oregon region, and some visitors travel from further away. Visitors come to the lake for fishing, camping, water sports and wildlife viewing. Trails are also popular at the south and north ends of the lake. Most camping occurs at developed campgrounds on National Forest at the south end and on private lands at Spalding and Stones subdivisions on the west and north shores.

BLM manages its lands within the Eagle Lake Basin as a special recreation management area (SRMA) for the mixture of camping, fishing, water sports, and wildlife viewing along the lake shore. BLM also manages these lands to protect their scenic quality, water quality, and wildlife habitat, which are integral parts of the experience visitors seek and enjoy at Eagle Lake.

Eagle Lake is a closed basin and is susceptible to adverse impacts to water quality from actions within the basin that could add nutrients and accelerate the lake's eutrophication.

Management agencies responsible for Eagle Lake have recognized the uniqueness of the Eagle Lake Basin and formed a five-agency Eagle Lake Interagency Board of Directors in the early 1980s. The Board coordinated responsibilities to collaboratively manage Eagle Lake to preserve and protect the lake's unique resources.

The five member agencies are

- Lassen National Forest,
- Bureau of Land Management,
- Lassen County,
- California State Lands Commission (submerged lands), and
- California Department of Fish and Game.

The Board meets twice yearly to coordinate efforts to protect and enhance Eagle Lake for present and future generations.

Designating the Eagle Lake Basin watershed as an area of critical environmental concern (ACEC) would help BLM strengthen its management of public lands within the basin by doing the following:

- improving resource protection measures at popular shoreline use areas,
- helping acquire undeveloped private lands from willing sellers in order to retain the primarily undeveloped character of Eagle Lake, and
- reducing impacts of land development on wildlife and wildlife habitat.

ACEC designation could also help establish nonmotorized trails in suitable areas for visitor use and enjoyment.

Natural Hazards and Human-Made Hazards: Bly Tunnel

The 2-mile-long Bly Tunnel, completed in 1923 and operated until 1935, transferred water from Eagle Lake's closed basin to Willow Creek, where it flowed to Honey Lake Valley and was used for irrigation. The tunnel project was a financial failure, and the irrigation company went out of business. The tunnel was environmentally disastrous to the lake, lowering it by 30 feet and drying up parts of the lake's shallow northern bays. The tunnel entrance was eventually dynamited to stop diversion.

Later work by BLM in the 1970s and 1980s sealed the tunnel to prevent future water flows. The tunnel's downstream end remains open and emits a steady flow of about 2 cubic feet per second from ground water that flows into the tunnel below the western tunnel closure through fractures in the tunnel's basalt walls.

A mid way adit (airshaft used during tunnel construction) is also open with a chain link fence around it. Entrance to the tunnel is possible through the adit and from the open downstream end. The tunnel is a human-made feature that is now a part of the natural landscape. Although now sealed, Bly Tunnel could be a hazard to lake levels if it is ever altered to allow flows from Eagle Lake through it.

Scenic Values

The Eagle Lake Basin is a high-quality scenic area because of a combination of factors that collectively create a highly scenic and visually pleasing landform and geographically unique setting. These factors include the following.

- The lake is lies at the junction of three geographic provinces and contains representative species from the Great Basin, southern Cascades, and the northern Sierra.
- Eagle Lake is a large natural lake (28,000 acres) situated in a mountain setting at an elevation of 5,100 feet.
- Rocky volcanic fault block escarpments form steep talus slopes topped with rocky rims on three peninsulas and along 7 miles of the north shore.
- Mountains and hills surround the lake, with peaks rising more than 2,000 feet above it.
- Eagle Lake has a largely (80%) undeveloped shoreline and adjacent uplands.
- Homes, businesses, and campgrounds are clustered in activity areas on the north, northwest, and south sides of the lake. Most of the east shoreline and large portions of the west shoreline are undeveloped.
- Wildlife is evident throughout the year. Waterfowl, grebes, white pelicans, cormorants, and osprey are often seen.
- Large emergent tule beds (reeds) in shallow bays of the lake provide extensive wildlife habitat for waterfowl.
- A small number of resident Bald Eagles nest at the lake and over 150 Bald Eagles have been observed in winter

Special Management Attention

There are segments of four grazing allotments within the Eagle Lake Basin ACEC. Current livestock grazing management in the Eagle Lake Basin is considered successful as identified by an increase in shoreline riparian vegetation (tules, willows, and herbaceous plants) and improved land health in the

uplands. Successful efforts made in the 1990's moved cattle away from the lake by excluding the majority of the shoreline and making better use of the uplands. These changes were accomplished through construction of new fencing, water developments, and implementation of intensive grazing strategies. Livestock adjustments were made which included changes in season of use, creation of new pastures, and frequent rotation or movement of livestock through the area.

Overall, there has been a significant reduction in the length of grazing time in the ACEC, resulting in improved range condition as indicated by increased plant vigor, root reserves, seed production, and residual plant material present after cattle use. This is supported by recent land health standard assessments and determinations. Approximately 70% of the shoreline of north Eagle Lake is currently excluded from livestock and the remaining 30% is intensively managed. Improvement has been documented (photo trend monitoring and long term observations) along the shoreline areas that have been excluded. Positive changes are also occurring in the intensively managed shoreline areas as indicated by increased residual riparian and upland vegetation.

3. Lower Smoke Creek ACEC

The following relevance and importance and special management statements support an ACEC designation for the Lower Smoke Creek area.

- According to the recent riparian functional assessments, land health assessments in the watershed, water quality assessment, and stream assessment, for full recovery of the stream and adjacent watershed, special management attention will need to be maintained.
- Two riparian functional assessments in Lower Smoke Creek gave ratings of functional at risk because of the following:
    - closeness of the county road to the stream,
    - upland health conditions, and
    - flow regulation upstream.

    Past livestock use in the riparian area also contributed to the stream's condition, but management has been adjusted with successful results. Livestock must continue to be intensively managed.
- Water quality, at best, is marginal for meeting the needs of the desired instream beneficial uses, including the Lahontan assemblage of native species of which the Tahoe sucker is a resident.
- BLM has a minimum flow water right in lower Smoke Creek. It is critical that this right is maintained for riparian function and instream values to meet BLM's standards.
- Proper functioning hydrology (i.e. reduced peak flows) is critical to best prevent damage to the county road from high-flow events.
- The route of Nobles Emigrant Trail follows the creek bed except in one area that was too rough for wagons. There the trail was cut into the hillside south of the creek. Trail traces are still evident in this area and are considered high-quality remnants of the trail because of the largely undisturbed setting around the trail traces.
- The Dry Valley Rim WSA encompasses all of Smoke Creek and the Nobles Trail within the 3.2 miles of Smoke Creek proposed as an ACEC.

4. North Dry Valley ACEC

The following relevance and importance and special management statements support an ACEC designation for the North Dry Valley.

- The area includes many significant cultural sites, including occupation, quarry and cave sites.
- Portions of the proposed ACEC include many rock cliff faces and steep escarpments, 400 to 1000 feet high used by raptors for nesting.
- The proposed ACEC is largely undeveloped and close to another large undeveloped area, the Dry Valley Rim WSA, which has an extensive steep escarpment close to and overlooking the proposed ACEC.
- The many cliffs and expansive vistas across the Smoke Creek Desert provide high scenic interest to visitors.
- The area is part of the pronghorn winter range.
- The area has several distinctive groupings of winterfat associated with rare soils.
- Northern Dry Valley has spotty exposures of a soil classified as Typic Torriorthents, fine, montomorillonitic (calcareous), mesic. It occurs on landscape geology of pre-Lake Lahontan lake deposits. From a geologic stand point they are a rare representation of the sedimentation environment in the late Pliocene Epoch and have been eroding at a rate such that soil development never has had time to become advanced. These soils support shad scale, bud sage, and squirrel-tail grass. These soils are seldom used by livestock, but because of their naturally high erosion rates, OHV or other recreational activities would dramatically increase the loss of the few remaining remnants. These soils should be considered rare in the Eagle Lake Field Office area and of scientific value.

Special Management Attention

Segments of two grazing allotments occur within the ACEC and both are grazed for some period each year. The grazing period is short in the north portion of the ACEC (2 -3 months) and grazing is restricted to the winter months in the south portion of the ACEC. Livestock are restricted from the south area throughout the growing season (April to July) and grazing use begins late fall and goes through the winter. The area is then rested through the growing season. Short term spring grazing use is made in the north but livestock are removed early enough to provide time for plant regrowth. Livestock tend to select annual grasses during spring use in this area, which reduces use on native perennial plants. Livestock are then moved out of the area which provides for regrowth (based on annual growing conditions).

Approximately 40 to 60% of the ACEC contains invasive annual plants (primarily cheatgrass) which have reduced the overall land health of the area. Repeated wildfire and unregulated yearlong past or historic (pre 1960) livestock use influenced the spread of invasive annuals. Current livestock activity is significantly less than historic grazing. While some improvement has been observed in the uplands as identified in land health assessments, the presence of annuals in the lowlands severely limits reestablishment of the natural plant community. Due to the short growing season and extremely limited precipitation of the area (4-8 inches annually), reestablishment of native plants using mechanical treatment (seeding) is very difficult.

5. Pine Dunes ACEC

The following relevance and importance and special management statements support an ACEC designation for the Pine Dunes.

The Pine Dune RNA was designated under the authority of 43 CFR 8223, April, 24, 1986. The Pine Dunes were listed by the California Natural Areas Council as *The Migrating Dunes* in July 1976. Currently the Pine Dunes RNA is managed under the Pine Dunes RNA Management Plan (BLM 1987a).

Griffin (1970) described the Madeline Plains as a "drab, treeless flat" with volcanic uplands that hardly support "trees", "only scrubby western juniper (*Juniperus occidentalis*) poke above the sagebrush." Piled against the eastern highlands is a sand dunes complex. The dune area was derived from windblown sand left by the drying of a Pleistocene lake, "Lake Madeline" whose bed is now the Madeline Plains.

Within a portion of the dunes is a stand of 91 ponderosa pine (*Pinus ponderosa*), all but 24 growing on BLM lands. This stand is considered unique because the nearest naturally occurring individual pine is growing 15 miles to the north and 1,000 feet higher in elevation. The closest forest, which includes both ponderosa and Jeffrey pines (*Pinus jeffreyi*), lies in the south Warner Mountains, 20 miles to the north. Adding to the uniqueness of these dunes is that the pine grow within what is normally referred to as the sagebrush-steppe vegetation type (Barbour and Major 1977). This area is mapped into the mixed Great Basin shrub vegetation type (Map VEG-1) in this RMP.

The partially stabilized dunes themselves are a unique soil and geologic feature, sitting on and rising above the silt and clay soils of the Madeline Plains and surrounded by gentle sloping Miocene volcanic basalt and Pliocene volcanic pyroclastics at elevations of 5,400 to 5,600 feet. One would expect the sands to be a byproduct of volcanic ash, but no volcanic ash has been found in the sand forming these dunes.

The flora of the Pine Dunes-Madeline Dunes complex does not constitute a distinct desert dune flora, but consists mainly of plants contributed from the surrounding sagebrush-steppe vegetation (Hamon 1999). The main vegetation on the dunes surrounding the pine consists of the following (USDA 1987):

- curlleaf mountain mahogany (*Cercocarpus ledifolius*),
- antelope bitterbrush (*Purshia tridentata*),
- big sagebrush (*Artemisia tridentata*),
- rabbitbrushes (*Chrysothamnus* spp.),
- western juniper (*Juniperus occidentalis*),
- Indian ricegrass (*Achnatherum hymenoides*),
- large desert evening primrose (*Oenothera deltoides*), and
- larkspur (*Delphinium* spp.)

The stand of pine within the Pine Dunes is most likely a relict of a montane flora that was widely distributed throughout the Great Basin from 24,000 to 12,000 years before the present (Hamon 1999). The 66 species of vascular plants known to occur on the dune system represent 26 families and 48 genera. These species can be clustered into three assemblages: ponderosa pine, sedge/rush, and shrub grass. A total of 95% of the species are indigenous, and less than 7% are likely to occur on dunes with an estimated probability of 66 to 99%. A biological soil crust, including moss, stabilizes 10% of the dune surface (Hamon 1999).

Distribution of the three plant assemblages provides a unique and sometimes fragile pattern across the dunes complex. The shrub/grass assemblage occurs on the crest of the dunes and in the swales, raising the question of whether shrubs growing on the crests have long root systems or crown sprout each time sand migrates to the top of the original dune and raises its height.

The sedge/rush assemblage occurs mainly in bowls that formed within the dunes and hold water on or near the surface. This assemblage receives the most use from wildlife within the Pine Dunes and livestock within the Madeline Dunes. Biological soil crusts are obvious within the Pine Dunes but are lacking in the Madeline Dunes due to untimely trampling by livestock and off-highway vehicles. Loss of the biological soil crusts from the Madeline Dunes results in their migrating with the wind. Loose blowing sand causes visual and other potential health hazards for people living downwind from this portion of the dunes complex.

6. Susan River ACEC

The following relevance and importance and special management statements support an ACEC designation for the Susan River:

- Largest river on the east side of the Sierra, north of the Truckee River.
- One of only four eastside rivers in the northern Sierra that produce significant and sustained flows.
- Section being considered has no impoundments or diversions (Bizz Johnson Trail section of river, 16 miles, with 8 miles or river through BLM-managed lands).
- Highly scenic area with a diversity of geology, vegetation, and habitats.
- At the junction of three major geomorphic/ecological provinces: the Sierra Nevada, the Cascades, and the Great Basin.
- Dramatic volcanic features include columnar basalt bluffs, agglomerate cliffs, pyroclastic rocks, ash pinnacles, flow feeder dikes, and basalt flows on top of ash beds.
- Several upland habitat types include mixed conifer, ponderosa/Jeffrey pine, oak woodland, mixed Great Basin shrub and aspen/cottonwood communities.
- Sensitive plant species occurring within the segment include *Penstemon sudans* (Susanville beardtongue) and *Astragalas inversus* (Susanville milkvetch).
- Heavily used recreational fishery during spring and early summer–rainbow and brown trout–and native assemblage of Lahontan fish species.
- Popular recreation area used for fishing, swimming, tubing, picnicking, camping, and environmental education.
- Nonmotorized rail to trail conversion of the Fernley and Lassen Branch of the Southern Pacific Railroad, now the Bizz Johnson National Recreation Trail, parallels the Susan River along the entire segment through BLM land.
- Historic railroad bridges and tunnels of the 1914 Fernley and Lassen Railroad protected through compliance with Section 106 of the National Historic Preservation Act.
- Visual resource management Class II area where management objective is to retain natural appearing landscapes within the canyon.

7. Willow Creek ACEC

The following relevance and importance and special management statements support an ACEC designation for the Willow Creek area:

- Willow Creek is one of only three perennial creeks in the Eagle Lake Field Office area.
- Willow Creek flows through 8 miles of public land in a roadless canyon in Tunnison Mountain WSA.

- Willow Creek is a unique and beautiful area that is rated as a BLM visual resource management (VRM) Class II area, where the objective is to retain the character of the landscape. (This area has been given a Class II rating in the current land use plan and also under all alternatives of this RMP). The Class II rating is based on high-quality scenery, high public sensitivity to visual change, and foreground viewing of the area by visitors.
- Willow Creek flows through a small picturesque canyon of dark volcanic rock interspersed with sagebrush, juniper, pine, and a thick understory of grasses.
- With improved land management practices over the past 25 years, Willow Creek's riparian zone is continuing to improve in health and function and provides for improved watershed values, wildlife habitat, and livestock and wildlife water and forage.
- Willow Creek Canyon contains the following natural resources and support the following human uses::
  - National Register of Historic Places (Belfast Petroglyphs Area).
  - archeological values along much of the creek in the canyon bottom as well as at the top of the canyon walls.
  - water-based recreation close to the Honey Lake Valley population, the largest in Lassen County.
  - recreation opportunities such as fishing, creekside hiking, and scenic and historic sightseeing.
  - high cultural heritage value to Native Americans.
- Willow Creek is an important water source for wildlife and, at a limited number of water gaps, is also an important water source for livestock that are managed under BLM permits and require grazing practices to meet Land Health Standards.

Appendix F

Noxious Weed Prevention Schedule for the Eagle Lake Field Office

Eagle Lake Field Office Prevention Schedule

Prevention Activity	When	Who Is Responsible
General		
Check body and undercarriage of off road vehicles and ATV's for plant material and clean with best available method before leaving weed infested area.	All Year	All Field employees
Include in all NEPA documents, Noxious Weeds in the list of Critical Elements of the Human Environment	All Year	All employees working with NEPA documents.
All field personnel will have an active role in detection/inventory of noxious weed; reporting species and location to the field office weed coordinator.	All Year	All field employees
Weed identification and reporting procedures, for all field office employees.	Continuing	All employees
Lands and Realty		
Include noxious weed prevention in all Right of Ways, leasing or permits; and acquisitions.	All Year	Lands/Realty
Coordinate with field office weed coordinator on all acquisitions.	All Year	Recreation, Lands/Realty
Assure permits that involve soil disturbing activities include sanitizing equipment prior to entering BLM sites.	All Year	All employees
Recreation and Wilderness		
Consider off road vehicle closures in areas of known weed infestations.	All Year	All Employees
Insure that activities under recreation permit have on site weed control and minimize spread to other locations.	All Year	Recreation
Insure that developed recreation sites are managed to reduce noxious weed infestations.	All Year	Recreation
Require use of weed free hay in Wilderness Study Areas; Sign trail heads and include in hunting/guiding permits weed free ethics.	All Year	All employees

Prevention Activity	When	Who Is Responsible
Monitor areas under concentrated recreation activities.	All Year	Recreation
Provide standard weed identification and prevention information to Special Recreation Permit applicants to encourage a weed free ethic. This information would be provided by the employee administering the permit.	All Year	Recreation
Minerals/Reclamation		
Insure that the standard stipulations and data adequacy standards developed by the minerals, soils, and weed coordinator are included in all mining permits etc.	All Year	Lands/ Realty
For mineral activity, retain bonds for weed control until the site is returned to desired vegetative conditions.	All Year	Lands/Reality
Require use of weed free seed for reclamation activities.	All Year	Lands/Realty
Require high-pressure washing of all heavy equipment for both notice and plan of operations level activity. This requirement will be included on all NEPA decisions and/or Acknowledgement letters.	All Year	Lands/Realty
Consider weed risk, prevention, and treatment in alternatives and evaluations for project planning.	All Year	All employees
If topsoil is bought or brought in from another location, require site identification/certification of borrow area (for absence of noxious weeds).	All Year	All employees, Weed Coordinator.
Inspect gravel pits and fill sources to identify weed-free sources; Gravel and fill to be used in relatively weed-free areas must come from weed-free sources. Inspect mineral material site reclamation for infestation of noxious weeds.	All Year	Lands/Realty, Weed Coordinator, Support Services.

Prevention Activity	When	Who Is Responsible
Rangeland Management		
Control timing of grazing animal movement from infested to non infested areas to minimize weed seed transport.	All Year	Range
Consider noxious weed in the allotment evaluation process.	All Year	Range
Include stipulations to stop the spread and introduction of weed in all contractual activities on BLM lands.	All Year	Range
Insure that weed free seed is utilized for reclamation or rangeland reseeding; avoid grazing reclaimed areas until perennial vegetation is established.	All Year	Renewable Resources
Manage grazing allotments and herd use so as to promote perennial grass species and minimize creation of bare soil or disturbed areas.	All Year	Range
Soil/Water/Air		
Insure that clay material used in dam/reservoir construction is weed free and comes from an area or is obtained from a certified weed free supplier.	All Year	Renewable Resources/ Weed Coordinator
Contract requirements will stipulate that all out of county equipment will be high pressure washed prior to entering public lands.	All Year	Renewable Resources
Re-vegetate all burned areas with site potential permits, with weed free seed.	All Year	Renewable Resources
Wildlife/Fisheries		
Consider noxious weeds in all Habitat Management Plans.	All Year	Wildlife/Fisheries/ Botany

Prevention Activity	When	Who Is Responsible
Consider the impacts of wildlife species in the expansion of noxious weeds through ingestion of seeds as well as the impacts noxious weed infestations may have on native wildlife habitat in all wildlife plans, and implementation of the Bio-diversity Standard for Rangeland Health.	All Year	Wildlife/Fisheries/ Botany
Threatened & Endangered Species		
Insure that Listed, T&E, and all BLM Sensitive plants are given protection and consideration in areas adjacent to (or within) weed infestations and that these plants are inventoried/ flagged prior to any noxious weed treatment.	All Year	Renewable Resources
Division of Support Services		
Consider construction and road maintenance schedule, then work with Force Account Team to avoid spreading weeds,if known infested sites are to be disturbed; high pressure wash plant parts, mud, etc, from construction equipment utilized by BLM personnel.	All Year	Support Services
Inspect gravel and fill material sites to assure weed-free material is used in relatively weed free area.	All Year	Support Services/Weed Coordinator
Incorporate weed prevention into road layout, design and alternative evaluations.	All Year	Support Services, Weed Coordinator
Remove seed source (flowering plants) that could be picked up by passing vehicles or maintenance equipment and limit seed transport into relatively weed free areas.	All Year	Support Services
Provide Noxious weed awareness brochures for distribution to public land users.	All Year	Support Services
Include stipulations to stop the spread and introduction of weeds in all contractual activities on BLM lands.	All Year	Support Services

Prevention Activity	When	Who Is Responsible
Law Enforcement		
Educate other law enforcement agencies on the prevention, identification and introduction of noxious weed species.	All Year	District Manager
Fire		
Ensure that fire suppression and rehabilitation efforts minimize weed spread.	All Year	Fire Team, Resource Advisor
Conduct controlled burns on some areas to eliminate overstory and lessen weed seed dispersal.	Spring/Summer/Fall	Fire Team, RX Fire Planning Process (Staff).
Wash down undercarriage with emphasis on the axles, frames, crossmembers, motormounts and on and underneath steps. Also, include the runningboards, and front bumper/brushguard assemblies. Vehicle cabs will be swept out with refuse disposed of in waste receptacles when leaving (or before returning to home station) a noxious weed infested area.	All Year	Fire Team
Include weed prevention in resource advisor duties on all overhead or fire rehab teams and EFR planning.	All Year	Fire Team
Weed Coordinator		
Coordinate and conduct noxious weed awareness/prevention programs.	All Year	Weed Coordinator
Initiate and maintain data base maps of noxious weed infestations.	All Year	Weed Coordinator
Initiate and continue to cooperative with weed effort user groups, recreation, volunteers, local and state governments.	All Year	Weed Coordinator
Conduct inventory, monitoring, detection, evaluations, and prioritize and prepare treatment plans as necessary.	All Year	Weed Coordinator

Prevention Activity	When	Who Is Responsible
Prepare Pesticide Use proposals, Pesticide applications Records, Biological Control Agent Request Proposals and Biological Control Agent Release Proposals and Records.	All Year	Weed Coordinator
Implement department Policy Manuals 9001, 9014, and 9015.	All Year	Weed Coordinator
Prepare Annual Pesticide Reports and maintain pesticide Application Certification (both State and Federal).	All Year	Weed Coordinator
Be available for Weed Identification training to all Field Office Personnel.		Weed Coordinator
Coordinate the purchase, application, storage and disposal of any herbicides with the Field Office Hazardous Materials Management Coordinator and Safety Officer.	All Year	Weed Coordinator
Inspect import earth-fill and borrow sites for noxious weed infestations.	Yearly	Weed Coordinator/Resource Staff.
Inventory all roads maintained by BLM for noxious weed infestations and supply Support Services with information as to prevention tactics for those sites.	Yearly	Weed Coordinator

Appendix G

List of Species Known to Occur in the Eagle Lake Field Office Area

Appendix G. List of Species Known to Occur in the Eagle Lake Field Office Area

Common Name	Scientific Name
AMPHIBIANS	
Great Basin spadefoot	*Scaphiopus intermontanus*
Boreal toad	*Bufo boreas boreas*
Pacific treefrog	*Hyla regilla*
Northern leopard frog	*Rana pipiens*
Bull frog	*Rana catesbeiana*
REPTILES	
Pygmy horned lizard	*Phtynosoma d. douglassi*
Short horned lizard	*Phtynosoma douglassi*
Northern desert horned lizard	*Phrynosoma p. platyrhinos*
Great Basin whiptail	*Cnemidophorus t. tigris*
Great Basin collared lizard	*Crotaphytus i. bicinctores*
Long-nosed leopard lizard	*Crotaphytus w. wislizenni*
Northern sagebrush lizard	*Sceloporus g. graciosus*
Great Basin fence lizard	*Sceloporus o. biseriatusm*
Northern side-blotched lizard	*Uta s. stansburiana*
Western skink	*Fumeces s. skiltonianus*
Rocky Mountain rubber boa	*Charina b. utahensis*
Western yellow-bellied racer	*Coluber c. morman*
Desert striped whipsnake	*Masticophis t. taeniatus*
Red coachwhip	*Masticophis flagellum piceus*
Western ground snake	*Sonora semiannulata*
Great Basin gopher snake	*Pituophis m. deserticola*
Valley garter snake	*Thmanophis s. fitchi*
Sierra garter snake	*Thamnophis c. couchi*
Wandering garter snake	*Thamnophis e. vagrans*
Great Basin rattlesnake	*Crotalus v. lutosus*
California king snake	*Lampropeltis g. californiae*
Long-nosed snake	*Rhinocleilus lecontei*
BIRDS	
Gaviidae - Loons	
Pacific loon	*Gavia pacifica*
Common loon	*Gavia immer*
Podicipedidae - Grebes	
Horned grebe	*Podiceps auritus*
Eared grebe	*Podiceps nigricollis*
Red-necked grebe	*Podiceps grisegena*
Pied-billed grebe	*Podilymbus podiceps*
Western grebe	*Aechmophorus occidentalis*
Clark's grebe	*Aechmophorus clarkii*
Pelecanidae - Pelicans	
American white pelican	*Pelecanus erythrorhynchos*
Phalacrocoracidae - Cormorants	
Double-crested cormorant	*Phalacrocorax auritus*
Ardeidae - Herons, Egrets and Bitterns	
American bittern	*Botaurus lentiginosus*
Least Bittern	*Ixobrychus exilis*
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Snowy egret	*Egretta thula*
Tricolored heron	*Egretta tricolor*
Cattle egret	*Bubulcus ibis*
Green heron	*Butorides virescens*

Common Name	Scientific Name
Black-crowned heron	*Nycticorax nycticorax*
Threskiornithidae - Ibises	
White-faced ibis	*Plegadis chihi*
Anatidae - Swans, Geese, and Ducks	
Tundra swan	*Cygnus columbianus*
Trumpeter swan	*Cygnus buccinator*
Greater white-fronted goose	*Anser albifrons*
Ross' goose	*Chen rossii*
Snow goose	*Chen caerrulescens*
Canada goose	*Branta canadensis*
Brant	*Branta bernicla*
Wood duck	*Aix sponsa*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Gadwall	*Anas strepera*
American widgeon	*Anas americana*
Eurasian widgeon	*Anas penelope*
Northern shoveler	*Anas clypeata*
Blue-winged teal	*Anas discors*
Cinnamon teal	*Anas cyanoptera*
Green-winged teal	*Anas crecca*
Fulvous whistling duck	*Dendrocygna bicolor*
Lesser scaup	*Aythya affinis*
Ring-necked duck	*Aythya collaris*
Greater scaup	*Aythya marila*
Canvasback	*Aythya valisineria*
Redhead	*Aythya americana*
Surf scoter	*Melanitta perspicillata*
White-winged scoter	*Melanitta fusca*
Common goldeneye	*Bucephala clangula*
Barrow's goldeneye	*Bucephala islandica*
Bufflehead	*Bucephala abeola*
Common merganser	*Mergus merganser*
Red-breasted merganser	*Mergus serrator*
Ruddy duck	*Oxyura jamaicensis*
Hooded merganser	*Lophodytes cucullatus*
Cathertidae - American Vultures	
Turkey vulture	*Cathertes aura*
Accipitridae - Hawks, Kites and Eagles	
Northern harrier	*Circus cyaneus*
White-tailed kite	*Elanus leucurus*
Cooper's hawk	*Accipiter cooperii*
Sharp-shinned hawk	*Accipiter striatus*
Northern goshawk	*Accipiter gentilis*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Swainson's hawk	*Buteo swainsoni*
Ferruginous hawk	*Buteo regalis*
Rough-legged hawk	*Buteo lagopus*
Osprey	*Pandion haliaetus*
Golden eagle	*Aquila chrysaetos*
Bald eagle	*Haliaeetus leucocephalus*
Falconidae - Falcons	
American kestrel	*Falco sparverius*
Prairie falcon	*Falco mexicanus*

Common Name	Scientific Name
Merlin	*Falco columbarius*
Peregrine falcon	*Falco peregrinus*
Phasianidae - Pheasants, Grouse, and Quail	
Ring-necked pheasant	*Phasianus colchicus*
Chukar	*Alectoris chukar*
Greater sage-grouse	*Centrocercus urophasianus*
Blue grouse	*Dendragapus obscurus*
Wild turkey	*Meleagris gallopavo*
Mountain quail	*Oreortyx pictus*
California quail	*Callipepla cilifornica*
Rallidae - Rails, Gallinules, and Coots	
Virginia rail	*Rallus limicola*
Sora	*Porzana carolina*
Common moorhen	*Gallinula chloropus*
American coot	*Fulica americana*
Gruidae - Cranes	
Sandhill crane	*Grus canadensis*
Charadriidae - Plovers	
Black-bellied plover	*Pluvialis squatarola*
Semipalmated plover	*Charadrius semipalmatus*
(Western) Snowy plover	*Charadrius alexandrinus nivosus*
Killdeer	*Charadrius vociferus*
Recurvirostridae - Avocets and Stilts	
Black-necked stilt	*Himantopus mexicanus*
American avocet	*Recurvirostra americana*
Scolopacidae - Sandpipers and Allies	
Greater yellowlegs	*Tringa melanoleuca*
Lesser yellowlegs	*Tringa flavipes*
Solitary sandpiper	*Tringa solitaria*
Spotted sandpiper	*Actitis macularia*
Whimbrel	*Numenius phaeopus*
Long-billed curlew	*Numenius americanus*
Marbled godwit	*Limosa fedoa*
Willet	*Catoptrophorus semipalmatus*
Wandering tattler	*Heteroscelus incanus*
Ruddy turnstone	*Arenaria interpres*
Sanderling	*Calidris alba*
Red knot	*Calidris canutus*
Dunlin	*Calidris alpina*
Baird's sandpiper	*Calidris bairdii*
Western sandpiper	*Calidris mauri*
Least sandpiper	*Calidris minutilla*
Pectoral sandpiper	*Calidris melanotos*
Long-billed dowitcher	*Limnodromus scolopaceus*
Short-billed dowitcher	*Limnodromus griseus*
Wilson's snipe	*Gallinago delicata*
Wilson's phalarope	*Phalaropus tricolor*
Red-necked phalarope	*Phalaropus lobatus*
Laridae - Gulls, Terns, and Allies	
Parasitic jaeger	*Stercorarius parasiticus*
Franklin's gull	*Larus pipixcan*
Bonaparte's gull	*Larus philadelphia*
Mew gull	*Larus canus*
Ring-billed gull	*Larus delawarensis*
California gull	*Larus californicus*

Common Name	Scientific Name
Herring gull	*Larus argentatus*
Thayer's gull	*Larus thayeri*
Glaucous-winged gull	*Larus glaucescens*
Black tern	*Childonias niger*
Caspian tern	*Sterna caspia*
Common tern	*Sterna hirundo*
Forester's tern	*Sterna forsteri*
Columbidae - Pigeons and Doves	
Rock dove (feral dove)	*Columba livia*
Band-tailed pigeon	*Columba fasciata*
Mourning dove	*Zenaida macroura*
Cuculidae - Cuckoos	
Yellow-billed cuckoo	*Coccyzus americanus*
Tytonidae - Barn owls	
Barn owl	*Tyto alba*
Strigidae - Typical owls	
Long-eared owl	*Asio otus*
Short-eared owl	*Asio flammeus*
Flammulated owl	*Otus flammeolus*
Western screech owl	*Otus kennicotti*
Great horned owl	*Bubo virginianus*
California spotted owl	*Strix occidentalis occidentalis*
Northern pygmy owl	*Glaucidium gnoma*
Burrowing owl	*Athene cunicularia*
Northern saw-whet owl	*Aegolius acadicus*
Caprimulgidae - Nightjars	
Common nighthawk	*Chordeiles minor*
Lesser nighthawk	*Chordeiles acutipennis*
Common poorwill	*Phalaenophilus nuttallii*
Apodidae - Swifts	
White-throated swift	*Aeronautes saxatalis*
Vaux's swift	*Chaetura vauxi*
Trochilidae - Hummingbirds	
Black-chinned hummingbird	*Archilochus alexandri*
Anna's hummingbird	*Calypte anna*
Calliope hummingbird	*Stellula calliope*
Broad-tailed hummingbird	*Selasphorus platycercus*
Rufous hummingbird	*Selasphorus rufus*
Alcedinidae - Kingfishers	
Belted kingfisher	*Ceryle alcyon*
Picidae - Woodpeckers	
Northern flicker	*Colaptes auratus*
Acorn woodpecker	*Melanerpes formicivorus*
Lewis' woodpecker	*Melanerpes lewis*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
Nuttall's woodpecker	*Picoides nuttallii*
White-headed woodpecker	*Picoides albolarvatus*
Black-backed woodpecker	*Picoides arcticus*
Pileated woodpecker	*Dryocopus pileatus*
Williamson's sapsucker	*Sphyrapicus thyroideus*
Red-breasted sapsucker	*Sphyrapicus ruber*
Red-naped sapsucker	*Sphyrapicus nuehalis*
Tyrannidae - Tyrant Flycatchers	
Olive-sided flycatcher	*Contopus borealis*

Common Name	Scientific Name
Western wood-pewee	*Contopus sordidulus*
Willow flycatcher	*Empidonax traillii*
Dusky flycatcher	*Empidonax oberholseri*
Hammond's flycatcher	*Empidonax hammondii*
Gray flycatcher	*Empidonax wrightii*
Black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
Ash-throated flycatcher	*Myiarchus cinerascens*
Western kingbird	*Tyrannus verticalis*
Eastern kingbird	*Tyrannus tyrannus*
Alaudidae - Larks	
Horned lark	*Eremophila alpestris*
Hirundinidae - Swallows	
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Bank swallow	*Riparia riparia*
Barn swallow	*Hirundo rustica*
Cliff swallow	*Hirundo pyrrhonota*
Purple martin	*Progne subis*
Corvidae - Jays, Magpies, and Crows	
Steller's jay	*Cyanocitta stelleri*
Western scrub-jay	*Aphelocoma californica*
Pinyon jay	*Gymnorhinus cyanocephalus*
Gray jay	*Perisoreus canadensis*
Clark's nutcracker	*Nucifraga columbiana*
Black-billed magpie	*Pica pica*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Paridae - Titmice	
Juniper titmouse	*Baeolophus ridgwayi*
Oak titmouse	*Baeolophus inornatus*
Black-capped chickadee	*Poecile atricapillus*
Mountain chickadee	*Poecile gambeli*
Aegithalidae - Bushtits	
Bushtit	*Psaltriparus minimus*
Sittidae - Nuthatches	
White-breasted nuthatch	*Sitta carolinensis*
Red-breasted nuthatch	*Sitta canadensis*
Pygmy nuthatch	*Sitta pygmaea*
Certhiidae - Creepers	
Brown creeper	*Certhia americana*
Troglodytidae - Wrens	
Marsh wren	*Cistothorus palustris*
Bewick's wren	*Thryomanes bewickii*
House wren	*Trolodytidae aedon*
Winter wren	*Troglodytidae troglodytes*
Rock wren	*Salpinctes obsoletus*
Canyon wren	*Catherpes mexicanus*
Cinclidae - Dippers	
American dipper	*Cinclus mexicanus*
Muscicapidae - Old World Flycatchers and Allies	
Wrentit	*Chamaea fasciata*
Golden-crowned kinglet	*Regulus satrapa*
Ruby-crowned kinglet	*Regulus calendula*

Common Name	Scientific Name
Blue-gray gnatcatcher	*Polioptila caerulea*
Western bluebird	*Sialia mexicana*
Mountain bluebird	*Sialia currucoides*
Townsend's solitaire	*Myadestes townsendi*
Varied thrush	*Ixoreus naevius*
American robin	*Turdus migratorius*
Swainson's thrush	*Catharus ustulatus*
Hermit thrush	*Catharus guttatus*
Mimidae - Mockingbirds and Thrashers	
Northern mockingbird	*Mimus polyglottos*
Brown thrasher	*Toxostoma rufum*
Sage thrasher	*Oreoscoptes montanus*
Motacillidae - Pipits	
American pipit	*Anthus rubescens*
Bombycillidae - Waxwings	
Bohemian waxwing	*Bombycilla garrulus*
Cedar waxwing	*Bombycilla cedrorum*
Laniidae - Shrikes	
Northern shrike	*Lanius excubitor*
Loggerhead shrike	*Lanius ludovicianus*
Sturnidae - Starlings	
European starling	*Sturnus vulgaris*
Vireonidae - Vireos	
Plumbeous vireo	*Vireo plumbeus*
Cassin's vireo	*Vireo cassinii*
Blue-headed vireo	*Vireo solitarius*
Warbling vireo	*Vireo gilvus*
Red-eyed vireo	*Vireo olivaceus*
Emberizidae - Emberizids	
Subfamily Parulinae - Wood-warblers	
Tennessee warbler	*Vernivora peregrina*
Orange-crowned warbler	*Vernivora celata*
Nashville warbler	*Vernivora ruficapilla*
Golden-winged warbler	*Vernivora chrysoptera*
Yellow warbler	*Dendroica petechia*
Chestnut-sided warbler	*Dendroica pensylvanica*
Black-throated blue warbler	*Dendroica caerulescens*
Townsend's warbler	*Dendroica townsendii*
Hermit warbler	*Dendroica occidentalis*
Black-throated gray warbler	*Dendroica nigrescens*
Yellow-rumped warbler	*Dendroica coronata*
Blackpoll warbler	*Dendroica striata*
Black and white warbler	*Mniotilta varia*
American redstart	*Setophaga ruticilla*
Northern waterthrush	*Seiurus noveboracensis*
MacGillivray's warbler	*Oporonis tolmiei*
Common yellowthroat	*Geothlypis trichas*
Wilson's warbler	*Wilsonia pusilla*
Hooded warbler	*Wilsonia citrina*
Yellow-breasted chat	*Icteria virens*
Thraupinae - Tanagers	
Western tanager	*Piranga ludovicianus*
Cardinalinae - Cardinals, Grosbeaks, and Allies	
Lazuli bunting	*Passerina amoena*
Indigo bunting	*Passerina cyanea*

Common Name	Scientific Name
Black-headed grosbeak	*Pheucticus melanocephalus*
Rose-breasted grosbeak	*Pheucticus ludovicianus*
Emberizinae - Emberizines	
Spotted towhee	*Pipilo maculatus*
Green-tailed towhee	*Pipilo chlorurus*
Rufous-crowned sparrow	*Aimophila ruficeps*
Black-throated sparrow	*Amphispiza bilineata*
Sage sparrow	*Amphispiza belli*
Chipping sparrow	*Spizella passerina*
Clay-colored sparrow	*Spizella pallida*
Brewer's sparrow	*Spizella breweri*
American tree sparrow	*Spizella arborea*
Black-chinned sparrow	*Spizella atrogularis*
Vesper sparrow	*Pooecetes gramineus*
Lark sparrow	*Chondestes grammacus*
Savannah sparrow	*Passerculus sandwichensis*
Grasshopper sparrow	*Ammodramus savannarum*
Fox sparrow	*Passerella iliaca*
Song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
Swamp sparrow	*Melospiza georgiana*
Dark-eyed junco	*Junco hyemalis*
Harris's sparrow	*Zonotrichia querula*
White-crowned sparrow	*Zonotrichia leucophrys*
Golden-crowned sparrow	*Zonotrichia atricapilla*
White-throated sparrow	*Zonotrichia albicollis*
McCown's longspur	*Calcarius mccownii*
Lapland longspur	*Calcarius lapponicus*
Chestnut-collared longspur	*Calcarius ornatus*
Snow bunting	*Plectrophenax nivalis*
Icterninae - Icterines	
Hooded oriole	*Icterus cucullatus*
Bullock's oriole	*Icterus bullockii*
Western meadowlark	*Sturnella neglecta*
Red-winged blackbird	*Agelaius phoeniceus*
Tricolored blackbird	*Agelaius tricolor*
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*
Brewer's blackbird	*Euphagus cyanocephalus*
Great-tailed grackle	*Quiscalus mexicanus*
Common grackle	*Quiscalus quiscula*
Brown-headed cowbird	*Molothrus ater*
Fringillidae - Old World Finches and Allies	
Gray-crowned rosy-finch	*Leucosticte tephrocotis*
Red crossbill	*Loxia curvirostra*
Evening grosbeak	*Coccothraustes mexicanus*
House finch	*Carpodacus mexicanus*
Purple finch	*Carpodacus purpureus*
Cassin's finch	*Carpodacus cassinii*
Lesser goldfinch	*Carduelis psaltria*
Lawrence's goldfinch	*Carduelis lawrencei*
American goldfinch	*Carduelis tristis*
Pine siskin	*Carduelis pinus*
Common redpoll	*Carduelis flammea*
Pine grosbeak	*Pinicola enucleator*

Common Name	Scientific Name
Passeridae - Old World Sparrows	
House sparrow	*Passer domesticus*
MAMMALS	
Bobcat	*Lynx rufus*
Mountain lion	*Felis concolor*
Coyote	*Canis latrans*
Kit fox	*Vulpes macrotis*
Red fox	*Vulpes fulva*
Gray fox	*Urocyon cinereoargenteus*
Raccoon	*Procyon lotor*
Striped skunk	*Mephitis mephitis*
Spotted skunk	*Spilogale putoris*
Badger	*Taxidea taxus*
Mink	*Mustela vison*
Long-tailed weasel	*Mustela frenata*
Black bear	*Ursus americanus*
Mule deer	*Odocoileus hemionus*
Pronghorn	*Antilocapra americana*
Western gray squirrel	*Sciurus griseus*
Douglas's squirrel	*Tamiasciurus douglasii*
California ground squirrel	*Spermophilus beecheyi*
Townsend ground squirrel	*Spermophilus townsendii*
Belding ground squirrel	*Spermophilus beldingi*
Antelope ground squirrel	*Ammospermophilus lecurus*
Golden mantled ground squirrel	*Spermophilus lateralis*
Least chipmunk	*Tamias minimus*
Yellow pine chipmunk	*Tamias amoenus*
Porcupine	*Erethizon dorsatum*
Beaver	*Castor canadensis*
Yellow-bellied marmot	*Marmota flaviventris*
Townsend's pocket gopher	*Thomomys townsendii*
Northern pocket gopher	*Thomomys talpoides*
Great Basin pocket mouse	*Perognathus parvus*
Long-tailed pocket mouse	*Perognathus formosus*
Little pocket mouse	*Perognathus longimembris*
Ord's kangaroo rat	*Dipodomys ordii*
Dark kangaroo mouse	*Microdipodops megacephalus*
Heermann's kangaroo rat	*Dipodomys heermanni*
Merriam kangaroo rat	*Dipodomys merriami*
Western harvest mouse	*Reithrodontomys megalotis*
Northern grasshopper mouse	*Onychomys leucogaster*
Bushy-tailed woodrat	*Neotoma cinerea*
Dusky-footed woodrat	*Neotoma fuscipes*
Pinyon mouse	*Peromyscus truei*
Deer mouse	*Peromyscus maniculatus*
Canyon mouse	*Peromyscus crinitus*
Sagebrush vole	*Lagurus curtatus*
Long-tailed vole	*Microtus longicaudus*
Montane vole	*Microtus montanus*
Muskrat	*Ondatra zibethicus*
House mouse	*Mus musculus*
Western jumping mouse	*Zapus princeps*
Pygmy rabbit	*Brachylagus idahoensis*
Nuttall's cottontail	*Sylvilagus nuttalli*
White-tailed jackrabbit (hare)	*Lepus townsendii*

Common Name	Scientific Name
Black-tailed jackrabbit (hare)	*Lepus californicus*
Snowshoe hare	*Lepus americanus*
Townsend's big-eared bat	*Plecotus townsendii*
Pallid bat	*Antrozous pallidus*
Silver-haired bat	*Lasionycteris noctivagana*
Hoary bat	*Lasiurus cinereus*
Big brown bat	*Eptesicus fuscus*
Western pipistrelle	*Pipistrellus hesperus*
Fringed myotis	*Myotis thysanodes*
Long-eared myotis	*Myotis evotis*
Long-legged myotis	*Myotis volans*
California myotis	*Myotis californicus*
Small-footed myotis	*Myotis leibii*
Yuma myotis	*Myotis yumanensis*
Little brown myotis	*Myotis lucifugas*
Brazilian free-tailed bat	*Talarida brasiliensis*
Merriam shrew	*Sorex merriami*
Trowbridge's shrew	*Sorex trowbridgii*
Vagrant shrew	*Sorex vagrans*
Broad-footed mole	*Scapanus latimanus*
FISH	
Bluegill	*Lepomis macrochirus*
Brown bullhead	*Ameiurus nebulosus*
Brown trout	*Salmo trutta*
Eagle Lake rainbow trout	*Salmo gairdnerii aquilarum*
Eastern brook trout	*Salvelinus fontinalis*
Green sunfish	*Lepomis cyanellus*
Lahontan cutthroat trout	*Salmo clarkii henshawi*
Lahontan redside	*Richardsonius egregius*
Largemouth bass	*Micropterus salmoides*
Mountain sucker	*Catostomus platyrhynchus*
Paiute sculpin	*Cottus beldingii*
Pumpkinseed	*Lepomis gibbosus*
Rainbow trout	*Salmo gairdnerii*
Speckled dace	*Rhinichthys osculus*
Tahoe sucker	*Catostomus tahoensis*
Tui chub	*Gila bicolor*
Yellow perch	*Perca flavescens*

Sources: Scientific names of birds are from Sibley (2000) except where noted by "*" or "AKA" which is via Sibley and/or Scott et al. (1987). Mammals follow Ingles (1965), amphibians and reptiles follow Stebbins (1985)

Appendix H

PRMP Actions Necessary to Ensure Compliance with the *Conservation Strategy for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit, 2006*

Program and Activity PRMP Actions Necessary to Ensure Compliance with the Conservation Strategy for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit

Program - Activity	Goals	Actions
Lands & Realty	1: Protect, Conserve, Restore, and Maintain Lek Habitat	1. BLM shall not grant rights-of-way for any activity which would necessitate construction (erection) of any type of structure rising above the ground surface. These include overhead lines and structures, micro-wave towers, wind turbines, etc. within the lek viewshed and no closer than 3.2 km (2 miles) as was accomplished with the Alturas Intertie Transmission Line.
		2. Require that the section of land management agency, California State Power Commission, and Nevada Public Utilities Commission right-of-way grants addressing abandonment of an overhead line, or any other structure, include directions for removal of cross arms and structures.
	2: Protect Against Direct Loss of Leks Due to Paving, Surface Mining, Land Exchanges, Converting Native Vegetation to Cultivated Agricultural Vegetation, and Increased Vegetation Screening	1. BLM will not exchange or sell lands that have an active or inactive lek within them.
		2. Private land owners will be advised of any leks on their property to avoid, as much as possible loss of leks. Coordination should include the private land owner, NRCS, and CDFG.
		3. No paving of roads will be allowed on BLM administered lands if paving will harm lek habitat.
		4. Mining, such as material pits, where it is the option of the permitting agency to approve or deny a lease will not be allowed on or within 3.2 km (2 miles) of a lek.
		5. Mining for locatable minerals such as gold, under the 1872 Mining Law, is not as easily controlled. Conservation and effective rehabilitation measures will be made a part of the mine's operations plan.
Travel - OHV	1: Protect, Conserve, Restore, and Maintain Lek Habitat.	1. When monitoring data confirms that OHV use is a disturbance to lek activity, restrict OHV use as necessary.

Program - Activity	Goals	Actions
Travel - OHV	10: Manage OHV Use In Nesting Habitat to Insure There is No Measurable Adverse Impact.	1. Incorporate studies completed during 2004 by the Point Reyes Bird Observatory (PRBO) concerning impacts to nesting birds from OHV use for application within sage-grouse habitat.
		2. Continue closure of OHV trails illegally pioneered into Wilderness Study areas (WSA).
	.	3. Close OHV trails where use is adversely impacting sage-grouse nesting as necessary
	12: Maintain Meadows (Lentic Wetlands) in a Healthy State.	3. Manage OHV use to enhance healthy riparian/wetland conservation.
Recreation	1: Protect, Conserve, Restore, and Maintain Lek Habitat.	1. Protect against overzealous human observers venturing too close or onto leks by establishing one viewing lek with a marked viewing platform or site. Use educational signs with suggested protocol while observing strutting activity.
		2. The 2005 Eagle Lake Field Office RMP shall initiate more closely managed use in what is now an “open” area within 3.2 km (2 miles) of leks.
Wild Horses & Burros	9: Manage Wild horse and Burro and Livestock Grazing in a Manner that Benefits Sage-grouse Habitat.	1. Manage the following Herd Management Areas (HMA) in the PMU to the following AMLs. (See Table in WH&B Section).
		2. Establish a priority within the Eagle Lake RMP to develop an Implementation Plan to manage Twin Peaks HMA as a meta-population, and at the appropriate AML for maintaining the Standards for Land Health.
Livestock Grazing	1: Protect, Conserve, Restore, and Maintain Lek Habitat.	4. Continue to protect against domestic sheep bedding and grazing on leks through continued operator/BLM cooperation and citing this restriction as a part of the grazing license (Cal-Neva Planning Unit Management Framework Plan III Wildlife Decision 11.2).
	3: Insure Fences Within Lek Flyways Do Not Pose a Hazard For Sage-Grouse In Low Trajectory Flight.	1. Do not construct new fences or move existing fences to within 1.6 kilometers (1 mile) of a lek.

Program - Activity	Goals	Actions
Livestock Grazing	3: Insure Fences Within Lek Flyways Do Not Pose a Hazard For Sage-Grouse In Low Trajectory Flight.	2. If fence construction cannot be avoided within the lek's buffer zone, the fence will consist of "let-down" panels which are let down during the strutting season.
		3. All braces, gateposts, or wooden posts used are required to have anti-perch structures.
	4: Maintain 124,120 Acres (8.4% of the PMU) of R-0 (Healthy) Sage-Grouse Habitat Vegetation Communities and Ecological Sites at Their Potential.	1. Where R-0 values are achieved, sustain them over the long term by periodic disturbances, as needed, to maintain vigor in the understory grasses and forbs and retain or replace an appropriate sagebrush canopy cover.
		2. Graze existing vegetation in a manner that provides an opportunity for herbaceous perennial plant seedling establishment (grass and forbs), and facilitates understory vigor.
	8: Restore 684,627 Acres (46% of the PMU) of R-4 Habitat and Recover 175,041 Acres (12% of the PMU) of X-4 Habitat Vegetation Communities and Ecological Sites at Their Potential.	<u>In areas where annual non-native grass species have invaded a site but the site has not crossed a threshold (R-4 to X-4) appropriate conservation actions will include the following:</u>
		1. Adjust grazing levels, increase the length of rest, and other measures to allow existing perennial grasses and forbs to compete.
		2. Seek opportunities for vegetation treatment and reseeding with native perennial grasses and forbs.
	9: Manage Wild horse and Burro and Livestock Grazing in a Manner that Benefits Sage-Grouse Habitat.	3. In Nesting Habitat, maintain 18cm (7 inches) of residual grass height within the dripline of sagebrush.
		4. In R-2 areas where existing species of perennial grass cannot normally reach 18cm (7") of growth, reestablish native grass species that have greater vertical structure.
		5. In areas where the 7" stubble heights under sagebrush should, but do not, occur manage livestock grazing to ensure the objective can be met.
		6. In R-4 habitat adjust grazing levels, increase the length of rest, and include other measures to allow existing perennial grasses and forbs to compete with the non-native invasive grass present.

Program - Activity	Goals	Actions
Livestock Grazing	9: Manage Wild horse and Burro and Livestock Grazing in a Manner that Benefits Sage-Grouse Habitat.	7. Establish and fund research to investigate if trampling of nests by domestic sheep does occur, and if it is an issue of adverse affect.
Fire Management	5: Restore 322,966 Acres (22% of the PMU) of R-1, Limited Sage-Grouse Habitat Vegetation Communities and Ecological Sites to Their Potential.	1. Seed native sagebrush of the subspecies and ecotype that previously existed at the site, native grass, and forb species into each fire to accelerate recovery of R-1 lands to R-0. Establish appropriate management response wildland fire suppression in Wyoming big sagebrush ecosystems.
	8: Restore 684,627 Acres (46% of the PMU) of R-4 Habitat and Recover 175,041 Acres (12% of the PMU) of X-4 Habitat Vegetation Communities and Ecological Sites at Their Potential.	<u>In areas where annual non-native grass species have invaded a site but the site has not crossed a threshold (R-4 to X-4) appropriate conservation actions will include the following:</u>
		3. Seed native sagebrush of the subspecies and ecotype that previously existed at the site, native grass, and forb species into each fire to accelerate recovery of R-1 lands to R-0, and keep R-4 lands from degrading to X-4 (Section II.D). Establish appropriate management response wildland fire suppression in Wyoming big sagebrush ecosystems.
	13: Stabilize and Rehabilitate Wildland and Prescribed Fires in Nesting Habitat.	1. During fire-suppression activities do not remove or burn any remaining patches of sagebrush within the fire perimeter.
		2. In areas of large-scale loss (>/= 40% of original winter habitat), protect all remaining sagebrush habitats.
		3. Reseed former sage-grouse habitat with the appropriate subspecies of sagebrush and herbaceous species unless the species are recolonizing the area in a density that would allow recovery within 15 years (sagebrush canopy cover of 10 – 30% and total height of 60 – 71cm (24 – 28 inches)).
		4. Discourage prescribed burns > 50 ha. (123 acres), and do not burn > 20% of an area used by sage-grouse during winter within any 20-30 year interval (depending on estimated recovery time for the sagebrush habitat).

Program - Activity	Goals	Actions
Fire Management	13: Stabilize and Rehabilitate Wildland and Prescribed Fires in Nesting Habitat.	5. WAFWA Guidelines (Connelly et al. 2000) provide additional direction for protection of breeding habitat (leks and nesting habitat) as follows: *Do not use fire in sage-grouse habitats prone to invasion by cheatgrass and other invasive weed species unless adequate measures are included in restoration plans to replace the cheatgrass understory with perennial species using approved* *reseeding strategies. These strategies could include, but are not limited to, use of pre-emergent herbicides (e.g., Oust, Plateau) to retard cheatgrass germination until perennial herbaceous species become established.* *When restoring habitats dominated by Wyoming big sagebrush, regardless of the techniques used (e.g., prescribed fire, herbicides), do not treat >20% of the nesting breeding habitat (including areas burned by wildfire) within a 30-year period (Bunting et al.1987). The30-year period represents the approximate recovery time for a stand of Wyoming big sagebrush.* NOTE: Nesting habitat is approximately 30,000 acres per lek of appropriate habitat. Therefore, 20% = 6,000 acres. *When restoring habitats dominated by mountain big sagebrush, regardless of the techniques used (e.g., fire, herbicides, etc.), treat </= 20% of the breeding habitat (including areas burned by wildfire) within a 20-year period (Bunting et al. 1987). The 20-year period represents the approximate recovery time for a stand of mountain big sagebrush.*
Wildlife	1: Protect, Conserve, Restore, and Maintain Lek Habitat.	5. Continue to restrict aerial gunning for the control of predators by the USDA Wildlife Services to after 9:30 am within 3.2 km (2 miles) of a lek. This has been incorporated by Wildlife Services into their Animal Damage Control Plans for work in the Eagle Lake Field Office area.

Program - Activity	Goals	Actions
Wildlife	2: Protect Against Direct Loss of Leks Due to Paving, Surface Mining, Land Exchanges, Converting Native Vegetation to Cultivated Agricultural Vegetation, and Increased Vegetation Screening.	6. Vegetation is visually monitored during each annual lek count.
		7. If visual monitoring detects an increase in screening vegetation on the lek, appropriate action is taken after strutting activity is completed for the season.
		8. Once a treatment is applied, quantitative monitoring will be established to measure treatment success.
	4: Manage 124,120 Acres (8.4% of the PMU) of R-0 (Healthy) Sage-Grouse Habitat Vegetation Communities and Ecological Sites at Their Potential.	1. Where R-0 values are achieved, sustain them over the long term by periodic disturbances, as needed, to maintain vigor in the understory grasses and forbs and retain or replace an appropriate sagebrush canopy cover.
		2. Graze existing vegetation in a manner that provides an opportunity for herbaceous perennial plant seedling establishment (grass and forbs), and facilitates understory vigor.
		3. Manage sagebrush ecosystems to be consistent with the Biodiversity Standard For Land Health (Appendix F). Pellant et al. 2000, *Interpreting Indicators of Rangeland Health* will be used as one tool to evaluate whether the Objective is being met.
		4. If the three action items above are successful in maintaining healthy sage-grouse habitat and Standards for Land Health, stocking rates and grazing systems should not be affected.
	5: Restore 322,966 Acres (22% of the PMU) of R-1, Limited Sage-Grouse Habitat Vegetation Communities and Ecological Sites to Their Potential.	1. Seed native sagebrush of the subspecies and ecotype that previously existed at the site, native grass, and forb species into each fire to accelerate recovery of R-1 lands to R-0. Establish appropriate management response wildland fire suppression in Wyoming big sagebrush ecosystems.
	6: Restore 66,275 Acres (4.5% of the PMU) of R-2, Limited Sage-Grouse Habitat Vegetation Communities and Ecological Sites to Their Potential.	1. Seek opportunities for vegetation treatment and reseeding with native perennial grasses and forbs.

Program - Activity	Goals	Actions
Wildlife	6: Restore 66,275 Acres (4.5% of the PMU) of R-2, Limited Sage-Grouse Habitat Vegetation Communities and Ecological Sites to Their Potential.	2. Where wildland or prescribed fire has removed or thinned sagebrush overstory providing seed access to the bare understory, seed native grass and forb species to accelerate recovery of R-2 lands to R-0. If necessary, after wildland fire(s), reseed with native sagebrush subspecies and ecotype.
		3. In the absence of fire, thin the sagebrush overstory using mechanical or chemical means, and reseed with native perennial grasses and forbs.
	8: Restore 684,627 Acres (46% of the PMU) of R-4 Habitat and Recover 175,041 Acres (12% of the PMU) of X-4 Habitat Vegetation Communities and Ecological Sites at Their Potential.	In areas where annual non-native grass species have invaded a site but the site has not crossed a threshold (R-4 to X-4) appropriate conservation actions will include the following:
		1. Adjust grazing levels, increase the length of rest, and other measures to allow existing perennial grasses and forbs to compete.
		2. Seek opportunities for vegetation treatment and reseeding with native perennial grasses and forbs
		Recovery of X-4 areas is a highly expensive human intervention using mechanical treatments. Conservation actions apply to nesting, brood-rearing, and winter habitats.
		1. Conservation measures include taking advantage of grant, or large project initiative funding to complete site treatments which include removal or severe set- back of dominant annual non-native grass species, and reseeding with a mix of perennial native shrubs, grasses and forbs.
	12: Maintain Meadows (Lentic Wetlands) in a Healthy State.	1. If agencies or private land owners are enclosing a meadow to exclude over-utilization or degradation the agency(s) involved must establish adaptive management goals and actions, such as grazing or burning the meadows as necessary, to maintain appropriate vegetation structure, diversity, density, composition and vigor as described in Land Health Standards 3 – Water Quality and 4 – Riparian and Wetland Sites.

Program - Activity	Goals	Actions
Wildlife	12: Maintain Meadows (Lentic Wetlands) in a Healthy State.	2. Maintain or achieve Proper Functioning Condition (PFC), consistency with Land Health Standards 3 – Water Quality and 4 – Riparian and Wetland Sites, and proper sage-grouse habitat criteria of wetlands through application of the utilization levels prescribed in Livestock Grazing Guideline 16.
	14: Counter Low Production Rates by Meeting Sage-Grouse Proper Nutrition Needs.	1. Research conducted in the California portion of the PMU should be extended to any captures of adult females associated with any radio telemetry project in the Nevada portion.
		2. Measures to protect and restore sagebrush quality (age) and quantity should be considered a high priority on winter and breeding ranges within this PMU.
	15: Determine Population Counts and Trends in the PMU.	1. Nevada Department of Wildlife (NDOW) will implement counts of all active leks for peak male attendance within the Buffalo / Skedaddle PMU by 2005.
		2. Lek counts for peak male attendance will be completed by NDOW within the Nevada portion of the PMU on an annual basis.
		3. California Department of Fish and Game (CDFG) will continue to count all active leks for peak male attendance within the California portion of the PMU on an annual basis.
		4. CDFG and NDOW will monitor all known lek sites for activity by either aerial or ground checks by 2005 and each 5 years thereafter. The California portion was last completed in 2002.
		5. CDFG and NDOW will develop spring breeding population and fall population estimates for sage-grouse in the PMU on an annual basis.
	15: Determine Population Counts and Trends in the PMU.	6. CDFG and NDOW will gather production and recruitment data in the PMU using hunter-harvested wings on an annual basis.
		7. NDOW will implement a radio telemetry project by 2007 to determine seasonal movement and use areas of sage-grouse using Nevada leks in the PMU.
	16: Eliminate Sage-Grouse Die-offs From Insecticide Poisoning.	1. Discourage use of highly toxic organophosphorus and carbamate insecticides as well as methamidiphos in potato fields and dimethoate through identification and use of less toxic alternatives.

Program - Activity	Goals	Actions
Wildlife	16: Eliminate Sage-Grouse Die-offs From Insecticide Poisoning.	2. Federal and state agencies will ensure an insecticide response to naturally occurring defoliation is necessary before allowing insecticide use on lands they administer.
		3. Where insecticides must be used on federal and state administered lands, limit use for spot applications of the least toxic chemicals or biological treatment.
		4. Private landowners will be advised if brood-rearing occurs on their lands and efforts will be made to assist landowners to acquire the least toxic chemicals or biological controls.
	17: Insure Nesting Success is not Being Limited By Hunting, Poaching, or Predation.	1. Aerial gunning of coyotes under federal animal damage control programs for domestic sheep protection takes place near many active leks in the PMU. This may provide some benefit for sage-grouse and is expected to continue.
		2. Evaluation of female nesting success (from hunter-collected wings) will continue in both California and Nevada portions of the Buffalo - Skedaddle PMU.
		3. Should nesting success fall below 23%, aggressive predator control measures will be implemented.
		4. The CDFG and NDOW will continue to use season timing, bag limits, and permit hunting systems to carefully limit harvest.
		5. Seasons will continue to be structured to minimize the possibility that harvest could exceed 10% of the estimated fall populations.
		6. Both states will continue law enforcement patrols to help insure that illegal harvest remains minimal.
Forestry	7: Restore 4,251 Acres (0.3% of the PMU) of R-3 Habitat and Recover 97,222 Acres (6.6% of the PMU) of X-3 Habitat Vegetation Communities and Ecological Sites to Their Potential.	<u>In areas where juniper have invaded a site but the site has not crossed a threshold (R-3 to X-3) appropriate conservation actions will include the following:</u>
		1. In nesting habitat, remove primarily seedling and sapling trees leaving some mature juniper for use by native species that require the tree structure, except within 6 km (3.73 miles) of leks.

Program - Activity	Goals	Actions
Forestry	7: Restore 4,251 Acres (0.3% of the PMU) of R-3 Habitat and Recover 97,222 Acres (6.6% of the PMU) of X-3 Habitat Vegetation Communities and Ecological Sites to Their Potential.	2. In brood-rearing habitat, encourage wood and biomass cutting with reseeding of native perennial species.
		3. Winter habitat should be treated using a mixture of mechanical and prescribed fire treatments followed with reseeding of native perennial species.
		NOTE: Recovery of X-3 areas is a highly expensive human intervention using mechanical treatments. Conservation actions apply to nesting, brood-rearing, and winter habitats.
		1. Conservation measures include taking advantage of grants, or large project initiative funding to complete site treatments which include removal of dominant species, and reseeding with a mix of perennial native shrubs, grasses, and forbs.
Noxious Weeds	11: Restrict Herbicide Broadcast Spraying Around Leks, and Lek Complex Associated Habitats.	1. No broadcast herbicide treatments will occur within nesting and brood-rearing habitat unless they are shown to be beneficial to the sagebrush ecosystem and sage-grouse.
		2. Noxious weeds will be controlled using spot treatments focused on the specific infestations.
		3. No broadcast spraying of herbicide within 6 km (3.73 miles) of leks.
		4. From Connelly et al. (2000): *Until research unequivocally demonstrates that using tebuthiuron and similar-acting herbicides to control sagebrush has no long-lasting negative impacts on sage-grouse habitat, use these herbicides only on an experimental basis and over a sufficiently small area that any long-term negative impacts are negligible.*

Program - Activity	Goals	Actions
Noxious Weeds	11: Restrict Herbicide Broadcast Spraying Around Leks, and Lek Complex Associated Habitats.	NOTE: Research from 1998-2000 in the California portion of the PMU showed a strong relationship between mass of females at breeding and persistence and ultimate success of nesting females. Many smaller and lighter females either did not attempt to nest or attempted to nest but did not re-nest as persistently as heavier females. This relationship was found to be independent of the age of females (yearlings or adults). Re-nesting can be considered to be crucial to recruitment in this population because re-nesting females were almost twice as likely to be successful in hatching a brood on their second, rather than first, nesting attempt. These relationships are likely habitat based and are also likely to be strongly influenced by forage quality available to females from pre-breeding (winter) through hatching.

Appendix I

Management of Lands with Wilderness Characteristics

APPENDIX I

MANAGEMENT OF LANDS WITH WILDERNESS CHARACTERISTICS

MANAGEMENT DIRECTION

Management of Lands With Wilderness Characteristics is part of BLM's multiple-use mandate, and is recognized within the spectrum of resource values and uses.

Public lands with wilderness characteristics generally:

- Have been affected primarily by the forces of nature, with the imprint of humans substantially unnoticeable,
- Have outstanding opportunities for solitude or a primitive and unconfined type of recreation,
- Have at least five thousand acres of land or of sufficient size as to make practicable its preservation and use in unimpaired condition, and
- Potentially containing ecological, geological, or other features of scientific, educational, scenic, or historical value.

With exceptions, public lands having wilderness characteristics should be managed to protect these values. In addition, they should augment multiple-use management of the Eagle Lake Field Office and adjacent lands particularly for the protection of watersheds and water yield, wildlife habitat, natural plant communities, and similar natural values.

With exceptions, the following activities generally do not occur within lands having wilderness characteristics:

- Commercial enterprises
- Permanent roads
- Temporary roads
- Use of motor vehicles
- Use of motorized equipment
- Use of motorboats
- Landing of aircraft
- Mechanical transport
- Structures Installations

However, there are exceptions to these prohibitions and they are generally grouped into three categories.

- Valid Existing Rights. Prior-existing rights may continue. New discretionary uses that create valid existing rights are not allowed.
- Administrative Activities. New commercial activities or new permanent roads will not be authorized. BLM may authorize any of the other prohibitions if it is necessary to meet the minimum requirements to administer and protect the lands with wilderness character (called the "minimum requirement exception") and to protect the health and safety of persons within the area.

- Other General Allowances. Subject to limitations determined by the State Director, general allowances could include actions necessary to control fire, insects, and diseases, recurring Federal mineral surveys, established livestock grazing, commercial services to the extent necessary for activities which are proper for realizing the recreational or other wilderness character purposes and compatible with the defined values, and adequate access to in-holdings.

SPECIFIC GUIDANCE

1. Emergencies. The use of motor vehicles and mechanical transport, and the construction of temporary roads, structures, and installations is allowed for emergency purposes and when consistent with the management principles of the Eagle Lake Field Office and the "minimum requirement exceptions."

2. Land Disposals, Rights-of-Ways, Use Authorizations. These lands will be retained in public ownership. They will not be disposed through any means, including public sales, exchanges, patents under the Recreation and Public Purposes Act, color of title Class II, desert land entries (except where a vested right was established prior to October 21, 1976) or State selections. Disposals may be permitted under normal BLM procedures for mining patents, color of title Class I, and desert land entries in which a vested right was established. Prior existing rights, such as leases under the Recreation and Public Purposes Act, leases/permits under 43 CFR 2920, and rights-of-ways (ROWs) may continue. These also could be renewed if they are still being used for their authorized purpose. New authorizations, leases, permit, and ROWs will not be authorized since they are considered new valid rights.

3. Routes of Travel. The construction of new permanent roads will not be allowed. New temporary roads could be allowed if the BLM determines it is consistent with the "minimum requirement exception," if it is necessary to protect the health and safety of persons within the area, or if necessary to control fire, insects, and diseases.

Motorized or mechanized use of the existing routes is allowed subject to prescriptions outlined in the route designation process or stipulations identified in an authorization. Unless stipulated in the plan, any motorized or mechanized uses off those routes of travel will not be allowed.

4. Mining. Existing and new mining operations will be regulated using the 43 CFR 3809 regulations to prevent unnecessary and undue degradation of the lands.

5. Mineral Leasing. Existing mineral leases represent a valid existing right. These rights are dependent upon the specific terms and conditions of each lease. Existing leases will be regulated to prevent unnecessary or undue degradation.

No new surface occupancy leases will be issued. Non-surface occupancy leases may be issued if they will not impact the area's wilderness character. This applies to public lands, including split-estate.

6. Grazing. Existing livestock grazing, and the activities and facilities that support a grazing program are permitted to continue at the same level and degree, subject to any additional prescriptions.

Adjustments in the numbers and kind of livestock permitted to graze would be made as a result of revisions in the land use plan. Consideration is given to range condition, the protection of the range resource from deterioration, and protection of the wilderness character of the area.

The construction of new grazing facilities would be permitted if they are primarily for the purpose of protecting wilderness characteristics and more effective management of resources, rather than to accommodate increased numbers of livestock.

The use of motorized equipment for emergency purposes is allowed.

7. Fire Management. Fire management will be consistent with Bureau policy. Fires must be controlled to prevent the loss of human life or property. They must also be controlled to prevent the spread of fires to areas outside of Lands With Wilderness Character where life, resources, or property may be threatened.

Human caused wildfires will be prevented and/or controlled. It may be appropriate to allow natural fires to burn in conformity with a fire management plan. Prescribed fires are allowed in conformity with a fire management plan so long as it consistent in improving or maintaining the areas wilderness character.

Light-on-the-land fire management techniques will be applied.

New fire management structures are allowed if it is necessary to meet the minimum requirements to administer and protect the Lands With Wilderness Character and to protect the health and safety of persons within the area.

8. Forest/Vegetation Health. Insects, disease, and invasive species may be controlled if determined that it is necessary to meet the minimum requirements to administer and protect these lands.

Insect and disease outbreaks must not be artificially controlled, except to protect timber or other valuable resources outside the Land With Wilderness Character, or in special instances when the loss to resources within these lands is undesirable.

Vegetative manipulation to control noxious, exotic, or invasive species is allowed when there is no effective alternative and when the control is necessary to maintain the natural ecological balances within the area. Control may include manual, chemical, and biological treatment provided it will not cause adverse impacts to the wilderness character.

Where naturalness has been impacted by past timber harvesting, forest stand treatments such as thinnings would be allowed in limited areas, as long as the primary purpose is to accelerate to return these impacted areas to a natural character.

9. Recreation. Primitive and unconfined recreational uses such as hiking, camping, rock climbing, caving, fishing, hunting, trapping, etc. are allowed on these lands. Recreational uses will not be allowed if they require:

- Motor vehicles or mechanical transport (e.g, mountain bikes) off routes designated as open or limited as designated through the route designation process.
- The use of motorboats.
- Permanent structures or installations (other than tents, tarpaulins, temporary corrals, and similar devices for overnight camping).

New commercial services will not be allowed unless they are necessary for realizing the primitive and unconfined recreational values. An example of an allowed commercial service would be an outfitting and guide service. Existing commercial recreational authorizations may be allowed to continue under its terms and conditions to their expiration date.

Recreational or hobby collecting of mineral specimens when conducted without location of a mining claim may be allowed. This use will be limited to hand collection and detection equipment.

10. Cultural and Paleontological Resources. Cultural and paleontological resources are recognized as unique and valuable. They are also important supplemental values to an area's wilderness character.

Resource inventories, studies, and research involving surface examination may be permitted if it benefits wilderness values. This same standard applies for the salvage of archeological and paleontological sites; rehabilitation, stabilization, reconstruction, and restoration work on historic structures; excavations; and extensive surface collection may also be permitted for a specific project.

Permanent physical protection, such as fences, will be limited to those measures needed to protect resources eligible for the National Register of Historic Places and will be constructed so as to minimize impacts on apparent naturalness.

11. Wildlife Management. Fish and wildlife resources are a special feature that may contribute to an area's wilderness character. Whenever possible, these resources should be managed to maintain that character.

Nothing will be construed as affecting the jurisdiction or responsibilities of the State agencies with respect to fish and wildlife management on these lands. Fishing, hunting and trapping are legitimate activities on these lands. The State establishes regulations and enforcement for these uses.

State wildlife agencies and the BLM are responsible for fostering a mutual understanding and cooperation in the management of fish and wildlife. Management activities on these lands will emphasize the protection of natural processes. Management activities will be guided by the principle of doing the minimum necessary to manage the area to preserve its natural character.

Management of public lands having wilderness character will follow the guidelines provided in the Memorandum of Understanding between the BLM and the International Association of Fish and Wildlife Agencies. It will also follow any additional site-specific wildlife decisions addressed through the land use planning process.

Appendix J

Livestock Grazing Allotments

Allot. Number	Allotment Name	Mgt Cat.	Public Acres	Type	Live-stock (No.)	Begin date	End Date	AUMs (No.)	% Public Land
00401	Walton Individual	C	920	Cattle	130	4/16	11/1	94	11
00402	Said Valley	C	1483	Cattle	35	4/16	10/31	229	100
00403	Grasshopper Ridge	M	4165	Cattle	48	5/1	9/1	196	100
00404	Dry Valley South	C	398	Cattle	3	4/16	10/31	20	100
00405	New Bailey Creek	I	17360	Cattle	388	5/1	9/30	1952	100
00405	New Bailey Creek	I	17360	Cattle	14	4/16	9/30	77	100
00406	Williams Individual	M	3080	Cattle	94	5/16	10/31	522	100
00407	Rave A.M.P.	I	29691	Cattle	437	4/1	10/15	2845	100
00408	North Horse Lake	I	24300	Cattle	80	5/15	9/15	326	100
00408	North Horse Lake	I	24300	Cattle	251	4/16	10/31	1642	100
00409	Slate Creek Amp	I	31855	Cattle	198	4/16	10/31	1295	100
00409	Slate Creek Amp	I	31855	Cattle	60	10/31	11/15	32	100
00409	Slate Creek Amp	I	31855	Cattle	85	5/10	9/30	402	100
00409	Slate Creek Amp	I	31855	Cattle	66	4/16	9/15	332	100
00410	Bucks Bay	I	5404	Cattle	167	5/1	9/30	840	100
00411	Hansen Individual	C	1120	Cattle	25	4/14	9/16	128	100
00413	Crest	I	11835	Cattle	34	5/1	9/15	154	100
00414	Snowstorm	I	45480	Cattle	45	4/4	9/30	266	100
00414	Snowstorm	I	45480	Cattle	475	4/1	10/30	3326	100
00415	Erick Allot.	I	2280	Cattle	46	5/1	9/30	231	100
00416	Wood Individual	M	2499	Cattle	50	5/1	9/30	252	100
00417	Cottonwood Fenced	M	1680	Cattle	40	5/10	8/31	150	100
00418	Stone Individual	C	928	Cattle	55	4/1	12/31	50	10
00419	Walsh Mountain	M	5260	Cattle	58	4/16	9/15	292	100
00420	Barron Individual	M	4000	Cattle	30	4/1	8/1	121	100
00421	South Horse Lake	I	41720	Cattle	81	4/1	8/31	407	100
00421	South Horse Lake	I	41720	Cattle	173	4/4	8/31	853	100
00421	South Horse Lake	I	41720	Cattle	98	4/1	8/31	493	100
00421	South Horse Lake	I	41720	Cattle	215	4/1	8/31	1081	100
00421	South Horse Lake	I	41720	Cattle	36	4/1	8/31	181	100
00422	Humphrey 3-C	C	2945	Cattle	37	4/1	5/31	74	100
00422	Humphrey 3-C	C	2945	Cattle	76	4/1	5/31	152	100
00422	Humphrey 3-C	C	2945	Cattle	39	4/1	5/30	77	100
00423	Tablelands	I	16052	Cattle	264	4/1	9/30	1588	100
00424	Coffin Individual	C	1559	Cattle	32	5/1	10/31	194	100
00425	Rice Canyon	I	11520	Cattle	34	4/1	8/31	171	100
00425	Rice Canyon	I	11520	Cattle	267	4/1	6/1	544	100
00426	Willow Creek	I	7124	Cattle	78	4/1	6/30	233	100
00427	Shaffer Mtn.	I	25752	Cattle	268	4/1	9/30	1612	100
00501	Round Valley	C	237	Cattle	2	4/1	11/30	16	100
00502	Jacks Valley	C	323	Cattle	15	10/1	10/31	1	2

Allot. Number	Allotment Name	Mgt Cat.	Public Acres	Type	Live-stock (No.)	Begin date	End Date	AUMs (No.)	% Public Land
00502	Jacks Valley	C	323	Cattle	160	4/11	8/31	15	2
00502	Jacks Valley	C	323	Cattle	150	9/1	9/30	3	2
00503	Ulch	C	240	Cattle	15	4/1	5/15	22	100
00505	Satica	C	920	Cattle	20	6/1	8/29	59	100
00507	East Bald Mountain	I	3000	Cattle	44	4/1	4/30	43	100
00507	East Bald Mountain	I	3000	Cattle	104	4/1	4/30	103	100
00510	North Fort Sage	M	2920	Cattle	27	4/1	10/31	190	100
00511	West Fort Sage	I	6532	Cattle	51	4/1	8/31	257	100
00511	West Fort Sage	I	6532	Cattle	51	4/1	8/31	257	100
00511	West Fort Sage	I	6532	Cattle	54	4/16	8/31	245	100
00512	South Fort Sage	I	4879	Cattle	13	4/16	8/31	59	100
00512	South Fort Sage	I	4879	Cattle	44	4/16	5/31	67	100
00513	Willow Creek Grade	C	2520	Cattle	124	9/1	9/1	4	100
00513	Willow Creek Grade	C	2520	Cattle	16	4/16	5/31	24	100
00513	Willow Creek Grade	C	2520	Cattle	124	4/16	5/31	188	100
00514	Rowland	C	400	Cattle	19	4/16	5/31	29	100
00601	Bonta	C	200	Cattle	24	5/1	5/31	12	50
00603	Harrison	C	520	Cattle	62	9/16	10/15	18	30
00603	Harrison	C	520	Cattle	62	5/1	5/31	19	30
00604	Magee	C	1078	Cattle	141	4/1	5/15	71	34
00605	Dotta	C	120	Cattle	20	7/1	10/31	8	10
00606	Dellera 1	C	440	Cattle	32	4/1	4/30	17	53
00606	Dellera 1	C	440	Cattle	32	7/1	9/15	16	20
00607	Pitchfork	I	40	Cattle	75	5/15	9/15	3	1
00608	Chilcoot Community	I	3040	Cattle	28	5/1	6/30	42	74
00608	Chilcoot Community	I	3040	Cattle	56	5/1	6/30	83	74
00608	Chilcoot Community	I	3040	Cattle	28	5/1	6/30	42	74
00608	Chilcoot Community	I	3040	Cattle	28	5/1	6/30	42	74
00608	Chilcoot Community	I	3040	Cattle	28	5/1	6/30	42	74
00609	Ramelli	C	80	Cattle	2	6/1	10/31	10	100
00612	Steffan	C	1719	Cattle	497	5/16	6/30	120	16
00614	Mcpherrin	C	83	Sheep	776	5/1	10/31	9	1
00615	Mello Canyon	C	603	Cattle	20	5/1	6/30	40	100
00616	Alpers	C	80	Cattle	3	5/16	6/15	3	100
00701	Twin Peaks	I	379788	Cattle	102	4/16	10/31	667	100
00701	Twin Peaks	I	379788	Sheep	4000	4/1	5/30	1578	100
00701	Twin Peaks	I	379788	Sheep	2000	6/1	6/30	395	100
00701	Twin Peaks	I	379788	Sheep	4000	10/1	10/25	658	100
00701	Twin Peaks	I	379788	Cattle	991	4/1	1/31	9970	100
00701	Twin Peaks	I	379788	Sheep	2000	9/16	9/30	197	100
00702	Winter Range, Nv+Ca	I	60277	Cattle	166	11/1	2/28	655	100
00702	Winter Range, Nv+Ca	I	60277	Cattle	95	11/1	2/28	375	100
00702	Winter Range, Nv+Ca	I	60277	Cattle	95	3/1	3/31	97	100
00702	Winter Range, Nv+Ca	I	60277	Sheep	1000	1/10	2/28	329	100
00702	Winter Range, Nv+Ca	I	60277	Cattle	166	3/1	3/31	169	100

Allot. Number	Allotment Name	Mgt Cat.	Public Acres	Type	Live-stock (No.)	Begin date	End Date	AUMs (No.)	% Public Land
00702	Winter Range, Nv+Ca	I	60277	Sheep	2000	3/17	3/31	197	100
00702	Winter Range, Nv+Ca	I	60277	Sheep	1000	3/1	4/10	270	100
00703	Observation	I	149063	Cattle	667	4/15	10/31	4386	100
00703	Observation	I	149063	Cattle	137	4/15	10/31	901	100
00703	Observation	I	149063	Sheep	4000	9/1	9/15	395	100
00703	Observation	I	149063	Sheep	2000	6/1	7/15	296	50
00703	Observation	I	149063	Cattle	108	5/1	10/31	653	100
00703	Observation	I	149063	Sheep	2000	9/16	9/30	197	100
00704	Deep Cut	I	53438	Cattle	763	4/1	6/15	1906	100
00704	Deep Cut	I	53438	Cattle	82	4/16	10/31	494	92
00708	Spanish Springs Ind.	M	958	Cattle	49	5/1	10/30	259	88
00709	Twin Buttes	M	2160	Cattle	24	5/1	10/31	145	100
00709	Twin Buttes	M	2160	Cattle	11	5/1	10/31	67	100
00710	Spanish Springs Amp	I	6986	Cattle	82	5/16	10/15	412	100
00710	Spanish Springs Amp	I	6986	Cattle	139	5/16	10/15	699	100
00711	Shinn Peak	M	4725	Sheep	2000	6/1	7/11	270	50
Total								52250	

Appendix K

Description of Land Health Assessment (LHA) On-The-Ground Procedures

Appendix K.
Description of Land Health Assessment (LHA) On-The-Ground Procedures, and Determination of Acres Represented by Each Sample Site

To date Land Health Assessment (LHA) has been performed on 211,636 acres within the Eagle Lake Field Office area using 273 sample sites. Each sample site was assessed by an Interdisciplinary (ID) Team composed of a hydrologist, soils person, botanist, wildlife biologist/ecologist, and the rangeland management specialist responsible for livestock grazing within the area being sampled. The procedures used during the period from 1999 through present are summarized within this document, and will be used in future LHA work.

Sample sites are chosen using stratified random sampling as follows:

Land Health Field Assessment Procedures:

Land Health Assessment is performed using soils information gathered by the Natural Resources Conservation Service (NRCS) in Order 3 soil surveys. Within an order 3 soil survey each Soil Map Unit (SMU) can contain up to three distinct and dominant soil series, and up to four inclusions which usually do not represent more than 20% of the area within the SMU. Each soil series supports a specific ecological site described by NRCS during the soil survey. These ecological site descriptions are used in determining status of land health.

Stratification of the area was accomplished by:

1. Determining which soil map units are within the total sample area, and which cover the largest proportion of that area.

2. Those most familiar with the area to be sampled provide input as to which specific parts of that area are most representative of the whole.

3. Sites with specific questions or issues are also provided as potential sample areas.

4. Each area is first sampled using a reconnaissance survey.

5. Based on the reconnaissance a sample site is picked that is representative of the soil map unit, consists of one soil series, and covers an area large enough for the ID Team to complete their on-the-ground assessment.

<u>The following on-the-ground assessment activities are completed at each sample site:</u>

1. A hole is dug to confirm the soil series present and to determine if this soil series is a dominant within the soil map unit or an inclusion.

2. The ecological site description is reviewed to insure it is the accurate site for the soil series, and area to be sampled.

3. A complete plant species list is developed by walking over at least two acres. Note: Many plant species lists and assessments are applied over greater than five acres.

4. Five height measurements are recorded for each plant species to provide median plant species heights during evaluation. Note: In the case where less than five individuals of a plant species occur in the site the number of measurements is less than five.

5. Canopy cover provided by each species is recorded using the Braun-Blanquet cover and abundance scale. Cover classes are: 5 - >75% cover, 4 – 50 to75% cover, 3 – 25 to 50% cover, 2 – 5 to 25% cover. Abundance classes include: 1 – species common in the site but provide < 5% cover, + - a few individuals of a species are scattered throughout the site but provide <5% cover, and r – single individual of a species within the site. Note: This scale is also used by the ID Team to complete Appendix 3 *Cover Worksheet.*

6. A 100 point cover transect is paced through some sites to aid the ID Team in maintaining clear pictures of cover classes.

Note: Steps 2, 3, and 4 are additional to the procedure described in Technical Note 1734-6 *Interpreting Indicators of Rangeland Health*, Dated 2000. Estimating cover for each plant species recorded is also beyond the scope of Technical Note 1734-6.

7. The entire ID Team completes Appendices 4 - *Species Dominance Worksheet*, 3 – *Cover Worksheet*, and 1 – *Rangeland Health Evaluation Summary Worksheet* as indicated in Technical Reference 1734 – 6. In those cases where the site being assessed is considered by the ID Team to be qualified as an Ecological Reference Area, Appendix 2 – *Ecological Reference Area Worksheet* is completed along with Appendix 1.

8. Seventeen indicators are used to assess the health of three attributes (Soil/Site Stability, Hydrologic Function, and Biotic Integrity) (See Table 1). The ID Team determines the extent of departure from the ecological site description for each attribute. There are five levels of departure (None to Slight, Slight to Moderate, Moderate, Moderate to Extreme, and Extreme). The "preponderance of evidence" for each of the three attributes relative to the distribution of indicator ratings determines the health of each attribute.

Table1. Land Health Indicators and Their Relation to the Three Attributes of Land Health

Indicators	Soil/Site Stability	Hydrologic Function	Biotic Integrity
1. Rills	X	X	
2. Water Flow Patterns	X	X	
3. Pedestals and/or Terracettes	X	X	
4. Bare Ground	X	X	
5. Gullies	X	X	
6. Wind-Scoured, Blowouts, and/or Deposition Areas	X		
7. Litter Movement		X	
8. Soil Surface resistance to Erosion	X	X	X
9. Soil surface Loss or Degradation	X	X	X
10. Plant Community Composition and Distribution Relative to Infiltration and Runoff		X	
11. Compaction Layer	X	X	X
12. Functional/Structural Groups			X
13. Plant Mortality/Decadence			X
14. Litter Amount		X	X
15. Annual Production			X
16. Invasive Plants			X
17. Reproductive Capability of Perennial Plants			X

Ratings of None to Slight, and Slight to Moderate are considered “Healthy”, Moderate is equivalent to “At Risk”, and Moderate to Extreme and Extreme are “Unhealthy”.

Determination of Acres Represented:

Acres represented by each sample site are determined using a 7.5” (1:24,000) soil map as follows:

1. Total acres are first calculated for the specific SMU sampled within the boundaries of the quadrangle.

2. Total acres calculated for the SMU are than multiplied by the percent, in decimal format, of the soil series sampled. This percentage is given in the SMU description prepared by NRCS in the soil survey documentation.

3. The acres represented by the percent of the soil series within the SMU are adjusted further, as follows:

   a. If the Land Health Assessment is being completed within an administrative unit such as an allotment, and, the unit boundary bisects the specific SMU sampled only those acres within the administrative unit are included.

   b. All sampling is bounded within sixth level watersheds. If a sixth level watershed boundary bisects the specific SMU sampled only the acres within the specific watershed being sampled are used. If the watershed boundary falls inside the allotment boundary only the acres for the allotment that fall within the specific watershed sampled are used.

4. The most conservative acre figure is used as the sample site representative acres for reporting and evaluation purposes.

Appendix L

Wild And Scenic River Eligibility And Suitability

WILD AND SCENIC RIVER ELIGIBILITY AND SUITABILITY

Wild and Scenic River System

The Wild and Scenic Rivers Act of 1968 (Public Law 90-542) was passed by Congress to preserve river systems that contain outstanding features. The law was enacted during an era when many rivers were being dammed or diverted, and is intended to balance this development by ensuring that certain rivers and streams remain in their free-flowing condition. The BLM is mandated to evaluate stream segments on public lands as potential additions to the National Wild and Scenic Rivers System (NWSRS) during the Resource Management Plan (RMP) Process under Section 5(d) of the Act. The NWSRS study guidelines are found in BLM Manual 8351, U.S. Departments of Agriculture and Interior Guidelines published in Federal Register Vol. 7, No.173, September 7, 1982 and in various BLM memoranda and policy statements. Formal designation as a Wild and Scenic River requires Congressional Legislation, or designation can be approved by the Secretary of Interior if nominated by the Governor of the state containing the river segment. The following discussion provides information on how BLM considered waterways for potential inclusion in the NWSRS.

The NWSRS study process has three distinct steps:

- Determine what rivers or river segments are eligible for NWSRS designation;
- Determine the potential classification of eligible river segments as wild, scenic, recreational or any combination thereof; and
- Conduct a suitability study to determine if the river segments are suitable for designation as components of the NWSRS.

This report documents all three steps of the process for the streams in the planning area.

Eligibility of Streams in the Eagle Lake Field Office

Identification

A variety of sources were reviewed to identify waterways which could have potential for wild and scenic river designation. They include the Nationwide Rivers Inventory List, the Outstanding Rivers List compiled by American Rivers, Inc., river segments identified in the riparian inventory (2002), and river segments identified by the planning team as having potential to meet Wild and Scenic River eligibility requirements.

The Wild and Scenic Rivers Act defines a river as a “flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes.”

Eligibility Determination

Each identified river segment was evaluated to determine whether it is eligible for inclusion in the NWSRS. To be eligible, a river segment must be “free flowing” and must possess at least one “outstandingly remarkable value” (ORV). These ORVs include the following values:

- Scenic
- Recreational
- Geological

- Fish
- Wildlife
- Historical
- Cultural
- Ecological
- Riparian
- Botanical
- Hydrological
- Scientific

To be considered as "outstandingly remarkable," a river related value must be a unique, rare, or exemplary feature that is significant at a comparative regional or national scale. Only one such value is needed for eligibility. All values should be directly river related, meaning they should:

- Be located in the river or on its immediate shorelands (generally within ¼ mile on either side of the river);
- Contribute substantially to the functioning of the river ecosystem; and/or
- Owe their location or existence to the presence of the river.

These are the only factors considered in determining the eligibility of a river segment. All other relevant factors are considered in determining suitability. A river need not be navigable by watercraft to be eligible. For purposes of eligibility determination, the volume of flow is sufficient if it is enough to maintain the outstandingly remarkable value(s) identified within the segment.

Table L-1 summarizes the eligibility evaluation of all identified river segments. The table includes information on the length of stream segments studied, indicates if outstandingly remarkable value(s) are present, and identifies the potential classification of each eligible segment.

Classification

The Wild and Scenic Rivers Act and subsequent interagency guidelines provide the following direction for establishing preliminary classifications for eligible rivers:

- **Wild Rivers:** Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- **Scenic Rivers:** Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- **Recreational Rivers:** Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Suitability of Streams

Segments displayed in Table L-1 were found to be eligible for inclusion into the NWSRS. Section 4(a) of the Wild and Scenic River Act mandates that all rivers found eligible as potential additions to the

NWSRS be studied as to their suitability for such a designation. The purpose of the suitability study is to provide information upon which the President of the United States can base his recommendation and Congress can make a decision.

The study report describes the characteristics that do or do not make the stream segment a worthy addition to the system, the current status of land ownership and use in the area, the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the system, and several other factors. The suitability study is designed to answer these questions:

- Should the river's free–flowing character, water quality, and outstandingly remarkable values (ORV) be protected, or are one or more other uses important enough to warrant doing otherwise?
- Will the river's free-flowing character, water quality, and ORVs be protected through designation? Is it the best method for protecting the river corridor? (In answering these questions, the benefits and impacts of wild and scenic river designation must be evaluated, and alternative protection methods considered.)
- Is there a demonstrated commitment to protect the river by any nonfederal entities that may be partially responsible for implementing protective management?

Pursuant to Sections 4(a) and 5(c) of the Wild and Scenic Rivers Act, the following factors were considered and evaluated as a basis for the suitability determination for each river.

- Characteristics that do or do not make the area a worthy addition to the NWSRS.
- The current status of land ownership, minerals (surface and subsurface), and use in the area, including the amount of private land involved and associated or incompatible uses.
- The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS. Historical or existing rights which could be adversely affected.
- The federal agency that will administer the area should it be added to the NWSRS.
- The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area should it be added to the NWSRS.
- A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.
- An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.
- Federal, public, state, local, or other interests in designation or non-designation of the river, including the extent to which the administrator of the river, including the cost thereof, may be shared by state, local, or other agencies and individuals. Support or opposition to the designation.
- The consistency of designation with other agency plans, programs or policies and in meeting regional objectives.
- The contribution to river system or basin integrity.
- The ability of BLM to manage the river segments under designation, or ability to protect the river area other than Wild and Scenic designation.
- The potential for water resources development.

Table L-1. Eagle Lake Field Office Wild and Scenic River Inventory

The following table lists all streams that were evaluated in the Eagle Lake Field Office jurisdiction for eligibility under guidelines of the Wild and Scenic River Act, as specified in BLM Manual 8351.31C, Eligibility Evaluation.

Inventoried Streams	X—Identified Outstandingly Remarkable Values[1/] P—Potential Outstandingly Remarkable Values[2/]										
General Area/Stream Name	Free Flowing	Scenic	Recreational	Geologic	Wildlife	Fish	Cultural		Botanic/ Ecologic	Hydrologic/ H2O Quality	Meets Eligibility Criteria
							Prehistory	History			
Susan River [3/]	Yes	X	X	X	X			X	X		X
Willow Creek[3/]	Yes	X	X				X	X			X
Smoke Creek - Upper[3/]	Yes	X				X	X	X			X
Smoke Creek - Lower[3/]	Yes	X	X	X	X	X		X	X		X
Snowstorm Creek	Yes	P				P	P				
Buffalo Creek - North Fork	Yes	P						P			
Skedaddle Creek - Lower	Yes							P			
Pine Creek, East Side Fredonyer Pk[3/]	Yes										
Petes Creek[3/ 4/]	Yes										
Secret Creek[3/]	Yes										
Rush Creek	Yes										
Buffalo Creek - Parsnip Wash	Yes										
Buffalo Creek - West Fork[3/]	Yes										
Buffalo Creek - Middle Fork[3/]	Yes										
Buffalo Creek - Main Branch*	Yes										
Skedaddle Creek - Upper	Yes										
Willow Creek - Twin Peaks WSA	Yes										
Cottonwood Canyon[3/]	Yes										
Cheney Creek[3/]	Yes										
Red Rock Creek[3/]	Yes										
Shoals Creek[3/]	Yes										
Stony Creek[3/]	Yes										

[1/] See narrative explanations for Outstandingly Remarkable Values, ELFO RMP, Chapter 3, pages 3-91 through 3-100.

[2/] Upon further evaluation by ELFO staff, values rated as “P” were not considered to meet the criteria for Outstandingly Remarkable Values needed to qualify these streams for designation into the National Wild and Scenic Rivers System. These stream segments were therefore dropped from further evaluation.

[3/] These streams have stream surveys which are listed in Appendix M. 2003 Stream Survey Summaries by Stream and Watershed.

[4/] Streams that have no “X” or “P” listed for them were determined to have no outstandingly remarkable values, after evaluation by the ELFO interdisciplinary team.

Table L- 2. Wild and Scenic Rivers Eligibility and Classification - Eagle Lake Field Office

River	Segment	Length (miles)	Outstandingly Remarkable Values	Proposed Classification
Susan	1 mile west of Devil's Corral to Hobo Camp adjacent to Susanville and within the Bizz Johnson National Recreation Trail Special Recreation Management Area	8	Scenic Recreational Geologic Historic Wildlife Botanical	Recreational
Willow Creek	Within Tunnison WSA	8	Scenic Recreational Cultural	Wild
Upper Smoke Creek	From Big Springs to Smoke Creek Reservoir and within a portion of Twin Peaks WSA	10.6	Scenic Recreational Cultural	Wild
Lower Smoke Creek	Within Lower Smoke Creek Canyon adjacent to Smoke Creek Road and within Dry Valley Rim WSA	3.2	Scenic Geologic Cultural Historic	Recreational

Appendix L-3. Wild and Scenic Rivers Suitability Determination

Four river segments discussed in Chapter 3 were found to be eligible for inclusion into the National Wild and Scenic Rivers System (NWSRS). Evaluation of these rivers in federal land use plans is required by Section 5 (d)(1) of the Wild and Scenic Rivers Act with evaluation of eligibility based on requirements of Section 1(b) of the Act. Section 4(a) of the Wild and Scenic River Act mandates that all rivers found eligible as potential additions to the NWSRS be studied as to their suitability for such a designation. The purpose of this study is to provide information upon which the President of the United States can base his recommendation and Congress can make a decision. The suitability study report describes the characteristics that do or do not make the stream segment a worthy addition to the system, the current status of land ownership and use in the area, the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the system, and several other factors. The suitability study is designed to answer these questions:

1. Should the river's free-flowing character, water quality, and Outstandingly Remarkable Values (ORVs) be protected, or are one or more other uses important enough to warrant doing otherwise?

2. Will the river's free-flowing character, water quality, and ORVs be protected through designation? Is it the best method for protecting the river corridor? (In answering these questions, the benefits and impacts of wild and scenic river designation must be evaluated, and alternative protection methods considered.)

3. Is there a demonstrated commitment to protect the river by any nonfederal entities that may be partially responsible for implementing protective management?

To answer to the three questions above, and pursuant to Sections 4(a) and 5(c) of the Wild and Scenic Rivers Act, the following factors were considered and evaluated as a basis for the suitability determination for each river:

1. Characteristics that do or do not make the area a worthy addition to the NWSRS.

2. The current status of land ownership, minerals (surface and subsurface), and use in the area, including the amount of private land involved and associated or incompatible uses.

3. The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS. Historical or existing rights could be adversely affected.

4. The federal agency that will administer the area should it be added to the NWSRS.

5. The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area should it be added to the NWSRS.

6. A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.

7. An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

8. Federal, public, state, local, or other interests in designation or non-designation of the river, including the extent to which the administration of the river, including the cost thereof, may be shared by state, local, or other agencies and individuals; support or opposition to the designation.

9. The consistency of designation with other agency plans, programs, or policies and in meeting regional objectives.

10. The contribution to river system or basin integrity.

11. The ability of BLM to manage the river segments under designation, or ability to protect the river area other than Wild and Scenic designation.

12. The potential for water resources development.

These factors are discussed below for each eligible river segment.

Upper Smoke Creek

The following are general questions which the suitability determination must answer.

1. *Characteristics that do or do not make the area a worthy addition to the NWSRS.*

a. Unimpeded Flow

Smoke Creek is free-flowing from its source at Big Spring, through 13 miles of public and private lands, to where it enters Smoke Creek Reservoir (a privately-owned impoundment above Rock Springs Ranch, formerly called Smoke Creek Ranch). The eligible segment begins 1.5 miles downstream from Big Spring and extends to the reservoir. Approximately 10.6 miles of this 13 mile free flowing stretch is eligible because it is continuous, free-flowing, and publicly owned—except for a small portion of undeveloped private land halfway through this creek segment.

Flow rates are low (< 2 - 10 ft.^{3} per second during most of the year). Smoke Creek's volume increases slightly in the 10.6 miles between Big Springs and Smoke Creek Reservoir. Many small springs contribute small overland flows to Smoke Creek as it flows across a broad volcanic tableland before flowing into Smoke Creek Reservoir. Average flows in the lower portion of the eligible segment are estimated to be no more than 10 ft.^{3} per second during most of the year. Higher flows occur during storm events in the fall through winter. No stream gage is located along this stream segment however flow measurements were conducted by the U.S. Geological Survey at various locations along Smoke Creek in July and November of 1989. Results of the two sampling periods showed flows at Big Springs the source of Smoke Creek, to be 1.5 cfs in July and 1.4 cfs in November; flows from various springs that contribute to Smoke Creek ranged from less than .5 cfs up to 1.2 cfs, and flows in Smoke Creek above the confluence with Al Shinn Canyon, approximately 1.5 miles above Smoke Creek Reservoir, were between 5.3 cfs in July and 5.8 cfs in November (USDI –USGS, Water Resources Investigations Report 93-4043).

b. Outstandingly Remarkable Values

Upper Smoke Creek is a small desert stream which is considered to be a high-quality example of watersheds within the context of the Modoc plateau. The creek's origin at Big Spring begins with clear, cool water bubbling out of nearly flat ground in a series of springs, creating an immediate flow of approximately 1.5 ft.^{3} per second. Most other creeks in the area begin from side-hill springs. Big Spring wells up at the head of a broad, volcanic tableland comprised of Pleistocene basalt near the southeast slopes of Observation Peak (an extinct volcano).

The tableland through which the creek flows is a sagebrush-steppe ecosystem characterized by low shrubs and grasses on the uplands with wetland grasses and sedges along the creek. Throughout the 13 miles along which the upper portion of Smoke Creek is free-flowing, it remains small and shallow--but deep enough to support the Lahontan assemblage of species and a healthy and diverse fishery (including rainbow trout).

Scenic Values

The four-mile stretch upstream from Smoke Creek Reservoir possesses 'outstandingly remarkable scenic values.' In this area especially, the geological and visual contrasts with the surrounding volcanic tablelands are sharp and impressive. A rich green ribbon of aquatic plants along a meandering creek is flanked by contrasting walls of vertical black basalt rising 200 to 400 feet to the arid, volcanic tableland above.

Further upstream, Smoke Creek flows through an open, shallow canyon enclosed by rimrock that rises 20 to 40 feet to the tableland above. Scenic values and contrasts in this area are primarily associated with flowing water and seasonal color changes of the (primarily grassy) riparian habitats along the creek. Some of the most interesting contracts are between the dark rock and the bright greens, reds, and whites of the lichens with which they are covered. Rock art is present in some areas and there are expansive views of the upper basin across a flat, gray-green sagebrush landscape. These flats gradually rise in gentle slopes to steep-sided mountains covered, for most of the year, with the golden hues of dried grasses.

Recreational Values

Upper Smoke Creek also has 'outstandingly remarkable values' as a recreational destination for hikers, hunters, fishermen, and those wishing to view and experience this perennial, arid-land stream and its associated flora and fauna. Pronghorn, mule deer, waterfowl, and sagebrush-dependent birds and mammals are common; as are the Lahontan assemblage of aquatic wildlife. There is opportunity to catch rainbow trout while fishing in an interesting and unique desert ecosystem. Actual human activity has not been quantified. However, based on the scarce evidence of visible foot traffic through the canyon, use is thought to be light.

Cultural Resources

Upper Smoke Creek is part of Bruff's Rock Historic and Prehistoric National Register District. Bruff's Rock was the first recorded rock art site in the western United States. The area contains a high density of rock art on its many low, vertical rock faces. BLM-California, together with the California state historic preservation officer, has found it eligible for certification as a 'historic district.' NRHP (National Register of Historic Places) certification is pending. Smoke Creek provides 'outstandingly remarkable' opportunities to view concentrations of Native American rock art. Many of the low rimrock areas along the first 5 miles below Big Spring contain an abundance and diversity of Petroglyphs.

Geology

Smoke Creek flows across and through relatively recent quaternary basalt—a situation that is common throughout the region. For this reason, its geology is unremarkable. However, it provides a characteristic representation of area geology.

2. *The current status of land ownership, minerals (surface and subsurface), and use in the area, including the amount of private land involved and associated or incompatible uses.*

a. Land Ownership

About 90% of the eligible segment is public land. There is one area of undeveloped private land (approximately 1 mile) in the middle portion of upper Smoke Creek, on both sides of the creek north of Shinn Ranch. There's also a 1.5 mile section of private land above the eligible segment that extends to Big Spring. The private land along Smoke Creek north of Shinn Ranch and Big Spring are controlled by Jackrabbit Properties, LLC. The same party owns the private section between the lower end of the eligible segment and Smoke Creek Reservoir. Adjacent to and downstream of the Jackrabbit property north of Shinn Ranch is approximately ¼ mile of land along Smoke Creek acquired by the California Wildlife Conservation Board in 2003.

b. Land Use

About six miles of Upper Smoke Creek (at the lower end of the eligible segment) falls within the Twin Peaks WSA. These lands are managed under the Wilderness IMP. The IMP does not permit the BLM to conduct, permit, or authorize any activity that might compromise the wilderness values of the area, until such time as Congress makes a determination regarding wilderness designation. This management would also protect the 'outstandingly remarkable values' of this portion of the eligible segment. For the rest of the eligible segment—including adjacent uplands--management is in strict adherence to the BLM's land health standards and guidelines. In particular, livestock are excluded from the creek, its riparian areas, and associated uplands—except for a few gaps that permit livestock and wild horses to water at the creek. There are no trees of commercial value along the creek. There is some scattered juniper, but it is inaccessible and has not been cut for firewood (other than an occasional limb or tree cut for fence posts or a hunter's campfire).

Current management has been successful at preserving scenic qualities, riparian habitats, archaeological sites, and high-quality recreation. This would continue under the proposed RMP. Visual resources would remain as VRM Class II in the segment of Smoke Creek upstream of and outside Twin Peaks WSA(and become Class I if designated as a Wild River). Within the Twin Peaks WSA the visual resouces are managed to meet VRM Class I objectives. Relative inaccessibility (walk-in access to the creek) serves to protect cultural resources and opportunities for primitive recreation. WSR designation would lend further support to this management, by ensuring that it persists over the long-term and eliminating the possibility of dam construction or water diversions.

c. Mineral Status and Activity

There is no evidence of past surface or subsurface mining along Upper Smoke Creek or within its canyon prior to 1979. No surface disturbing activities have been allowed within the Twin Peaks WSA, which includes the eligible segment, since 1979 when the WSA was established. Mining claims could still be established, however, this is highly unlikely, since mineral values associated with quaternary basalt are known to be very low. Since 1979, extraction of saleable and leasable minerals within the Twin Peaks WSA has been closed according to the Wilderness IMP.

3. *What are the reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS. Historical or existing rights which could be adversely affected.*

a. Enhanced Use

These would include enhancement or protection of scenic values and quality hiking, hunting, desert stream fishing, and viewing of wildlife and cultural sites (petroglyphs and pictographs).

b. Foreclosed (or Curtailed) Use

The possibility of dam construction and/or water diversion within the designated segment (10.6 miles) would be eliminated with minor exceptions for small diversions that would not adversely affect the outstandingly remarkable values that a wild river designation would be established to protect (such exceptions for water diversions have been established in some cases in the enabling legislation for a specific Wild and Scenic River designation). However, from an economic perspective, the prospect of a dam or water diversion is marginal at best because of very low and unreliable average flow patterns on Upper Smoke Creek. Also, most of the flow is already appropriated in Smoke Creek Reservoir, where it is employed for agricultural use. Therefore, foreclosing the possibility of constructing a dam or water diversion is not considered to be a foreseeable effect of designation. Existing water rights would not be affected by this designation. All privately held waters originating on private lands flow through the recommended suitable segment and are utilized on private lands down stream.

4. *Which federal agency would administer the designated river segment should it be added to the NWSR system?*

The BLM is the sole federal land-management entity along Upper Smoke Creek and would take responsibility for administration of the designated segment.

5. The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area should it be added to the NWSRS.

a. What would be the costs implicit in acquiring the necessary lands, and interests in lands?

Costs incurred from WSR designation would be low because approximately 90 % of the 10.6 miles of Upper Smoke Creek and adjacent canyonlands are already federally-owned. The BLM would attempt to acquire the 1 mile of private land within the eligible segment from willing sellers with or without WSR designation. If made available, the private lands upstream from the recommended segment--including Big Spring itself—would also be acquired. Acquisition could take the form of direct purchase, exchange, or a conservation easement—whatever is necessary to keep the land undeveloped and provide legal public access to Smoke Creek.

b. What would be the cost of administering the (proposed) Upper Smoke Creek Wild and Scenic River?

Additional costs associated with WSR designation would be low. The principal costs would be maintenance of livestock exclosure fencing and the acquisition of private lands to ensure ecosystem continuity and legal public access. However, these actions would be pursued with or without WSR designation. There would also be a cost in developing and distributing visitor information concerned with the area's cultural resources and promoting low-impact use of Smoke Creek.

6. A determination of the degree to which the State (or its political subdivisions) might participate in the protection and administration of the river, should it become part of the national wild and scenic river system.

California DFG would continue to have direct jurisdiction over wildlife and fish in and adjacent to the river corridor. Other state and local agencies would likely participate in coordinated planning for the corridor, but the primary management responsibility and funding would remain with the BLM.

7. An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

Over 90% of the corridor is made up of BLM managed lands while the remaining private lands are zoned Upland Conservation-2 that limits private development. Currently, existing land use controls are considered effective in protecting the values of the segment.

8. Federal, public, state, local, or other interests in designation or non-designation of the river, including the extent to which the administration of the river, including the cost thereof, may be shared by state, local, or other agencies and individuals; support or opposition to the designation.

The State of California has its own wild and scenic river system, but has not identified Smoke Creek for study or protection.

The Lassen County community development director (who represented the County in the development of alternatives for this RMP) supports WSR designation because of the benefits to wildlife and recreation that such designation would provide. There is very little potential for reservoir development on this segment of Smoke Creek; therefore, policies in support of reservoir construction in the Lassen County General Plan-2000 (Water Resources, policies NR #20–24) are not being applied to this segment of Upper Smoke Creek. For these reasons, the County Board of Supervisors is expected to support WSR designation.

Support for designation is expected from individuals and groups that use and enjoy Smoke Creek. Support is also expected from the California Wilderness Coalition and Friends of the River (a California-wide river protection and advocacy group).

Support for designation was provided to BLM from the Pyramid Lake Paiute Tribe during the RMP public comment period, July 2006.

9. What is the level of support versus the level of opposition to wild and scenic river designation for Upper Smoke Creek?

The Lassen County community director (who represented the County in the development of alternatives for the RMP) supports WSR designation because of benefits to wildlife and recreation that such designation would provide. There is very little potential for reservoir development on this segment of Smoke Creek; therefore, policies in support of reservoir construction in the Lassen County General Plan-2000 (Water Resources, policies NR #20-24) are not being applied to this segment of Upper Smoke Creek. For these reasons, the County Board of Supervisors supports WSR designation.

Support for designation is expected from individuals and groups that use and enjoy Smoke Creek. Support is also expected from California Wilderness Coalition and Friends of the River (a California-wide river protection and advocacy group).

Support for designation was provided to BLM from the Pyramid Lake Paiute Tribe during the RMP public comment period, July 2006.

Support for protecting of Smoke Creek as a free-flowing stream is expected from numerous local residents and area visitors—based on a northeastern California outdoor recreation market study. The study polled outdoor recreation activity preferences and use-patterns of regional residents. It was conducted to provide data for the preparation of this RMP (Northeastern California Outdoor Recreation Market Analysis, Tierney and Rosegard, 2002). Results of the analysis showed that the most popular outdoor recreation activities on federal lands in northeastern California and northwestern Nevada are: day-hiking, camping, fishing, site-seeing, and wildlife viewing. Over 68% of area residents felt that maintaining the region's natural, undeveloped appearance and scenic vistas was extremely important. In a separate population sample from the same study—this time conducted in northern California—agreement (at 82%) was even stronger. Results indicate that protecting the free-flowing character and natural setting of Smoke Creek would have very strong local, regional, and visitor support.

10. The consistency of designation with other agency plans, programs, or policies and in meeting regional objectives.

Designation would be consistent with:

- The Lassen County 2004 Economic Development Strategic Plan; Economic Development Policy #5, Tourism Promotion and Development (p. 6); where it says: "Capitalize on the beauty, wildlife and abundant open space in Lassen County by promoting compatible tourism and visitor services."
- The Lassen County General Plan–2000 includes this statement: "The basic resource of the recreation industry in Lassen County is its natural scenic quality. This quality must be protected, enhanced and appropriately exploited." Lassen County's emphasis on protecting its natural scenic resources, plus trail development and maintenance and promotion of special outdoor recreation events, support protecting the free-flowing character of Smoke Creek for the use and enjoyment of residents and visitors to Lassen County.
- Designation of the eligible segment supports Lassen County's official policy of protecting scenic resources. The presence of a wild and scenic river would enhance Lassen County's reputation as a premier outdoor recreation destination.
- The Lassen County Chamber of Commerce systematically promotes enjoyment of the County's natural resources for fishing, hunting, and sight-seeing. Protecting the free-flowing character of Smoke Creek is consistent with their message of espousing Lassen County as a sportsmen's vacation destination.

11. The contribution to river system or basin integrity.

Currently, there is no free-flowing perennial stream on the Modoc Plateau that is part of the National Wild and Scenic River System. Furthermore, there is no WSR in the northwestern region of the Great Basin. In fact, Smoke Creek is one of a handful of perennial streams in the entire region. Designation of this river segment would preserve unique characteristics—such as a stream that originates where cold water bubbles from the ground; flows through a broad, volcanic tableland; then plunges into a canyon 200 to 400 feet deep. The river is surrounded by two wilderness study areas and affords a multiplicity of primitive recreational opportunities for visitors. These include the opportunity to hike, hunt, and view wildlife such as pronghorn, deer, sage-grouse, quail, dove, chukar, and many other sagebrush-steppe species in wildland setting. Designation would also protect the distinctive aquatic environment of this desert stream as well as its riparian and adjacent upland areas.

The area's cultural heritage would be preserved for present and future generations of Native Americans and visitors who come to the area for spiritual renewal.

12. The ability of BLM to manage the river segments under designation, or ability to protect the river area other than Wild and Scenic designation.

The BLM manages over 90% of the land within the corridor, so has the ability to manage the river under WSR designation. The proposed RMP contains management goals and objectives that would provide a level of protection to the corridor with or without WSR designation. Almost half of the segment is also within a Wilderness Study Area, so that area is also afforded protection under the BLM Wilderness IMP.

13. What is the potential for water resource development?

As much as 1,300 acre-feet/year is captured in the Smoke Creek Reservoir--a private impoundment immediately downstream from the recommended suitable segment. The shallow canyon profile along all but the lower two miles of the eligible and recommended suitable segment is not well suited for reservoir development

Upper Smoke Creek has little to no potential for surface water developments due to very low flows and ongoing appropriation of what little flow there is. BLM is not aware of any studies that could justify surface water development along Upper Smoke Creek (Sorvaag, 8-31-05). A 1988 – 1990 study done by the U.S. Geological Survey (Water Resources Investigation Report 93-4043) was prepared to analyze the entire Smoke Creek Desert Watershed, a much larger area than the Smoke Creek watershed alone. The study was undertaken to evaluate surface and ground water resources in this large area in order to determine if the area has potential to provide water for growth in the Reno/Sparks area. Results of surface flow measurements on Smoke Creek in 1989 are described in item #1 a. of this report and show that surface flows are very low.

On April 6, 2005, Granite Fox Power, LLC filed for Nevada water rights to pump 14,779 acre-feet of groundwater from wells to be drilled on private land at the edge of the Smoke Creek Desert on the lower end of Smoke Creek. The filing area begins twelve miles downstream from the eligible segment of Upper Smoke Creek. This groundwater--along with additional water pumped from two other desert aquifers--was proposed to be used to operate a proposed 1,450 megawatt coal-fired power plant planned by SEMPRA Energy Company on a site near Gerlach, Nevada. Project proponents have since cancelled plans for the power plant, however interest in using the ground water resources that they investigated remains, with current interest in using water from Smoke Creek and its ground water resources to support development in the Reno/Sparks Area (Todd Jaksick, 9-28-2006).

Recommendation/Rationale

The entire eligible segment of Smoke Creek (10.6 miles) is recommended for WSR designation with a Wild classification. The primary rationale for recommending Smoke Creek as suitable was the exceptional combination of outstandingly remarkable values that make it a worthy addition to the National Wild and Scenic River System. The segment's wild character, scenic beauty, outstanding recreation opportunities, in-tact Great Basin ecosystem, and significant cultural values, combine to make the segment a worthy addition.

Specifically:

- Upper Smoke Creek is a small desert stream which is considered to be a high-quality example of watersheds within the context of the Modoc plateau.
- Upper Smoke Creek includes the first recorded rock art site in the western United States.

- The corridor supports the Lahontan assemblage of species and a healthy and diverse fishery (including rainbow trout).
- In addition to these primary values, the watershed also provides significant wildlife habitat in a desert ecosystem where water is critical, as well as outstanding recreation opportunities for those seeking an experience of solitude in a Great Basin landscape.

Several manageability factors also support the recommendation including:

- No land ownership or potential uses would be in conflict or curtailed if the segment were designated.
- Costs involved in acquiring necessary lands and interest in lands would be low, as the BLM already manages the majority of land in the suitable corridor.
- Designation would protect the free flowing nature of this desert watershed while allowing existing water uses to continue.

Protective Management

All river segments found to be eligible for inclusion in the NWSRS are placed under protective management by the BLM. Subject to valid existing rights, the BLM is required to protect the freeflowing characteristics and outstandingly remarkable values in the stream corridors. The BLM must also protect the corridor from modifications that would impact the tentative river classification (i.e., change the classification potential from Wild to Scenic, or from Scenic to Recreational). These management restrictions apply only to public lands. Eligible river segments in this RMP include the Susan River, Upper and Lower Smoke Creek and Willow Creek (See Chapter 2.14). Once suitability is determined and the Record of Decision (ROD) for the RMP signed, protective management continues only for those segments found suitable for designation – In this RMP, only upper Smoke Creek is recommended suitable. This protective management remains in effect until Congress makes a final decision regarding designation, or the RMP is amended.

Susan River

1. *What characteristics do or do not make the area worthy addition to the system?*

a. Unimpeded Flows

There are no impediments to flow of the Susan River along the eligible segment. Releases from McCoy Flat and Hog Flat reservoirs, two meadow reservoirs upstream of the Susan River Canyon, provide flows that were historically absent late in the season during low water years. Natural flows range from lows of 5 to 10 cubic feet per second (cfs) in late summer after irrigation releases end to normal spring run off that ranges from 100 to 1000+ cfs. Flood flows are considered to occur above 2,300+ and have exceeded 5,000 cfs (Dossey, 11-21-03). After spring runoff subsides, irrigation releases from the two upstream reservoirs usually range from 40 to 100 cfs. Flow information is based on the California Department of Water Resources stream gage listed as “Susan River at Susanville (SSU)”, Latitude 40.4130 N, Longitude 120.6640 W. These flows contribute to the scenic and recreational values of the river.

b. Outstandingly Remarkable Values Scenery

The Susan River Canyon is located at the juncture of three major geological and ecological provinces; namely, the Sierra Nevada, the Cascades, and the Great Basin. This accounts for a striking diversity in geomorphology, vegetation, and wildlife. The eligible segment flows through several different upland zones; notably, pine and fir woodlands, and a variety of arid, shrubland habitats. Riparian habitats are characterized by willow thickets and groves of mature cottonwoods.

These provide exceptional scenic beauty—especially in the fall. The landscape is punctuated by interesting and dramatic volcanic features such as columnar basalt bluffs, cliffsides of agglomerate, and lava flows atop beds of volcanic ash. As the river meanders through its canyon, it drops over ledges and briefly comes to rest in quiet pools amongst rounded river gravels and large, polished boulders.

Geology

The Susan River has slowly eroded through a transition zone between the Sierra Nevada and Cascade geomorphic provinces both of which are adjacent to and include a potion of the western edge of the Great Basin. The erosion of the Susan River has exposed basement materials of Cretaceous granite and basaltic substrates from the Miocene through Pleistocene eras, as well as pyroclastic rock and andesitic lava flows. Volcanic features of the Susan River Canyon, not previously mentioned, include lava dikes and pinnacles of volcanic ash. The juxtaposition of the three geomorphic regions and their geologic features all in one river canyon combine to make this an outstandingly remarkable area from a geological standpoint.

Recreation

The Susan River provides outstanding recreational opportunities, beginning on the very edge of Susanville. Major, river-related activities include fishing, swimming, tubing and environmental education. Whitewater kayaking also occurs. Self contained camping is available along the river banks. Convenient public access is provided by the Bizz Johnson Trail (a converted railroad grade), which follows the river for 16 miles. The trail is extensively used for walking, running, bicycling, horseback-riding and access to the river. The merits of this trail have been repeatedly touted in guidebooks and outdoor magazines as one of the most scenic “rail trails” in the nation.

The value of the eligible segment is greatly enhanced by the presence of the Bizz Johnson Trail, because of its sustained and intimate connection with the river. Construction of a railway through the tight, narrow confines of the Susan River Canyon required one wooden trestle, ten steel bridges, plus two massive tunnels. These same structures now permit easy and convenient access to a rugged canyon that would otherwise be too time-consuming, difficult or inaccessible for many users. The bridges are good places to pause and enjoy the tranquility of the river. “Hobo Camp” (so-named for its depression-era origins), is now a BLM day-use area; and very popular for fishing, picnicking, swimming, and ‘tubing.’ Use estimates for fiscal year 2004 (10/01/03–9/30/04) show that 51,000 people used the Bizz Johnson Trail and associated trailhead facilities. An additional 33,000 people used the Hobo Camp day-use area. Total use is estimated at 86,000 visitors for fiscal year 2004—the highest of any BLM-managed area in northeastern California.

The Susan River and Bizz Johnson Trail are extensively used throughout the year. However, river-use is greatest in spring—when the fishing is best—and in summer when water temperatures are high and conditions for swimming and ‘tubing’ are ideal. Use declines when streamflow is very low; however, even then there are still many pools that are two to three feet deep, and a few that are much deeper, so that—even at its lowest—the river can still be used for swimming and water-play activities.

Congress named the trail the Bizz Johnson Trail in honor of former northern California Congressman Harold T. “Bizz” Johnson through a provision of the National Trails System Act Amendment in 1983. Also in 1983, BLM designated the BLM managed portion of the trail and the Susan River and the Susan River Canyon east of the Lassen National Forest as the Bizz Johnson Trail Special Recreation Management Area (SRMA). The Secretary of Interior designated the Bizz Johnson Trail as a National Recreation Trail in 1992.

Biology

Riparian habitats within the segment contain an abundantly diverse collection of plant and animal species. This is due, in part, to widely-varied upland habitats in close proximity to well-developed riparian areas. As previously mentioned, this has resulted from the unique position of the Susan River Canyon with respect to three major geological and ecological provinces; namely, the Sierra Nevada, the Cascades, and the Great Basin. Despite this, the river does not support the full native assemblage of Lahontan fish species that once existed in this river. Game fish are primarily rainbow trout--most of which are (annually-planted) hatchery stock. The eligible segment includes two rare plants. These are Susanville penstemon (or Susanville beardtongue) (Penstemon sudans) and Susanville milkvetch (Astragalus inversus). Both are endemic to the Modoc Plateau. Susanville milkvetch has the wider distribution. Susanville penstemon has been added to the California Native Plant Society's "1b" list of rare, endangered or threatened plants and is only found on the eastern portion of the plateau.

Cultural Resources

The Fernley and Lassen Branch of the Central Pacific Railroad (later the Southern Pacific Railroad) was built in 1913–14, and operated through 1955. This was a regionally-significant mainline railroad that, at one time, supported three logging company railroads and their associated lumber mills (one in Westwood and two in Susanville, California). The 11 remaining railway bridges, two tunnels, and the railbed itself may be eligible for listing in the National Register of the Historic Places. Other historic features within the canyon adjacent to Susanville are an 1860's sawmill site and an 1890's sawmill site (both now-obliterated), a basalt quarry, historic roads (at Devil's Corral), and a 1923 concrete-arch highway bridge (west of Highway 36 at Devil's Corral).

2. *The current status of land ownership, minerals (surface and subsurface), and use in the area, including the amount of private land involved and associated or incompatible uses.*

a. Land Ownership

Approximately 92 % of the lands adjacent to the eligible segment of the Susan River are public lands managed by BLM. The public lands extend from where the Susan River enters BLM land east of the Bunnel Ranch (approximately .75 miles west of Highway 36 at Devil's Corral) downstream approximately 7.5 miles to Ramsey Ditch on the south side of the Susan River at Hobo Camp near Susanville. For the most part, public land extends from rim-to-rim within the canyon for more than one quarter-mile on either side of the river. However, on one side there are a few areas less than ¼ miles in width. There are a number of small tracts of private land within the canyon, primarily in the Devil's Corral area seven miles west of Susanville.

b. Land Use

BLM-administered lands within the eligible segment are currently managed under the provisions of the Bizz Johnson Trail Special Recreation Management Area plan. The plan includes measures to protect the area's scenic quality as primarily VRM class II except at trailheads where VRM Class III applies. Trail and river use is non-motorized. Additional measures protect natural and cultural resources in the SRMA. Private land in the eligible segment consists of undeveloped timberlands, several undeveloped lots and two homes at Devil's Corral, 7 miles west of Susanville. Due to the small percentage of private land, land uses would not be incompatible with wild and scenic river designation.

c. Mineral Status and Activity

There is no current—and little-to-no prior—surface or sub-surface mining along the Susan River or within its canyon. The previous owner of Hobo Camp occasionally mined gravel from the riverbed prior to BLM acquisition in the early 1980s.

Since then, floods and riparian vegetation have eliminated all sign of prior excavation. In the mid-to-late 1800s basalt for local buildings was quarried from Pigeon Cliffs north of the Susan River (about ¼-mile upstream from Hobo Camp). There has been no quarrying for more than 100 years. Despite this, mining claims could be established. However, this is highly unlikely, since mineral values associated with quaternary basalt (locatable, salable, and leasable) are known to be very low.

3. *What are the reasonably foreseeable or potential uses of land and water that would be enhanced, curtailed, or foreclosed if the area were included in the national wild and scenic rivers system?*

a. Enhanced Use

Designation would provide permanent protection and enhancement of wildlife habitats, historic railroad structures associated with the Bizz Johnson Trail (a rail trail), scenic values and high-quality, river-based recreation (especially stream-fishing, swimming, non-motorized boating and floating, and [river-based] nature study). WSR designation would also ensure that the Bizz Johnson Trail corridor and its popular recreational activities are permanently preserved. Designation under the Wild and Scenic Rivers Act would permanently protect the free-flowing character and outstandingly remarkable values necessary to preserve wildlife habitats.

b. Foreclosed (or curtailed) use

The WSR designation would foreclose the potential for dam construction or other water resources development on the designated segment. The potential for these projects is discussed under number 11 below. While construction of a dam or water diversion is not likely, a dam could not be built for the entire length of the eligible segment under WSR designation.

4. *Which federal agency would administer the designated river segment should it be added to the NWSR system?*

The BLM is the sole federal land management entity along the eligible segment of the Susan River and would take responsibility for its administration.

5. *The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area should it be added to the NWSRS.*

a. What would be the costs of acquiring lands or interests in lands?

Acquisitions related to Wild and Scenic River designation would be low or nonexistent, since well over 50 percent of the corridor is already in federal ownership—approximately 92% of the 8-mile eligible river segment—and its canyon—are managed by the BLM. Although a number of private land parcels could be acquired to improve protection and management of the canyon, these acquisitions would remain a priority for the BLM with or without Wild and Scenic River designation since the area is a Special Recreation Management Area and an ACEC.

b. What would be the costs of administering the Susan River as a Wild and Scenic River?

Administration costs would be low since the river is already part of the Bizz Johnson Trail SRMA; therefore, WSR designation would not create significant additional management expense beyond what is already required to manage the trail and the surrounding Susan River Canyon.

6. *A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.*

Support for NWSR designation is not expected from Lassen County due to the county's interest in keeping options for future water diversions or impoundments on the Susan River. Designation of the eligible segment of the Susan River as an ACEC was not opposed by Lassen County.

Lassen County and the City of Susanville have supported and continue to support BLM management of the Susan River Canyon to preserve its natural undeveloped character that enhances visitor use and enjoyment of the Bizz Johnson Trail that parallels the Susan River throughout the entire length of the eligible segment analyzed in this document. Beginning in 1978 with the rails to trails development of what is now the Bizz Johnson Trail through the Susan River Canyon, BLM has received support from the City of Susanville and Lassen County through resolutions of support, endorsements of land acquisitions and assistance in trailhead development through a grant partnership with the City of Susanville. The State of California has also supported trail development through various trail and trailhead improvement grants.

Local political support for BLM's development and management of the Bizz Johnson Trail, in partnership with Lassen National Forest, have helped maintain the Susan River in a free flowing and natural condition and helped prevent development of homes within and along most of the eligible segment of the Susan River. It is the undeveloped character of the Susan River Canyon and the adjacent free flowing river that makes the Bizz Johnson Trail such a high quality amenity for residents of northeastern California and also a destination attraction for visitors from throughout the region and the United States. Visitors to the trail and Susan River Canyon expend money on gas, food and lodging that benefit the economy of Lassen County. Because of these quality of life benefits to area residents and the economic benefits gained from visitors to the Bizz Johnson Trail and Susan River Canyon, Lassen County can be expected to continue to support management of the Bizz Johnson Trail and Susan River to provide high quality recreational experiences along most, if not all of the eligible segment, subject to future proposals for water impoundments.

7. An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

Lassen County has supported BLM work to protect the Susan River through endorsing BLM acquisition of undeveloped lands within the Susan River Canyon and by establishing and maintaining zoning that limits intensive private development within the canyon (timber production zone, upland conservation and open space). At this time along the eligible segment, there are only two homes adjacent to the river in the Devil's Corral area, seven miles west of Susanville and two homes within the canyon near Susanville that are visible from the Susan River. Currently local zoning is helping to retain the undeveloped character of the Susan River Canyon however zoning can be changed to meet future demands.

Lassen County's 2000 General Plan, water use provisions contain policies that promote future construction of dams on all waters within Lassen County if future studies and economics determine that such development is feasible and if an entity takes responsibility for implementing such a dam project. The General Plan water provisions, if implemented, are inconsistent with Wild and Scenic River designation.

8. Federal, public, state, local, or other interests in designation or non-designation of the river, including the extent to which the administration of the river, including the cost thereof, may be shared by state, local, or other agencies and individuals; support or opposition to the designation.

See also item # 7 above.

Through comments to the draft RMP, Lassen County Supervisors opposed WSR designation for any portion of the Susan River; however the County Supervisors did not oppose an ACEC designation along the same eligible segment. In discussions between BLM and County staff and some of the supervisors there is a general feeling that because ACEC designation is established at a local level through the RMP and not through Congressional designation, there would be a greater level of local input in Susan River corridor management. Other residents and visitors to Lassen County support WSR designation because it would maintain in perpetuity the Susan River as a free flowing stream along the Bizz Johnson Trail. Regional and state river advocacy groups also support designation.

9. What is the level of support versus the level of opposition to wild and scenic river designation for the eligible portion of the Susan River?

The Lassen County Supervisors opposed are to WSR designation for any portion of the Susan River.

Many of the residents and visitors to Lassen County support WSR designation because it would maintain in perpetuity the Susan River as a free flowing stream along the Bizz Johnson Trail. The Susan River is what makes the trail one of the most scenic rail trails in California and throughout the United States. Without the free flow river adjacent to the trail, much of the trail's appeal to area residents and visitors would be lost. Local residents who enjoy the river as a free flowing stream include members of the Lassen County Sportsman's Association, the Susanville Area Bicycle Association, the Honey Lake Valley Riders, and the Lassen Land and Trails Trust and many residents who are not members of a particular organization, but regularly use the Bizz Johnson Trail and enjoy the adjacent river throughout the year. Support for designating the river under the Wild and Scenic River Act can be expected from organizers, supporters, and participants in the annual Junior Fishing Derby, Bizz Johnson Trail Rides, and the Bizz Johnson Marathon. Support is also expected from the California Wilderness Coalition and Friends of the River (a California-wide river protection and advocacy group).

Support for protecting the Susan River as a free-flowing stream is expected from numerous local residents and area visitors—based on a northeastern California outdoor recreation market study that focused on residents of northeastern California and in Washoe County, Nevada that live near public lands managed by BLM. The study polled outdoor recreation activity preferences and use-patterns of regional residents. It was conducted to provide data for the preparation of this RMP (Northeastern California Outdoor Recreation Market Analysis, Tierney and Rosegard, 2002). Results of the analysis showed that the most popular outdoor recreation activities on federal lands in northeastern California and northwestern Nevada are: day-hiking, camping, fishing, site-seeing, and wildlife viewing. Over 68% of area residents felt that maintaining the region's natural, undeveloped appearance and scenic vistas was extremely important. In a separate population sample from the same study—this time conducted throughout most of northern California, from Fresco north to Oregon—agreement (at 82%) was even stronger. Results indicate that there would be very strong local, regional, and visitor support for protecting the free-flowing character and natural setting of the Susan River, its canyon, and the Bizz Johnson Trail.

10. *Would wild and scenic river designation be consistent with regional objectives for other-agency policies, plans, and programs?*

WSR designation would be consistent with the City of Susanville's General Plan (1991); particularly sections that deal with community character, open space, and recreation. To be more specific, reference is made to the "Community Character" section; goals 5–9, policies h–n, and action programs 13–25 (p. 110–113) and the "Open Space, Parks and Recreation" section particularly that concerned with the Bizz Johnson Trail; i.e., goal 6 and action program 26 (p. 133). Goal 13 from this section is for the city to develop a comprehensive system of trails and paths *including open spaces and natural habitats*, where available (i.e. adjacent to the Susan River [including the Bizz Johnson Trail] and in the Susan River Canyon).

Designation would also be compatible with the recreation component of the Lassen County General Plan (2000) which includes this statement: "The basic resource of the recreation industry in Lassen County is its natural scenic quality. This quality must be protected, enhanced and appropriately exploited." Lassen County places an emphasis on protecting its natural scenic resources, and supports trail development and promotion of special outdoor recreation events. The Lassen County 2004 Economic Development Strategic Plan; Economic Development Policy #5, Tourism Promotion and Development (p. 6); says: "Capitalize on the beauty, wildlife and abundant open space in Lassen County by promoting compatible tourism and visitor services." Casual use and special events—particularly those connected with the Bizz Johnson Trail—have fulfilled this goal.

Designation would not be compatible with the goals of the Lassen County general plan water use provisions (see # 7 above).

11. *Would wild and scenic river designation contribute to basin or river system integrity?*

The Susan River has a unique combination of resource values because of its position at the junction of three distinct geographical/geological regions (i.e. The Sierra Nevada, Cascades, and Great Basin). Wild and scenic river designation would contribute to the integrity of the river basin by protecting this segment's free-flowing character and the outstanding scenic qualities of its canyon.

12. The ability of BLM to manage the river segments under designation, or ability to protect the river area other than Wild and Scenic designation.

BLM is fully capable of and has been managing the eligible segment of the Susan River corridor since 1986 when BLM completed acquisition of the western segment of the Fernley and Lassen Branch of the Southern Pacific Railroad, which is now the Bizz Johnson Trail, between Susanville and Westwood. The entire 8 mile eligible segment of the Susan River flows through the Bizz Johnson Trail Special Recreation Management Area (SRMA), which includes most of the lower Susan River Canyon and the Bizz Johnson National Recreation Trail. This part of the Bizz Johnson Trail SRMA begins where the Susan River enters public lands east of the Bunnel Ranch (approximately .75 miles west of Devil's Corral) and then flows eastward approximately 8 miles to Hobo Camp, directly west of Susanville.

Beginning in 1980, BLM has assembled public ownership of the entire length of the abandoned railroad grade adjacent to the 8 mile eligible segment of the Susan River and has assembled additional public land ownership of most of the lands within the surrounding Susan River Canyon. BLM's efforts have preserved the largely undeveloped character of the Susan River Canyon along the Susan River, protected wildlife habitat, helped to retain, maintain the preserve the historic railroad structures (9 railroad bridges and two tunnels) and has provided public access to and along all 8 miles of the eligible segment of the Susan River.

In addition to managing the Bizz Johnson Trail Special Recreation Management Area, BLM is fully capable of managing the Susan River as a Recreational River under provisions of the Wild and Scenic River Act. Approximately 92% of the lands along the Susan River are public lands administered by BLM now. BLM is also seeking to acquire the few undeveloped private lands along the Susan River, with or without WSR designation, in order to retain these segments of the river as undeveloped areas for the benefit of wildlife and to provide public access to those segments of the river for recreational use and enjoyment.

While BLM is capable of managing the Susan River under the Wild and Scenic River's Act, BLM is not recommending the river as suitable for designation as a wild river because of concerns from Lassen County that such a designation would limit the county's goals and policies for water resource development (see items #7 and 8 above).

In this proposed RMP, BLM is recommending designation of the entire eligible segment of the Susan River as an Area of Critical Environmental Concern in order to provide additional management emphasis to protect the area's scenic, cultural and recreational values. ACEC designation would occur upon adoption of this proposed RMP and a management plan of the Susan River ACEC would then be developed that would address all actions needed to manage the Susan River through public lands to preserve and protect the creek's relevant and important values (wildlife habitat, wildlife, scenic values, historic values and recreational values) that support ACEC designation. These values are the same values that qualified the Susan River as eligible under the WSR act criteria.

13. What is the potential for developing water resources?

Two meadow reservoirs were built upstream from the Susan River Canyon in 1889. They are now operated by Lassen Irrigation Company. The McCoy Flat Reservoir impounds the Susan River and Hog Flat Reservoir dams a tributary. Lassen Irrigation has water rights to store up to 2,000 acre-feet in Hog Flat Reservoir and 12,000 acre-feet in McCoy Reservoir (Morgan, 1982). Water is released to the Susan River from late spring through late summer and recaptured in Leavitt Lake. Leavitt Lake is an irrigation company reservoir between Johnstonville and Standish in the Honey Lake Valley. From here it is distributed through a canal system to Lassen Irrigation shareholders. Other irrigators use Susan River water (also distributed through a system of canals) administered by the California Department of Water Resources.

The California Water Plan (1957) was a thorough inventory of potential dam sites throughout the state. The plan identified a site on the Susan River 1.5 miles downstream from the mouth of Willard Creek and 0.1 mile upstream from its confluence with Cheney Creek (p. 152, map sheet #4). There's never been a serious attempt to justify or promote a dam on this site, or on many of the other sites identified in the plan.

Analysis of potential dam sites on the Susan River was conducted by two engineering firms in the late 1980s (Tudor Engineering Company, 1987; Parsons, Brinckerhoff, Quade & Douglas, Inc., 1989). A few years later (1992), an investigation of surface and groundwater resources in Lassen County was made by the California Department of Water Resources. The findings of this report conflict with reports made by the engineering firms. Conclusions and excerpts from the summary sections of these reports are presented below.

The Tudor Engineering investigation was made at the request of the Lassen County Board of Supervisors. It analyzed three sites upstream from State Highway 36. One of the three sites is located on BLM and private land west of Highway 36, a short distance upstream from Devil's Corral. This site is within the eligible river segment; the other two sites are further upstream, within Lassen National Forest. The report concluded that the most feasible site (for water storage, hydro-power, flood control and recreation) was on Forest Service land above Crazy Harry Gulch. A dam on this site would flood the meadow above and below Goumaz, an historic railroad maintenance camp and now a trailhead and campground and would flood the Bizz Johnson Trail. Inundation of the railroad grade would require relocating the trail above the flooded area.

Lassen Irrigation Company has been interested in a possible dam site on the Susan River below Willard Creek in order to capture additional water from this creek. The site is on BLM-administered land within the eligible river segment. In response to the Lassen Irrigation request, Lassen County engaged Parsons, Brinckerhoff, Quade and Douglas, Inc. to prepare an analysis of this site based on the 1987 Tudor report data. The Parsons, et al. report concluded that: "If the information on power and water costs in the report (i.e. Tudor report) is accurate and if the proposed project below Devil's Corral can develop additional firm yield to increase the price of water, the economic feasibility of the project may be enhanced. On this basis, and with no apparent constraints that would be a "project stopper," it appears reasonable to consider proceeding with the next phase of project analysis and evaluation." This report did not identify a specific dam site.

The findings of a California Department of Water Resources investigation (Lassen County Water Resources Assessment Study, 1992) of surface and groundwater resources in Lassen County conflict with these (engineering firm) reports. An excerpt from the cover memo states: "Prospects for development of additional surface water supply in Lassen County are limited due to a lack of surplus water and the cost of its development. This study analyzed the availability of surface water from major watersheds within the County surplus to that allocated to existing water rights. These watersheds included the Susan River, Willow Creek, Long Valley Creek and the Pit River. Water surplus to existing water rights occurs only during large runoff events." It goes on to say: "The unit cost of developing surplus surface water was estimated for the most feasible dam sites within each of the watersheds." Furthermore: "The least costly site within the Susan River watershed would cost a minimum of $400 to over $2,000 per acre-foot (1990 costs). (These estimates are based on the assumption that the projects would not encounter any substantial environmental problems; any planned storage project, particularly those that would reduce the water supply and wildlife habitat associated with Honey Lake, would be extensively scrutinized for environmental impact.)"

Cost estimates for various dam sites are listed in Table 2-7, p. 30 of the report. In the table headed "Unit Costs of Water Yield," footnote #4 states: "These are minimum values, based on the exceedingly optimistic assumption that unknown geologic and environmental factors will prove favorable. They represent costs at the dam site; additional costs would be incurred for delivery of water to service areas." Also from the report: "In summary, Lassen County's available water supply from surface and ground water sources is nearing total usage. Under current economic conditions, it is unlikely the area can afford to develop additional water supply by constructing surface water storage projects."

Recommendation & Rationale

The eligible segments of the Susan River (8 miles) would not be recommended as Suitable for Wild and Scenic River designation under the proposed RMP. Based on its outstandingly remarkable recreational values, scenic quality and historic character, the Susan River clearly deserves special management and protection. An analysis of the Wild and Scenic suitability criteria reinforces this fact. However, this analysis also describes concerns among Lassen County officials regarding WSR designation because of concern for perceived loss of local control of the river under provisions of the Wild and Scenic Rivers Act.

Lassen County has supported BLM work to protect the Susan River through endorsing BLM acquisition of undeveloped lands within the Susan River Canyon and by establishing and maintaining zoning (timber production zone, upland conservation and open space) that limits private development within the canyon. In addition to Lassen County, the Lassen County Resource Advisory Council, the City of Susanville, Lassen Land and Trails Trust and the Lassen County Chamber of Commerce have supported BLM management actions that have developed and maintained the Bizz Johnson Trail, associated trailheads, and the Susanville Railroad Depot Trailhead/Visitor Center at the east end of the trail. BLM's successful rails to trails conversion of the western 25 miles of the former Fernley and Lassen Branch of the Southern Pacific Railroad into the Bizz Johnson Trail has also protected the undeveloped character of the Susan River where it flows along 16 miles of the Susan River Canyon on BLM and Forest Service administered lands. It is the undeveloped canyon and the adjacent free flowing Susan River that provides the highly scenic setting for the Bizz Johnson trail that makes this trail one of the most scenic rail trails in California and throughout the United States. And it is the combination of the trail directly adjacent to the undeveloped free flowing Susan River that has made this rails to trails conversion a quality of life resource for Lassen County residents and a regional and national destination attraction for trails enthusiasts, benefiting the trail users and also, Lassen County through the economic value of trail based tourism.

Some of these same partners that are not supportive of WSR designation because of concerns over loss of local control in determining the best mix of resource conservation and water needs for the region do not oppose designation of the same eligible segment of the Susan River as an Area of Critical Environmental Concern (ACEC). BLM has determined that an Area of Critical Environmental Concern (ACEC) designation and other RMP goals, combined with existing management of the Bizz Johnson Trail Special Recreation Management Area that includes the Bizz Johnson Trail and the Susan River will provide the best level of protection for the Susan River corridor at this time, while continuing to foster the local partnerships that have successfully protected the river corridor.

The BLM acknowledges that ACEC protection in itself would not preclude construction of water resource projects in the proposed segment. As described under item 11 of the suitability analysis, the potential for water resource development, especially dam construction, is low. However, based on local concerns, the BLM does not want to preclude a community dialogue regarding this issue. As part of the ACEC plan and other local planning efforts, the BLM would participate in local water resource discussions to ensure that the values of the Susan River Canyon are considered.

The ACEC designation provides for protection of relevant and important values that parallel the WSR outstandingly remarkable values. These protections are summarized in the section on ACEC's in Chapter 2 of the RMP. No management goals, actions, or allowable uses in this proposed plan are incompatible with Wild and Scenic River values, so would not foreclose or otherwise impact consideration of WSR suitability at a future time.

Willow Creek

1. *Characteristics that do or do not make the area a worthy addition to the NWSRS.*

a. Unimpeded Flow

Willow Creek is a small, free-flowing stream that passes through 8 miles of BLM-administered land within the Tunnison WSA. There are no impoundments or diversions of Willow Creek within the Tunnison WSA.

The lowest recorded mean monthly flow was 11.0 ft.^{3} per second in August/September and the highest recorded mean monthly flow was 70 ft.^{3} per second in February. Exceptionally high streamflow events have been recorded on rare occasions—notably a heavy-rain-and-snowmelt event on February 18, 1986 when a peak flow of 1,210 ft.^{3} per second was recorded (USGS, Monthly Streamflow Statistics for California, Willow Creek near Susanville, CA 1950 through 1994).

b. Outstandingly Remarkable Values

Scenic Values

Willow Creek's remarkable scenic qualities are based on the variety of its vegetation and the geological features of Willow Creek Canyon. The creek cuts through the southern edge of Tunnison Mountain before entering a broad, and largely treeless, tableland through which it has carved a trough or canyon that varies in depth from 80 to 200 feet. The narrow, upper canyon is characterized by low, steep cliffs and talus slopes of blocky, dark basalt. There is dense, riparian vegetation in the bottoms, flanked by numerous conifers—principally ponderosa and Jeffrey pines. The lower canyon is quite different. Here the canyon is flatter, broader, and deeper. Lush riparian vegetation remains, but in the lower canyon the riparian area is largely composed of sedges and grasses. Scattered junipers also grow within the canyon and the adjacent uplands are covered with bunch-grasses, sage brush steppe shrubs and isolated scattered juniper trees. In the fall, the greens, yellows, and reds of this vegetation provide a striking contrast with the somber browns and blacks of the steep, rubble-strewn basalt of the rims. The creek itself is the center of scenic interest, as it wanders, tumbles, and rests in quiet pools on its journey through the canyon. Trout and other fish may be glimpsed in the pools and, in some areas, ancient rock art is found on boulders and cliffsides. Concentrations of petroglyphs and pictographs are found on canyon rims overlooking the southeastern portion of the canyon.

Recreation

The most popular recreational activities on the BLM-administered portion of Willow Creek are fishing (mostly for non-native, but wild, brown trout), hiking, upland bird hunting, wildlife viewing, and rock art appreciation. The Belfast petroglyph site and the rock art that characterizes the southeastern portion of the canyon are especially popular with school groups. Periodically BLM provides interpretation and environmental education at these sites for school groups and others groups. Visitor use is concentrated in the lower portion of the canyon, not only because of the rock art, but because of the canyon's obvious scenic qualities and easy access afforded by a gravel access road and parking area. There is some overnight use, but day-use is the norm. Visitor estimates are 500 to 1,000 individuals yearly along the eligible segment of the creek (Bales, 9-10-05).

As mentioned above, a gravel road and parking lot provide vehicular access to the lower portion of the canyon from the (Lassen County) Belfast Road. A rough, two-track dirt road parallels the eastern edge of lower Willow Creek Canyon, about ¼ mile back from the rim. This road forms part of the boundary for the Tunnison WSA. Vehicular access to the upper canyon and to the area near the confluence of Willow Creek and Petes Creek is over little-used and very rough, dirt roads or ways. These routes leave upper Rice Canyon Road and cross a combination of BLM-administered public land and private lands.

Easements have not been secured to ensure public access but, historically, these routes have not been blocked by the landowners (primarily timber companies). Travel within the canyon is over user-established walking trails or old cattle trails (now largely unsued by cattle, since most grazing is excluded along the creek).

Upper Willow Creek is not suitable for river-running because the channel is too steep, narrow, and debris-choked—even during storm-flow events when water levels are high. Normal streamflows during the warmer months (May through September) average less then 20 $ft.^3$ per second. Typical monthly storm-flow averages during winter and early spring are 70 to 100 $ft.^3$ per second with an occasional flood crest exceeding 1,000 $ft.^3$ per second during heavy-rain-on-snow events. Lower Willow Creek Canyon (below Willow Creek's confluence with Petes Creek) could, theoretically, be run by skilled kayakers when streamflow is high. However, there are numerous hazards from flood debris and livestock control fencing. In any case, vehicle access to Willow Creek during wet weather is problematic, if not impossible, due to sticky, clay soils and extremely muddy conditions. Streamflow is much too low from May through September.

Cultural Resources

The area containing the Belfast petroglyphs and other sites in lower Willow Creek is an official National Register of Historic Places (NRHP) site because of its outstanding rock art and other prehistoric features. Some scholars believe the well-known site was connected with solstice events. The area is very popular with local school groups. Casual local and visitor use is increasing because of improved road access and greater public awareness.

2. *The current status of land ownership, minerals (surface and subsurface), and use in the area, including the amount of private land involved and associated or incompatible uses.*

a. Land Ownership

The eligible segment of Willow Creek is part of the Tunnison Wilderness Study Area and 85% is public land administered by the BLM. The eligible segment extends for at least ¼ mile on both sides of the creek throughout its length. Private creekside properties consist of an undeveloped 40 acre parcel and four undeveloped 10 acre parcels at and downstream of the confluence of Petes Creek and Willow Creek and three isolated, undeveloped 40-acre parcels in the steep and narrow area of upper Willow Creek Canyon.

b. Land Use

Since the entire eligible segment is part of the Tunnison WSA, it is administered under wilderness interim management guidelines. These guidelines the Wilderness IMP--ensure that the wilderness characteristics and values that qualified the area for wilderness study (1979) are not compromised. The BLM also manages Willow Creek, and its adjacent uplands, to comply with BLM land health standards. These standards and guidelines were adopted by the BLM's Northeastern California Resource Advisory Council and affirmed by the California State Director. They were approved by the Secretary of the Interior and became official policy in July of 2001 (refer to the glossary for detailed information on land health standards). The BLM has also obtained legal public access on the road that provides access to the Belfast petroglyphs and other places in lower Willow Creek Canyon. A parking area set back from the petroglyphs with a walk-in connector trail was built to offer better protection for the site. A section of the access road has been realigned and the entire road has been surfaced with gravel.

Grazing is an authorized use in the vicinity of Willow Creek; however, since the 1980's livestock have generally been kept out of the creek using natural rimrock barriers and fencing in order to preserve riparian vegetation and maintain land health standards. Livestock are allowed access to the creek and canyon in a few water gap areas.

Timber harvesting has not been allowed since 1979, when the Tunnison WSA was established. However, this activity has never been significant in Willow Creek Canyon due to the limited number of trees, difficult access, and the expense of special removal methods. Before the Tunnison WSA was designated, juniper was cut for firewood in areas adjacent to upper Willow Creek Canyon, but not within the canyon itself, due to lack of vehicle access.

c. Mineral Status and Activity

There is no evidence of past surface or subsurface mining along Willow Creek or within its canyon prior to 1979. No surface disturbing activities have been allowed within the Tunnison WSA, which includes Willow Creek, since 1979 when the WSA was established. Mining claims could still be established, however, this is highly unlikely, since mineral values associated with quaternary basalt that comprises the canyon are known to be very low. Since 1979, extraction of saleable and leasable minerals within the Tunnison WSA has been closed according to the Wilderness IMP.

3. *What are the reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS; historical or existing rights which could be adversely affected.*

a. Enhanced Use:

These would include enhancement or protection of scenic values and quality stream-fishing, hiking, upland bird hunting, wildlife-viewing, and especially appreciation of archaeological sites (primarily petroglyphs and pictographs) and environmental education. Protection would be significantly greater, and the possibility of further habitat fragmentation eliminated, under WSR designation since all 8 miles of the eligible segment would be protected.

b. Foreclosed or Curtailed Use:

A dam or water diversion could not be built for the entire length of the eligible segment under WSR designation. The potential for a dam or diversion along the eligible segment is considered to be low (Lassen County Water Resources Assessment Study: Unpublished Report (124 pages) by California Department of Water Resources, Northern District, April 22, 1992)

4. *Which federal agency will administer the area should it be added to the NWSRS ?*

The BLM is the primary land-management entity along the eligible segment of Willow Creek and would take responsibility for its administration.

5. *The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area should it be added to the NWSRS.*

a. What would be the cost of acquiring lands and interests in lands?

Costs would be low because 85% of the 8-mile eligible segment--including the creek and adjacent lands under consideration for WSR designation are already publicly owned. The BLM would attempt to acquire (from willing sellers) the one undeveloped 40 acre parcel and the 10 undeveloped lots on the 80-acre parcel at the confluence of Willow Creek and Petes Creek, as well as the three undeveloped 40-acre parcels within upper Willow Creek Canyon.

Acquisition could take the form of direct purchase, exchange, or a conservation easement—whatever is necessary to keep the land undeveloped and provide legal public access to Willow Creek. However, these acquisitions would be pursued with or without WSR designation.

b. What would be the cost of administering Willow Creek as a Wild and Scenic River?

The principal costs would be to:

- Secure legal access to upper Willow Creek Canyon via an existing dirt road that crosses one mile of private timber company land, plus the cost of road realignment (where required to improve drainage) and grading as needed. Surfacing with gravel would not be essential but would improve the road.
- Install a bulletin board at the end of this access road to provide current visitor information.
- Develop a foot trail through the canyon on a course that would avoid adverse impacts to stream banks while providing public access for fishing and other recreational activities.
- Develop a brochure concerning area cultural and natural resources and promoting low-impact use of Willow Creek.
- Provide time and funding for BLM staff to maintain the bulletin boards at the upper and lower ends of the Willow Creek Canyon trailheads and periodically hike the canyon to monitor visitor use and impacts.

The costs of administration under the WSR Act would be the sole responsibility of the BLM. The California Department of Fish and Game (CDFG) would continue to be responsible for wildlife and fish within the river corridor.

6. *A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.*

The California Department of Fish and Game would continue to have direct jurisdiction over wildlife and fish in and adjacent to the river corridor. Support for WSR designation cannot be expected from Lassen County at this time due to the County's policy stated in the County's 2000 General Plan, Water Resources section that supports future water impoundments onstreams in Lassen County if and when such impoundments are determined to be feasible (Lassen County General Plan, 2000).

7. *An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.*

Current zoning is Upland Conservation – 2 that limits development. However, zoning is subject to change by the Lassen County Board of Supervisors. For example, open-space forestry zoning was recently changed in western Lassen County to accommodate a proposed resort development. Similar zoning changes could allow reservoir development in Willow Creek Canyon.

8. *Federal, public, state, local, or other interests in designation or non-designation of the river, including the extent to which the administration of the river, including the cost thereof, may be shared by state, local, or other agencies and individuals. Support or opposition to the designation.*

The State of California has its own wild and scenic river system, but has not identified Willow Creek for study or protection.

At this time, the Lassen County Supervisors are opposed to WSR designation for any portion of Willow Creek due to the County's policy stated in Lassen County's 2000 General Plan, Water Resources section, Goals N-4 and N-5 and Policies N21 and N22. These goals and policies support study of and when feasible future water impoundments on rivers and streams in Lassen County if and when such impoundments are determined to be feasible. However, the same general plan also includes policies that support protection of the county's natural resources for the benefit of wildlife and tourism (see #9 following this section). In this suitability report, BLM is acknowledging Lassen County's opposition to WSR designation based on Lassen County's water resources policies and therefore BLM is not recommending WSR designation for Willow Creek.

Local fishermen, hikers and hunters that use and enjoy Willow Creek Canyon support designation as a Wild and Scenic River (Barnetche, Hartrum). Support is also expected from the California Wilderness Coalition and Friends of the River (a California-wide river protection and advocacy group).

Support for protection of Willow Creek as a free-flowing stream is also expected from numerous local residents and area visitors--based on a northeastern California outdoor recreation market study. The study polled outdoor recreation activity preferences and use-patterns of regional residents in Northeastern California and northwestern Nevada including residents of Lassen and Modoc Counties in California and Washoe County in Nevada. It was conducted to provide data for the preparation of this RMP (Northeastern California Outdoor Recreation Market Analysis, Tierney and Rosegard, 2002). Results of the analysis showed that the most popular outdoor recreation activities on federal lands in northeastern California and northwestern Nevada are: day-hiking, camping, fishing, site-seeing, and wildlife viewing. Over 68% of area residents felt that maintaining the region's natural, undeveloped appearance and scenic vistas was extremely important. In a separate population sample from the same study--this time conducted throughout most of northern California--agreement (at 82%) was even stronger. Results indicate that protecting the free-flowing character and natural setting of Willow Creek Canyon would have very strong local and regional support.

9. What is the level of support versus the level of opposition to wild and scenic river designation for the eligible portion of Willow Creek?

The Lassen County Supervisors opposed are to WSR designation for any portion of Willow Creek.

Support for designation is expected from individuals and groups that use and enjoy Willow Creek. Support is also expected from California Wilderness Coalition and Friends of the River (a California-wide river protection and advocacy group).

Support for protecting of Willow Creek as a free-flowing stream is expected from numerous local residents and area visitors—based on a northeastern California outdoor recreation market study. The study polled outdoor recreation activity preferences and use-patterns of regional residents in northeastern California and northwestern Nevada including residents of Lassen and Modoc Counties in California and Washoe County in Nevada. It was conducted to provide data for the preparation of this RMP (Northeastern California Outdoor Recreation Market Analysis, Tierney and Rosegard, 2002).

Results of the analysis showed that the most popular outdoor recreation activities on federal lands in northeastern California and northwestern Nevada are: day-hiking, camping, fishing, site-seeing, and wildlife viewing. Over 68% of area residents felt that maintaining the region's natural, undeveloped appearance and scenic vistas was extremely important. In a separate population sample from the same study—this time conducted throughout most of northern California—agreement (at 82%) was even stronger. Results indicate that protecting the free-flowing character and natural setting of Smoke Creek would have very strong local, regional, and visitor support.

10. *The consistency of designation with other agency plans, programs, or policies and in meeting regional objectives.*

Designation would be consistent with:

- The Lassen County 2004 Economic Development Strategic Plan; Economic Development Policy #5, Tourism Promotion and Development (p. 6); where it says: "Capitalize on the beauty, wildlife and abundant open space in Lassen County by promoting compatible tourism and visitor services."
- The Lassen County General Plan–2000 includes this statement: "The basic resource of the recreation industry in Lassen County is its natural scenic quality. This quality must be protected, enhanced and appropriately exploited." Lassen County's emphasis on protecting its natural scenic resources, plus trail development and maintenance and promotion of special outdoor recreation events, support protecting the free-flowing character of Willow Creek, principally for the use and enjoyment of Honey Lake Valley residents. The canyon is less than a half-hour drive (plus a short walk) from Susanville, Lassen County's largest urban area.
- Designation of the eligible segment supports Lassen County's official policy of protecting scenic resources. The presence of a wild and scenic river would enhance Lassen County's reputation as a premier outdoor recreation destination.

11. The contribution to river system or basin integrity.

Currently, there is no free-flowing perennial stream in the California portion of the Cascades or on the Modoc Plateau that is also part of the national wild and scenic river system. Designation of the eligible segment would change this and preserve the unique characteristics of this perennial creek. These include its origin in wooded mountains and its progress through high-desert habitats of the Great Basin. The creek's unique character is greatly enhanced by a scenic canyon containing important archaeological sites and its convenient location near Susanville (the major population center of Lassen County). Designation would mean permanent protection for the natural aquatic, riparian and upland habitats on which wildlife depend. It would also preserve recreational activities in the canyon and safeguard its important cultural sites for present and future generations.

12. The ability of BLM to manage the river segments under designation, or ability to protect the river area other than Wild and Scenic designation.

BLM is fully capable of managing Willow Creek as a Wild and Scenic River under the requirements of the WSR Act. BLM administers approximately 85% of the lands along the creek now and is seeking to acquire undeveloped private lands along the creek, with or without WSR designation, in order to retain these segments of the creek as undeveloped areas for the benefit of wildlife, cultural resources and to provide public access along the creek. The eligible segment of Willow Creek is entirely within the Tunnison WSA and is being protected now under BLM's wilderness IMP guidelines. If Congress does not designate the Tunnison WSA as wilderness, BLM would continue to manage the creek and the adjacent public lands as a Primitive Area under the Recreation Opportunity Spectrum provisions specified in the 2006 Eagle Lake Field Office proposed RMP.

In this proposed RMP, BLM is also recommending designation of the entire eligible segment of Willow Creek as an Area of Critical Environmental Concern in order to provide additional management emphasis to protect the area's scenic, cultural and recreational values. ACEC designation would occur upon adoption of this proposed RMP and a management plan of the Willow Creek ACEC would then be developed that would address all actions needed to manage Willow Creek to preserve and protect the creek's relevant and important values (scenic, cultural and recreational) that support ACEC designation. These values are the same values that qualified the Willow Creek as eligible under the WSR act criteria.

13. *What is the potential for water resource development?*

The California Water Plan (May, 1957), was a thorough inventory of potential dam sites throughout the state. It includes a site on Willow Creek (p. 152, map sheet #4) 1.5 miles downstream from the confluence of Petes Creek and Willow Creek. There's never been a serious attempt to justify or promote a dam on this site, or on many of the other sites identified in this plan. The Lassen County General Plan of 1968 also identified this site for possible reservoir development. However, as far as Lassen County staff are aware, no studies have been conducted to evaluate the feasibility of a dam on the site since the 1968 General Plan (Sorvaag, personal communication, 8-31-05). To the best of their knowledge, the only related effort was a general analysis of streamflow volumes for Lassen County conducted by the California Department of Water Resources in 1992. The study did not assess the feasibility of specific dam sites. Its findings were presented to the Lassen County Board of Supervisors in the following year (Lassen County Water Resources Assessment Study, 1992).

In the cover memo of this report, the authors concluded: "Prospects for development of additional surface water supply in Lassen County are limited due to a lack of surplus water (water in addition to water already adjudicated to current water users) and the cost of its development. This study analyzed the availability of surface water from major watersheds within the County surplus to that allocated to existing water rights. These watersheds included the Susan River, Willow Creek, Long Valley Creek and the Pit River. Water surplus to existing water rights occurs only during large runoff events. The unit cost of developing surplus surface water was estimated for the most feasible dam sites within each of the watersheds. A dam located on Willow Creek appears to be the least costly potential project on streams tributary to Honey Lake. Under the most optimum conditions, the cost of developing water within this watershed would be in the range of $300 to $700 per acre-foot (1990 costs)." Also: "These estimates are based on the assumption that the projects would not encounter any substantial environmental problems; [since] any planned storage project, particularly those that would reduce the water supply and wildlife habitat associated with Honey Lake, would be extensively scrutinized for environmental impact."

Cost estimates for possible dam sites are listed in Table 2-7, on page 30 of the report. In the table headed "Unit Costs of Water Yield," footnote #4 states: "These are minimum values, based on the exceedingly optimistic assumption that unknown geologic and environmental factors will prove favorable. They represent costs at the dam site; additional costs would be incurred for delivery of water to service areas." Also from the report: "In summary, Lassen County's available water supply from surface and ground water sources is nearing total usage. Under current economic conditions, it is unlikely the area can afford to develop additional water supply by constructing surface water storage projects."

Recommendation & Rationale

The eligible segment of Willow Creek would not be recommended as Suitable for Wild and Scenic River designation under the proposed RMP. Based on its outstandingly remarkable primitive recreation opportunities, scenic quality and archaeological features, Willow Creek clearly deserves special management and protection. The Wild and Scenic Suitability analysis recognizes these values, but also describes concerns among local government officials regarding WSR designation.

These groups are not supportive of WSR designation because of concerns over loss of local control in determining the best mix of resource conservation and water needs for the region. Because of this opposition, the BLM has determined that an Area of Critical Environmental Concern (ACEC) designation, Wilderness Study Area interim management, and other RMP goals will provide the best level of protection for the Willow Creek corridor at this time, while continuing to foster the local participation that has successfully protected and restored the stream corridor.

As described under item 11 of the suitability analysis, the potential for water resource development, especially dam construction, is low. However, based on local concerns, the BLM does not want to preclude a community dialogue regarding this issue. As part of the ACEC plan and other local planning efforts, the BLM would participate in local water resource discussions to ensure that the values of Willow Creek are considered. The area is already under protective management as a Wilderness Study Area. The BLM's Wilderness Interim Management Policy also provides a high level of protection of the outstandingly remarkable values of the corridor and any impacts to the corridor that are not consistent with IMP would need Congressional authorization to proceed..

The ACEC designation also provides for protection of relevant and important values that parallel the WSR outstandingly remarkable values. These protections are summarized in the proposed RMP, Volume 2, Appendix A, page A 64. No management goals, actions, or allowable uses in this proposed plan are incompatible with Wild and Scenic River values, so would not foreclose or otherwise impact consideration of WSR suitability at a future time.

Lower Smoke Creek

The following are general questions which the suitability determination under the Wild and Scenic Rivers Act must answer.

1. What are the characteristics that do or do not make the area a worthy addition to the NWSR system?

The following river-related values were determined by BLM as best representing the "outstandingly remarkable values" (a term from the Wild and Scenic Rivers Act) required for WSR eligibility and subject to analysis under the "suitability criteria" of the Act.

a. Unimpeded Flow

The portion of Lower Smoke Creek evaluated for eligibility under the Wild and Scenic Rivers Act is 3.2 miles in length and flows, in its entirety, through public lands. From Smoke Creek Reservoir, the creek flows through 6.3 miles of privately-owned irrigated pasture and meadows above and below Rock Springs Ranch (formerly called Smoke Creek Ranch until a recent ownership change). These meadows end just above the site of the historic Smoke Creek Station (a military post on the Nobles Emigrant Trail and Humboldt Wagon Road). The creek enters public land 2.2 miles below Smoke Creek Station. The eligible segment begins here.

Stream-flow data come from USGS gauge #1035800, Washoe County, Nevada. The gauge is located 1.5 miles downstream from the end of the eligible segment, near the end of Lower Smoke Creek Canyon (T30N R19E Section 5). The data show average annual flow consistently below 10 ft.^{3} per second. BLM measurements from 1997 were 11.2 ft.^{3} per second in May, 4.9 ft.^{3} per second in August and 6.8 ft.^{3} per second in October. Gauge data (since 1990) has also shown very rare—and very brief—periods of much greater runoff (> 500 ft.^{3} per second); BLM figures represent flow patterns where the creek enters BLM land below the irrigated meadows downstream from Smoke Creek Reservoir.

The BLM obtained a Nevada water use permit (#54489) in 1991 for wildlife and recreational uses. This was secured as a water right in 1998 (certificate #14970) that requires a minimum in-stream flow of 5 ft.^{3} per second in order to reestablish a reliable, free-flowing water supply at the up-stream boundary of BLM-administered lands in lower Smoke Creek Canyon. This 5 cfs flow is to be provided from the waters of Smoke Creek and its accretions upstream of the point where the creek enters BLM land. Clarification on this has been received from the California Division of Water Rights as follows: "*Condition #12 in permit 021019 states that Permittee is not required to release previously stored water in order to provide water for satisfaction of BLM's right under Certicate 14970. What this means is, at times when there is no flow from Smoke Creek into the reservoir, Permittee does not have to release water from storage to satisfy the 5 CFS requirement. However, if there is flow from Smoke Creek into the reservoir, Permittee must bypass sufficient flow at the dam such that, in combination with accretions into Smoke Creek between the Dam and the BLM's place of use, there is 5 CFS flow at the BLM's place of use on Smoke Creek. During times of flow upstream of the reservoir, Permittee will have to bypass all of the flow into the reservoir until the 5 CFS requirement is met.*"

b. Outstandingly Remarkable Values

Scenic Values

Lower Smoke Creek Canyon's remarkable scenic attributes are due to a combination of free-flowing water, lush riparian vegetation, and dramatic volcanic cliff-faces within a desert canyonland setting. The cliff faces, which are composed of layered, dark brown to reddish volcanic rock, rise 100 to 500 feet above the creek in the inner canyon. The cliffs reveal deposits of whitish tuffa; which formed in the Pleistocene, beneath the waters of former Lake Lahontan. Further back, the cliffs give way to slopes that rise as much as 2,000 feet above the creek. The creek itself contains lush, green riparian areas—replete with willow-lined banks and placid beaver ponds—that contrast sharply with the arid, red-brown cliffs.

Geology

The dramatic geology of Lower Smoke Creek Canyon is derived not only from its canyonland morphology; but from its colorful, multi-layered volcanic rock, intrusive dikes, lacustine deposits, and fluvial formations. Lava flows are basaltic, andesitic, or pyroclastic. These volcanic flows date from the upper Miocene to Pliocene epochs. The cliffs of the inner canyon reveal deposits of thick, whitish tuffa which formed during the Pleistocene beneath the waters of former Lake Lahontan. Pre-Lake Lahontan terraces, alluvial fans, and pediment gravels can also be seen that date from the Pliocene.

Biology

The canyon bottom contains lush, green riparian areas of wetland grasses, sedges, and willows with occasional cottonwood trees—some of them quite sizable. Small beaver dams hold placid waters in numerous ponds within the canyon. Secure water rights and strict regulation of livestock grazing have restored the area and made this possible. For many years prior to the 1990s; the creek, riparian habitats, and adjacent uplands had been starved of water, decimated by overgrazing, and severely degraded.

Noteworthy wildlife includes a stable beaver population (native species). Lower Smoke Creek is an excellent example of an arid-area stream where beaver activity is benefiting riparian habitat. This is unique among desert streams in the region. Numerous beaver ponds are supporting riparian species that in turn support the beavers (willow and cottonwood species). Because of recent habitat restoration efforts, a portion of the native aquatic species (Lahontan assemblage) is again present. Fish include speckled dace, Tahoe sucker, Lahontan redside, tui chub, green sunfish, and the (non-native) rainbow trout. Upland areas include mule deer, quail, dove, and (non-native) chukar.

Cultural Resources

The Nobles Emigrant Trail passes through Lower Smoke Creek Canyon and wagon ruts may still be seen on some hillsides adjacent to the creek. At a later date, it was part of the Humboldt Wagon Road, used to haul freight to mines in the Humboldt region of Nevada. A 1.5-mile section of trail can still be seen where it passed over a ridge south of Smoke Creek to avoid a creek section that was too rough for wagons.
The segment within Lower Smoke Creek Canyon is recognized for its special significance because wagon ruts are generally well-preserved in a relatively undisturbed landscape. This trail has been designated by Congress as part of the national historic trail system and is protected under Section 106 of the National Historic Preservation Act (NHPA). This legislation includes and emphasizes protection of the natural setting through which national historic trails pass. In addition, the trail is part of the BLM's national landscape conservation system, in which public lands with unique values receive special attention to protect their salient features.

Smoke Creek Station was a Civil War-era military post on the Nobles Trail. It was used to check travelers entering California during the war and was a stop on the military supply route between Fort Churchill, Nevada and Fort Bidwell, California. The site is situated beside the creek on private property 2.2 miles upstream from BLM-administered land. Although not part of the proposed WSR, it is a significant historic feature and adds to the outstandingly remarkable value of the trail.

Recreation

The recreational importance of the eligible segment is not considered 'outstandingly remarkable' but is sufficient to be worthy of mention. The primary activities are primitive, self-contained camping either in the open or on pleasant sites under the shade of large cottonwood trees. Upland bird hunting for chukar, quail, and dove are popular, as is sight-seeing from Smoke Creek Road. There's also some interest in fishing, mostly for green sunfish.

2. The current status of land ownership, minerals (surface and subsurface), and use in the area, including the amount of private land involved and associated or incompatible uses.

a. Land Ownership

The eligible segment (3.2 miles) is publicly owned on both sides of the creek and is encompassed by the Dry Valley Rim WSA. Smoke Creek Road (Washoe County Road #8) runs nearby, or adjacent to the creek for the length of the eligible segment. Private land extends upstream for 8.25 miles to Smoke Creek Reservoir. This stretch, and the reservoir, is owned by Rock Springs Ranches LLC. Below the eligible segment, Smoke Creek flows for another eight miles to its terminus on the playa of Smoke Creek Desert. This portion is a combination of privately-owned and BLM-administered lands.

b. Land Use

As previously discussed, current management of the eligible segment is VRM Class I because of the Dry Valley Rim WSA. If the WSA--in whole or in part--is not designated 'wilderness,' any non-designated lands would be managed under VRM Class II criteria to protect the area's outstandingly remarkable scenic qualities. Smoke Creek and its adjacent uplands are strictly managed to maintain BLM land health standards. Livestock are fenced out of Lower Smoke Creek for most of the year. However, carefully-controlled grazing is permitted alongside the creek under BLM grazing permits allowing short-term use—providing BLM land health standards are maintained. Successful management has made this river segment well-suited and popular for camping, upland bird hunting, hiking, and vehicle-based site-seeing. Some use is connected with the Nobles Emigrant Trail. Visitors may follow trail traces, pausing at trail markers referenced in (historic) trail guides. Locations may then be related to significant events described in pioneer's diaries. Protection of cultural resources is enforced under Section 106 of the National

Historic Preservation Act (NHPA). There are no trees of commercial value, so timber-harvesting is not an issue. Motor vehicle access from the Smoke Creek Road is limited to some short, two-track roads (identified in the WSA inventory of 1979) that are basically pull-offs to camping areas north of the creek. OHV access south of the creek is closed throughout the 3.2-mile length of the eligible segment. Other than the roads already mentioned the area is managed for walk-in access. WSR designation would not alter this management its value would be in ensuring its *permanent* protection.

c. Mineral Status and Activity

There is no evidence of past surface or sub-surface mining along Lower Smoke Creek or within its canyon—other than gravel pits (on private lands) at either end of the eligible segment, and in an easterly direction on BLM-administered lands adjacent to Sand Pass Road. These are used for surfacing and maintenance of Smoke Creek Road. Currently the area is protected from saleable and leasable mineral development under the Wilderness IMP. Locatable mining claims could be established within the eligible segment, however these would be required to comply with the wilderness IMP 'no surface disturbance' regulations. Despite this possibility, such development is highly unlikely, since locatable mineral values are known to be very low.

If the eligible creek segment is released from wilderness status by Congress, BLM will still manage the area as the Lower Smoke Creek ACEC (894 acres). The area within the ACEC would be closed to all mineral development to protect sensitive resources.

3. What are the reasonably foreseeable or potential uses of land and water that would be enhanced, foreclosed, or curtailed if the area were included in the national wild and scenic rivers system (as recommended under Alternatives 1 and 2)?

a. Enhanced Use

This would include protection and enhancement of outstandingly remarkable scenic values and traces of the Nobles Emigrant Trail. Designation would also preserve and enhance upland bird hunting, self-contained camping, hiking, wildlife-viewing, and desert stream fishing.

b. Foreclosed (or Curtailed) Use

The possibility of dam construction and/or water diversion within the designated segment (3.2 miles) would be eliminated. However, from an economic perspective, the prospect of a dam on BLM land is marginal at best because of very low average flow (< 10 ft.^{3} per second for most of the year) on Lower Smoke Creek. Also, most of the flow is already appropriated in Smoke Creek Reservoir, where it is employed for agricultural use on private land directly downstream below the reservoir before the water reaches BLM land in lower Smoke Creek canyon. In addition, the BLM administered lands of lower Smoke Creek are surrounded by the Dry Valley Rim WSA which prohibits construction of a dam until such time as the WSA designation is removed by an act of Congress. If Congress designates this area of Dry Valley Rim WSA as wilderness, no dam could be constructed along the portion of Smoke Creek within the designated wilderness area.

4. Which federal agency would administer the designated River segment?

The BLM is the sole federal land-management entity along Lower Smoke Creek and would take responsibility for administering the designated segment.

5. The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area should it be added to the NWSRS.

a. What would be the costs implicit in acquiring the necessary lands, and interests in lands?

There would be no acquisition costs, since the entire 3.2-mile segment is publicly owned. However, the BLM would seek to acquire (from willing sellers) lands upstream and downstream of the eligible segment in order to expand its riparian restoration work and increase the size and value of this WSR segment. Acquisition of Smoke Creek Station, in particular, would be a worthy addition to the Nobles Emigrant Trail. Acquisition could take the form of direct purchase, exchange, or a conservation easement—whatever is necessary to keep the land undeveloped and provide legal public access along Lower Smoke Creek.

b. What would be the cost of administering the (proposed) Lower Smoke Creek Wild and Scenic River?

The principal costs would be maintenance of livestock exclosure fencing and the acquisition of private lands to ensure ecosystem continuity and legal public access. There would also be the cost of developing a brochure concerning the area's geology, riparian vegetation and wildlife, and the Nobles Emigrant Trail. It would address area recreation and encourage low-impact use of Smoke Creek.

6. What is the degree to which the State (or its political subdivisions) might participate in the protection and administration of the river, should it become part of the national wild and scenic river system?

The Nevada Department of Wildlife would continue to have direct jurisdiction over wildlife and fish in and adjacent to the river corridor. Washoe County may support WSR designation if sufficient support is received by county supervisors. The County has a number of policies in the Washoe County Comprehensive Plan (May 1991) supporting free-flowing streams and riparian habitats, as well as scenic and cultural resources (including historic trails).

7. Are local zoning and land-use controls adequate to ensure protection of the river's outstandingly remarkable values and prevent incompatible development?

All lands along the 3.2 mile eligible segment are public lands managed by BLM. Zoning applies to private lands upstream and downstream of the eligible segment. Zoning is subject to change by the County Board of Supervisors. As the value of water continues to rise, there may be a time when economic and community needs would justify the impoundment or diversion of the waters of Lower Smoke Creek. Under such conditions, zoning changes could lead to development of a dam and reservoir on private lands that could affect public lands or, if the WSA status surrounding the eligible segment is removed by Act of Congress, a proposal for a dam could be considered on the BLM segment also.

8. Federal, public, state, local, or other interests in designation or non-designation of the river, including the extent to which the administration of the river, including the cost thereof, may be shared by state, local, or other agencies and individuals; support or opposition to the designation.

The state of Nevada does not have a wild and scenic river system, and has not indicated an interest in establishing any special measures to protect the free-flowing character and outstandingly remarkable values of Lower Smoke Creek. As discussed in the response to question #6; Washoe County's Comprehensive Plan, particularly the Conservation Element and High-Desert Area Plan sections, include policies supporting free-flowing streams and riparian habitats, as well as scenic and cultural resources--including historic trails. As statements of intent and general guidance, these measures would help protect WSR values on this river segment. However, since these plans are statements of policy only, they could be amended to favor and allow a dam or water diversion on Lower Smoke Creek.

9. What is the level of support versus the level of opposition to wild and scenic river designation for Lower Smoke Creek?

The BLM's Eagle Lake Field Office is not recommending designation of Lower Smoke Creek under the Wild and Scenic Rivers Act, because BLM must have the support of local government in order to recommend WSR designation. That level of support was not indicated by Washoe County government during the preparation of the draft (Barron, 9-15-05) and the proposed RMP.
Washoe County has however, endeavored to protect open-spaces by supporting conservation easements and BLM land acquisitions for the purpose of protecting wildlife habitats and water resources in other parts of the county. There's also County and State support for protecting the Nobles Emigrant Trail. As part of the national historic trails system, it receives federal protection under the National Historic Trails Act.

Support for designation is expected from many individuals and groups that use and enjoy Smoke Creek—particularly Friends of Nevada Wilderness, the Oregon and California Trails Association, and numerous sportsmen from the Reno-Sparks area.

As previously discussed, a 2002 outdoor recreation market study (conducted for this RMP) showed more than 68% of residents in northeastern California and northwestern Nevada (Washoe County) asserting that the natural, undeveloped character and scenic vistas of the region are extremely important to them. This would imply that protecting the free-flowing character and unaltered natural setting of Lower Smoke Creek would be supported by the majority of local residents since the area provides highly-valued recreational opportunities for local residents as well as visitors.

10. Would wild and scenic river designation be consistent with regional objectives for other-agency policies, plans, and programs?

Designation would be consistent with:

- Designation would be consistent with the BLM Wilderness IMP governing the Dry Valley Rim WSA. It would protect wilderness values by ensuring the free-flowing character of the creek segment. It would enhance these values by restoring aquatic and riparian habitats. Washoe County's Comprehensive Plan (Conservation Element, C.1.5) also supports wilderness values when it states: "Support the efforts of the Bureau of Land Management to review and, when in the interest of Washoe County residents, officially designate wilderness areas."
- WSR designation would also be in accord with Washoe County's Comprehensive Plan—as previously discussed—because the Conservation Element incorporates measures to protect scenic, riparian, and cultural resources (including historic trails). Policy C.3.5 states: "Recognize riparian areas for their wildlife habitat, floodway, water quality and quantity enhancement and scenic values. Development must be consistent with these primary uses and with federal guidelines." Designation is also consistent with the High-Desert Area Plan which incorporates measures such as HD 1.1 which states: "Maintain the rural character of the planning area and protect scenic resources, designated wilderness areas, and natural habitats and preserves."
- Wild and scenic river designation would enhance the County's reputation as a premier outdoor recreation destination. Recent marketing of Nevada as an outdoor recreation state (Reno Gazette-Journal; March 2, 2005; Section D [Business], p. D1) complements efforts to protect exceptional outdoor recreation resources—such as Lower Smoke Creek—that encourage people to visit or relocate to Washoe County.
- The Washoe County Chamber Of Commerce systematically promotes the area's natural resources for hunting, enjoyment of nature, historic trails and rural sight-seeing. Protecting the free-flowing character and outstandingly remarkable values of Smoke Creek is consistent with their message.

11. Would wild and scenic river designation contribute to basin or river system integrity?

Nowhere in the northwestern portion of the Great Basin is there a free-flowing perennial stream that is part of the national wild and scenic river system. Lower Smoke Creek is representative of this region and contains exceptional scenic, historic, wildlife, and recreational values. The creek flows through a primitive landscape that appears much the way it did when pioneers traversed Lower Smoke Creek Canyon in the 1850s. The sole readily-apparent change is Smoke Creek Road (a low-profile gravel road north of and adjacent to the creek) which allows vehicular access. The recommended creek segment is encompassed by the Dry Valley Rim WSA, which extends beyond it on three sides. WSR designation would maintain the integrity of this segment by ensuring that its free-flowing character is respected and its dramatic canyon permanently preserved from the possibility of inundation. Designation would protect the aquatic, riparian, and upland habitats of this small desert stream for the benefit of many species of wildlife that live in or adjacent to the creek, or pass through the area. It would also preserve an important historic trail.

12. The ability of BLM to manage the river segments under designation, or ability to protect the river area other than Wild and Scenic designation.

BLM is fully capable of managing Lower Smoke Creek as a Wild and Scenic River under the requirements of the WSR Act. The BLM manages all land along the 3.2 mile eligible river segment (100% public land), so has the ability to manage the river under WSR designation. The proposed RMP contains management goals and objectives that would provide a level of protection to the corridor with or without WSR designation. These goals include managing riparian and upland areas to meet land health standards; managing the Nobles Trail under provisions of section 106 of the National Historic Preservation Act and requirements of the National Trails System Act (in 1992 Nobles Trail was designated as a national historic trail as part of the California National Historic Trail Act); managing all public lands south of Smoke Creek road and adjacent to Smoke Creek to preserve wilderness values so that this area is also afforded protection under the BLM Wilderness IMP (all of this eligible segment of Smoke Creek is within the Dry Valley Rim Wilderness Study Area); and scenic values are managed to meet BLM visual resource management objectives for Class I areas (south of Smoke Creek road) and Class II areas (north of Smoke Creek road)

In this proposed RMP, BLM is also recommending designation of the entire eligible segment of Lower Smoke Creek as an Area of Critical Environmental Concern in order to provide additional management emphasis to protect the area's scenic, geologic, historic, and recreational values. ACEC designation would occur upon adoption of this proposed RMP and a management plan of the Lower Smoke Creek ACEC would then be developed that would address all actions needed to manage Lower Smoke Creek to preserve and protect the creek's relevant and important values (aquatic, riparian, BLM water right, historic trail, and wilderness values, see Appendix E) that support ACEC designation.

13. What is the potential for water resource development?

Lower Smoke Creek has little to no potential for surface water development due to very low flow and the fact that most of the available water is used to fill Smoke Creek Reservoir (up to 1,300 acre-feet/year—depending on availability) used for meadow irrigation upstream of the BLM eligible segment in lower Smoke Creek canyon. Also, BLM minimum-flow water rights for the benefit of instream uses (riparian area and wildlife) further limit water resource development within the eligible segment. As of September 2005, Washoe County Water Rights Department and the Planning Department were not aware of any past, present, or contemplated studies to develop surface water along Lower Smoke Creek (Behmaram, 9-9-05; Whitney, 9-9-05).

On April 6, 2005, Granite Fox Power, LLC filed for Nevada water rights to pump 14,779 acre-feet of groundwater from wells to be drilled on private land at the edge of the Smoke Creek Desert on the Lower end of Smoke Creek. The filing area is located one mile downstream from the eligible segment of Lower Smoke Creek. This groundwater—along with additional water pumped from two other desert aquifers—was to be used to operate a proposed 1,450 megawatt coal-fired power plant planned by SEMPRA Energy Company on a site near Gerlach, Nevada. Pumping would have taken place if the project was approved and water rights were obtained. Removal of groundwater on the scale required for the (proposed) power plant could have lowered the water table and subverted surface waters—this could have drastically reduced surface water flows, drying desert springs and Lower Smoke Creek. Sempra's plans for the proposed coal fired power plant and associated water needs have since been dropped by the project proponent however interest in Smoke Creek's surface and subsurface water for support of growth in the Reno/Sparks area continues (Jaksick, Todd, 9-28 -2006).

On January 11, 2007, Jackrabbit Properties, LLC (a company owned by the owners of Rock Springs Ranch) filed application No. 75042, with the State of Nevada, Division of Water Resources for impoundment of up to 18,000 acre feet of Smoke Creek water on private property at Rock Springs Ranch, in Nevada directly downstream from Smoke Creek Reservoir in California. Jackrabbit Properties, LLC holds the water rights to Big Springs (the source of Smoke Creek in California) and to the existing Smoke Creek Reservoir. On February 20, 2007, Washoe County, Nevada filed a protest with the Nevada State Engineer to Jackrabbit Properties' impoundment application, stating that there is no un-appropriated water in the proposed source of supply. As of this writing in Febuary 2007 no action has been taken on the proposed reservoir.

Representatives of Jackrabbit properties (the proponents of the new reservoir on Smoke Creek) advised BLM of their concerns about Wild and Scenic River designation on Upper Smoke Creek and ACEC designation on Lower Smoke Creek in their comments on the draft RMP (ELFO Public Comment letter #20 "Bright-Holland Co." & "Jackrabbit Properties, LLC") and during a meeting with BLM ELFO manager and staff in September 2006 (Jaksick, Todd, 9-28 -2006).

Recommendation & Rationale

The eligible segment of Lower Smoke Creek would not be recommended as Suitable for Wild and Scenic River designation under the proposed RMP. Based on its outstandingly remarkable primitive recreation opportunities, scenic quality and cultural features, Lower Smoke Creek clearly deserves special management and protection. The Wild and Scenic Suitability analysis recognizes these values, but also describes concerns from adjacent landowners regarding WSR designation.

These groups are not supportive of WSR designation because of concerns over loss of local control in determining the best mix of resource conservation and water needs for the region. Because of this opposition, the BLM has determined that an ACEC designation, Wilderness Study Area interim management, and other RMP goals will provide the best level of protection for the Lower Smoke Creek corridor at this time, while continuing to foster the local participation that has successfully protected and restored the stream corridor.

As described under Item 13 of the suitability analysis, the potential for water resource development, especially dam construction, is low. However, based on local concerns, the BLM does not want to preclude a community dialogue regarding this issue. As part of the ACEC plan and other local planning efforts, the BLM would participate in local water resource discussions to ensure that the values of Lower Smoke Creek are considered. The area is already under protective management as a Wilderness Study Area. 'The BLM's Wilderness Interim Management Policy also provides a high level of protection of the

outstandingly remarkable values of the corridor and any impacts to the corridor that are not consistent with IMP would need Congressional authorization to proceed.

The ACEC designation also provides for protection of relevant and important values that parallel the WSR outstandingly remarkable values (See Appendix E). These protections are summarized in Chapter 2.12 and Table 2.12-1. No management goals, actions, or allowable uses in this proposed plan are incompatible with Wild and Scenic River values, so would not foreclose or otherwise impact consideration of WSR suitability at a future time.

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Appendix M

2003 Stream Survey Summaries by Stream and Watershed

Appendix M.
2003 Stream Survey Summaries by Stream and Watershed

Horse Lake Watershed

Summary of Stream Habitat Conditions
Shoals Creek (EL 207)

Current Conditions

General Description

Pine Creek is a small, shallow creek (mean width 1.3m, mean depth 0.04m), with a high proportion of fine sediment in the substrate. This stream has a pool/riffle ratio of 23/77, 55% sedimentation, and abundant rooted aquatic vegetation (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Shoals Creek (EL 207) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	23	45	Fair
Pool / Riffle ratio	23 / 77	45	Fair
Pool quality	4	40	Fair
Percent stream bottom with desirable materials	53	53	Fair
Bank cover	2	50	Fair
Bank stability	2.8	70	Good
Percent Habitat Optimum	44	44	Fair

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Shoals Creek (EL 207) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.04	
Mean width of stream (m)	1.3	
Mean % of stream shaded	5	
Mean % of bottom with clinging vegetation	0	
Mean % of bottom with rooted vegetation	51	
Mean % sedimentation	55	
Mean stream gradient (%)	5.6	
Mean landform gradient (%)	Left bank: 8.3	Right bank: 8.3
Mean stream flow rate during surveys (cfs)	0.2	
Mean water temperature (ºC)	16	
Summer mean minimum water temperature (ºC)[1]	NA	
Summer mean maximum water temperature (ºC)[1]	NA	
Number of days max. temperature exceeded 26ºC[1]	NA	
Mean air temperature (ºC)	20	
Turbidity description	Clear	
Mean conductivity	167	
Mean pH	7.6	
Mean dissolved oxygen (% saturation)	69	
Mean dissolved oxygen (mg/l)	6.8	

[1]Hobo temperature gage measurements not taken at this site in 2003.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable at most locations, due to abundant riparian vegetation (Table A). Riparian vegetation for the most part consists of grasses and forbs, and includes few woody perennials. Thus, although banks are currently stable, they are vulnerable to disturbance.

Shading of the water surface
Due to the low height of riparian vegetation, only 5% of the stream surface is shaded. This amount of shade contributes little to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Shoals Creek (Table C). The high relative abundance of Gastropoda is associated with the high abundance of aquatic vegetation, and also slow nonturbulent water. The presence of Odonata and Hemiptera indicates the presence of slow-water pool habitat.

Table C. Results of invertebrate sampling conducted on Shoals Creek (EL 207) during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	3	96.0	25.1
Plecoptera	3	5.0	1.3
Trichoptera	5	77.0	20.1
Diptera	3	18.0	4.7
Odonata	2	6.0	1.6
Hemiptera	1	1.0	0.3
Coleoptera	2	4.5	1.2
Gastropoda	2	152.0	39.7
Bivalvia	1	19.0	5.0
Arachnida	1	2.5	0.7
Hirudinea	2	1.5	0.4
Percent EPT Taxa[1]			46.5

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
No fisheries surveys were conducted at Shoals Creek in 2003.

Potential to support Lahontan fish species
At the time of the survey on September 10, 2003, the water temperature and dissolved oxygen provided adequate habitat conditions for Lahontan cutthroat trout. However, due to the lack of shade and shallow water depth, temperatures may exceed acceptable limits for trout habitat during July and August. In addition, the small size of the stream limits habitat for all but small fish. Therefore, Shoals Creek probably would not support a trout population. Other Lahontan fish species which could potentially be supported by the habitat in Shoals Creek include relatively small fish which are tolerant of warm water such as tui chub, Lahontan redside, and speckled dace.

Summary of Stream Habitat Conditions
Cottonwood Canyon (EL 206)

Current Conditions

General Description

Cottonwood Canyon Creek is a small, high gradient, extremely shallow creek (mean width 2.6m, mean depth 0.02m), with a high proportion of gravel and cobble in the substrate. This stream has 100% riffle habitat, 23% sedimentation, and little aquatic vegetation (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Cottonwood Canyon Creek (EL 206) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	0	0	Poor
Pool / Riffle ratio	0 / 100	0	Poor
Pool quality	0	0	Poor
Percent stream bottom with desirable materials	77	77	Good
Bank cover	2.8	69	Fair
Bank stability	3.2	80	Excellent
Percent Habitat Optimum	69	69	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Cottonwood Canyon Creek (EL 206) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.02	
Mean width of stream (m)	2.6	
Mean % of stream shaded	60	
Mean % of bottom with clinging vegetation	0.0	
Mean % of bottom with rooted vegetation	1.3	
Mean % sedimentation	23	
Mean stream gradient (%)	8.3	
Mean landform gradient (%)	Left Bank: 18.1	Right Bank: 6.6
Mean stream flow rate during surveys (cfs)	0.2	
Mean water temperature during surveys (ºC)	9.2	
Summer mean minimum water temperature (ºC)[1]	11.8	
Summer mean maximum water temperature (ºC)[1]	23.1	
Number of days max. temperature exceeded 26ºC[1]	14	
Mean air temperature during surveys (ºC)	9.5	
Turbidity description	Clear	
Mean conductivity	181	
Mean pH	7.3	
Mean dissolved oxygen (% saturation)	66	
Mean dissolved oxygen (mg/l)	7.6	

[1]Based on Hobo temperature gage measurements recorded hourly from June 10 until August 31 (average of two stations on Cottonwood Canyon Creek).

Condition of stream bank vegetation and bank stability

Stream banks are quite stable, due to abundant riparian vegetation (Table A). Riparian vegetation is diverse and vigorous, and includes primarily perennials such as willow shrubs.

Shading of the water surface
Abundant perennial vegetation shades 60% of the water surface, which contributes to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Cottonwood Canyon Creek (Table C). Amphipods are most abundant in small habitats lacking fish (Voshell 2002). Amphipods are quite abundant in Cottonwood Canyon Creek, which may indicate a lack of fish in this stream.

Table C. Results of invertebrate sampling conducted on Cottonwood Canyon Creek (EL 206) during the 2003 field season

Invertebrate Order	Maximum Types in a sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	3	95.0	33.0
Plecoptera (stoneflies)	2	5.0	1.7
Trichoptera (caddisflies)	3	28.0	9.7
Diptera (true flies)	1	1.0	0.3
Coleoptera (water beetles)	2	5.0	1.7
Gastropoda (snails)	1	3.0	1.0
Amphipoda (scuds)	1	151.0	52.4
Percent EPT Taxa[1]			44.4

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
No fisheries surveys were conducted at Cottonwood Canyon Creek in 2003.

Potential to support Lahontan fish species
Cottonwood Canyon Creek has a high proportion of desirable bottom materials and high dissolved oxygen content (Tables A and B). These are good attributes for supporting trout. However, the lack of pool habitat and the extremely shallow depth would prevent the establishment of trout in this stream. Lahontan fish species which could potentially be supported by the habitat in Cottonwood Creek include relatively small fish such as paiute sculpin, tui chub, Lahontan redside, and speckled dace. However, the shallowness of the water reduces the suitability of this stream for even these small fish. In addition, the high gradient of the reach surveyed, which includes some small waterfalls, may inhibit fish movement.

Summary of Stream Habitat Conditions
Pine Creek (EL193)

Current Conditions
General Description
Pine Creek is a small, shallow creek (mean width 1.8m, mean depth 0.05m), with a high proportion of fine sediment in the substrate. This stream has a pool/riffle ratio of 47/53, 72% sedimentation, and little aquatic vegetation (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Pine Creek (EL 193) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	62.5	93.0	Excellent
Pool / Riffle ratio	47 / 53	93.0	Excellent
Pool quality	3.8	45	Fair
Percent stream bottom with desirable materials	44	44	Fair
Bank cover	3.3	82.8	Excellent
Bank stability	2.8	70.3	Good
Percent Habitat Optimum	61	61	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Pine Creek (EL 193) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.05	
Mean width of stream (m)	1.8	
Mean % of stream shaded	60	
Mean % of bottom with clinging vegetation	0	
Mean % of bottom with rooted vegetation	8.8	
Mean % sedimentation	72	
Mean stream gradient (%)	1.2	
Mean landform gradient (%)	Left Bank: 21	Right Bank: 15
Mean stream flow rate during surveys (cfs)	0.4	
Mean water temperature during surveys (ºC)	10	
Summer mean minimum water temperature (ºC)[1]	NA	
Summer mean maximum water temperature (ºC)[1]	NA	
Number of days max. temperature exceeded 26ºC[1]	NA	
Mean air temperature during surveys (ºC)	18	
Turbidity description	Clear	
Mean conductivity	163	
Mean pH	7.2	
Mean dissolved oxygen (% saturation)	71.5	
Mean dissolved oxygen (mg/l)	8.07	

[1]Hobo temperature gage measurements not taken at this site in 2003.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable, due to abundant riparian vegetation (Table A). Riparian vegetation is diverse and vigorous, and includes primarily perennials such as willow shrubs.

Shading of the water surface
Abundant perennial vegetation shades 60% of the water surface, which contributes to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Pine Creek (Table C). The high relative abundance of Diptera may be associated with the high percentage of fine sediment. The presence of Odonata and Hemiptera indicates slow-water pool habitat.

Table C. Results of invertebrate sampling conducted on Pine Creek (EL 193) during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	2	23.5	17.3
Plecoptera (stoneflies)	1	3.5	2.6
Trichoptera (caddisflies)	4	27.0	19.9
Diptera (true flies)	2	30.0	22.1
Odonata (damselflies & dragonflies)	2	6.5	4.8
Hemiptera (true bugs)	1	1.0	0.7
Coleoptera (water beetles)	3	17.0	12.5
Gastropoda (snails)	2	26.0	19.1
Arachnida (water mites & spiders)	1	1.5	1.1
Percent EPT Taxa[1]			39.7

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
No fisheries surveys were conducted at Pine Creek in 2003.

Potential to support Lahontan fish species
Based on results of the survey, Pine Creek could conceivably support trout, although trout habitat is far from ideal. There is a high concentration of dissolved oxygen, and ample shade keeps the stream relatively cool. However, the high proportion of fine sediment indicates a lack of good trout spawning habitat, and the shallow depth would limit habitat for larger fish. Other Lahontan fish species which could potentially be supported by the habitat in Pine Creek include relatively small fish such as tui chub, Lahontan redside, and speckled dace.

Susan River/Honey Lake Watershed

Summary of Stream Habitat Conditions
Willow Creek (EL 178, 179, 180, 184, 185, 204)

Current Conditions
General Description
Willow Creek is a medium-sized creek (mean width 7.2m, mean depth 0.26m), which flows primarily within a canyon. Many boulders in the stream provide cover for fish, and sedimentation is relatively low throughout most of the length of Willow Creek. Of the stations surveyed, only Station 179 has greater than 16% sedimentation. The substrate at Station 179 was 100% fine sediment, and bank stability was lowest at this station. Most of Willow Creek is in good condition. Only Station 179 was given an overall habitat condition rating of poor, and ungulate damage was most evident at that station. Willow Creek has a pool/riffle ratio of 70/30, and aquatic vegetation in slow-water areas (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Willow Creek (EL 178, 179, 180, 184, 185, 204) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	70	61	Good
Pool / Riffle ratio	70 / 30	61	Good
Pool quality	3.6	48	Fair
Percent stream bottom with desirable materials	72	72	Good
Bank cover	2.3	58	Fair
Bank stability	3.5	88	Excellent
Percent Habitat Optimum	66	66	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Willow Creek (EL 178, 179, 180, 184, 185, 204) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.26	
Mean width of stream (m)	7.2	
Mean % of stream shaded	9.1	
Mean % of bottom with clinging vegetation	15	
Mean % of bottom with rooted vegetation	13	
Mean % sedimentation	28	
Mean stream gradient (%)	0.56	
Mean landform gradient (%)	Left bank: 30	Right bank: 36
Mean stream flow rate during surveys (cfs)	5.9	
Mean water temperature during surveys (ºC)	20	
Summer mean minimum water temperature (ºC)[1]	16.8	
Summer mean maximum water temperature (ºC)[1]	23.3	
Number of days max. temperature exceeded 26ºC[1]	13	
Mean air temperature during surveys (ºC)	29	
Turbidity description	Clear	
Mean conductivity	267	
Mean pH	8.2	
Mean dissolved oxygen (% saturation)	68	
Mean dissolved oxygen (mg/l)	6.3	

[1]Based on Hobo temperature gage measurements recorded hourly June 11 - August 31, 2003. Values are means of temperature data from three stations.

Condition of stream bank vegetation and bank stability

Stream banks are quite stable throughout most of Willow Creek, due to abundant riparian vegetation (Table A). Riparian vegetation for the most part consists of grasses and forbs, as well as thick stands of willow and other woody perennials in some areas.

Shading of the water surface

Due to the low height of riparian vegetation relative to the stream width, only 9% of the stream surface is shaded. This amount of shade contributes little to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling

The high EPT ratio indicates good water quality in Willow Creek (Table C). The high diversity of invertebrate taxa is indicative of the variety of aquatic habitats in Willow Creek. The presence of

Odonata and Hemiptera indicate slow-water pool habitat. The presence of Oligochaeta indicates areas with fine sediment. The presence of Gastropoda is often associated with aquatic vegetation.

Table C. Results of invertebrate sampling conducted on Willow Creek (EL 178, 179, 180, 184, 185, 204) during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	4	9.3	15.8
Plecoptera	2	2.1	3.6
Trichoptera	6	13.7	23.1
Diptera	1	2.9	4.9
Odonata	2	0.8	1.3
Hemiptera	2	4.4	7.5
Coleoptera	3	4.3	7.3
Gastropoda	2	2.3	3.9
Bivalvia	1	0.3	0.6
Decapoda	1	0.1	0.2
Amphipoda	2	16.0	27.0
Oligochaeta	2	2.4	4.1
Hirudinea	1	0.1	0.2
Nematoda	1	0.3	0.6
Percent EPT Taxa[1]			42.4

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys

Fish population surveys were conducted using electrofishing at Stations 178-1 and 178-2 (Table D). Fish species found included speckled dace, Lahontan redside, tui chub, Tahoe sucker, paiute sculpin, and brown trout. The three most abundant species were Lahontan redside, Tahoe sucker, and speckled dace. Based on a comparison with previous electrofishing surveys conducted in 1980 and 1994 (Tables E and F), the fish species composition appears to have remained similar to that found by previous research. The low relative abundance of trout in Willow Creek is probably related to high water temperatures during the summer, which reach the upper tolerance of most trout species. A fishery survey was completed during 2005 that is consistent with previous surveys.

Potential to support Lahontan fish species

Habitat characteristics of Willow Creek are adequate (though marginal) to support trout populations. The main habitat characteristic limiting trout production in Willow Creek is high summer temperature. Mean maximum summer temperature was 23.3ºC in 2003, slightly above the recommended maximum for cutthroat trout of 22ºC (Hickman and Raleigh 1982). In addition, maximum daily temperature exceeded 26ºC on 16 days (average of 3 temperature gaging stations). Therefore, high temperatures probably limit trout survival and growth in Willow Creek, especially during particularly hot summers or if flow is reduced. During fish population surveys at Station 178-1 and 178-2 on October 16 2003, brown trout were found in Willow Creek (Table D). During surveys in 1980 and 1994, both brown trout and rainbow trout were evident, though only a few rainbow trout were found (Tables E and F). Reintroduction of Lahontan cutthroat trout might be successful in Willow Creek, if stocked LCT were of a large size which could avoid predation of brown trout. In addition to brown trout and rainbow trout, Willow Creek currently supports populations of speckled dace, mountain sucker, Tahoe sucker, Lahontan redside, paiute sculpin, and tui chub, based on surveys in 1994 and 2003. Willow Creek thus supports a high diversity of Lahontan fish species.

Table D. Fish composition of Willow Creek sample sites, BLM 2003

Site RFA #	Approx Site 80-94 #	Survey Length (m)	# of Fish	SD (%)	LRS (%)	TS (%)	MS (%)	PS (%)	BT (%)	RT (%)	TC (%)
178-1	WC-1	100	110	15	54	26	0	2	0	0	3
178-2	WC-1	100	145	31	38	17	0	13	1	0	0

Table E. Fish composition of Willow Creek sample sites, UCD, 1994

Site 80-94 #	Approx Site RFA #	Survey Length (m)	# of Fish	SD (%)	LRS (%)	TS (%)	MS (%)	PS (%)	BT (%)	RT (%)	TC (%)
WC-1	178	86	197	20	53	15	5	2	5	0	0
WC-2	179	91	125	54	27	9	2	0	8	0	0
WC-3	204	31	161	37	50	2	1	8	2	1	0
WC-4	185-1	57	363	61	19	13	0	5	2	0	0
WC-5	185-2	29	139	47	38	9	1	5	0	0	0
WC-6	-	37	193	63	21	16	0	<1	0	0	0
WC-7	-	44	315	91	3	6	0	0	0	<1	0
WC-8	-	80	263	37	34	5	0	8	0	0	16
WC-9	-	35	85	55	41	4	0	0	0	**	0
WC-10	-	104	86	62	36	2	0	0	0	0	0

Table F. Fish composition of Willow Creek sample sites, BLM, 1980

Site 80-94 #	Approx Site RFA #	# of Fish	SD (%)	LRS (%)	TS (%)	MS (%)	PS (%)	BT (%)	RT (%)	TC (%)
WC-1	178	86	6	35	47	5	0	0	0	0
WC-2	179	87	60	25	5	1	6	2	0	0
WC-3	204	51	10	43	4	2	37	4	0	0
WC-4	185-1	39	21	56	31	3	18	3	0	0
WC-5	185-2	356	44	35	13	5	2	<1	<1	0

Summary of Stream Habitat Conditions

Pete's Creek (EL200)

Current Conditions

General Description

Pete's Creek is a very slow-moving, small creek with 99% pool habitat, 1.28 cubic feet per second, average width of 1.3 meters, average depth of 0.18 meters, and 60% sedimentation. (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Pete's Creek (EL200) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	99	1	Poor
Pool / Riffle ratio	100 / 0	0	Poor
Pool quality	4	40	Fair
Percent stream bottom with desirable materials	40	40	Fair
Bank cover	1.9	48.4	Fair
Bank stability	1.3	31.3	Poor
Percent Habitat Optimum		41.6	Fair

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Pete's Creek (EL200) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.18	
Mean width of stream (m)	1.3	
Mean % of stream shaded	0.5	
Mean % of bottom with clinging vegetation	0	
Mean % of bottom with rooted vegetation	48.1	
Mean % sedimentation	60	
Mean stream gradient (%)	1.2	
Mean landform gradient (%)	Left Bank: 51.8	Right Bank: 58.9
Mean stream flow rate during surveys (cfs)	1.28	
Mean water temperature during surveys (ºC)	21.1	
Summer minimum water temperature (ºC)[1]		
Summer mean maximum water temperature (ºC)[1]		
Number of days max. temperature exceeded 26ºC[1]		
Mean air temperature during surveys (ºC)	24	
Turbidity description	Clear	
Mean conductivity	179	
Mean pH	7.25	
Mean dissolved oxygen (% saturation)	58.7	
Mean dissolved oxygen (mg/l)	5.24	

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003.

Condition of stream bank vegetation and bank stability
Stream banks are not stable (Table A). Riparian vegetation is dominated by herbaceous vegetation.

Shading of the water surface
Due to the low height of riparian vegetation relative to stream width, only about 0.5% of the water surface is shaded (Table B). This amount of shade has little effect on keeping water cooler in summer or reducing ice formation in winter.

Potential to support a native assemblage of Lahontan species
Because if its size and depth Pete's Creek has little potential for supporting native trout but is probably supporting small native fish. Because the creek was not sampled we do not know the exact fishery in Pete's Creek.

Invertebrate Sampling
The high abundance and diversity of Ephemeroptera, Plecoptera, and Trichoptera indicate this is a healthy environment with little or no pollution. The high abundance of Odonata indicates there is a lot of aquatic vegetation in the stream.

Fisheries Surveys
No fisheries surveys were conducted at Pete's Creek in 2003.

Table C. Results of invertebrate sampling conducted on Buffalo Creek (EL 177) during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	3	15	36
Plecoptera (stoneflies)	1	0.5	0.01
Trichoptera (caddisflies)	5	4	0.09
Odonata (dragonflies and damselflies)	3	19	45
Hemiptera (true bugs)	5	3	0.07
Coleoptera (water beetles)	1	0.5	0.01
Gastropoda (snails)	0	0	0
Amphipoda (scuds)	0	0	0
Oligochaeta (segmented worms)	0	0	0
Nematoda (round worms)	0	0	0
Percent EPT Taxa[1]		19.5	

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Summary of Stream Habitat Conditions
Secret Creek (EL 205)

General Description

Secret Creek is a small creek (mean width 2.8m, mean depth 0.16m) with abundant willows along the banks. Boulders in the stream and over-hanging riparian vegetation provide cover for fish (Tables A and B). The stream bottom material is 39% fine sediment. Secret Creek has a pool/riffle ratio of 96/4, and aquatic vegetation in slow-water areas. NOTE: After the 2003 survey was completed a portion of Secret Creek was burned in a wildland fire. A follow-up survey has not been completed.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Secret Creek (EL 205) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	96	9	Poor
Pool / Riffle ratio	96 / 4	9	Poor
Pool quality	4	40	Fair
Percent stream bottom with desirable materials	54	54	Fair
Bank cover	3.8	95	Excellent
Bank stability	3.1	78	Good
Percent Habitat Optimum	61	61	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Secret Creek (EL 205) during the 2003 field season

Priority B Factors	Value
Mean depth of stream (m)	0.16
Mean width of stream (m)	2.8
Mean % of stream shaded	60
Mean % of bottom with clinging vegetation	0
Mean % of bottom with rooted vegetation	14
Mean % sedimentation	39
Mean stream gradient (%)	2.0

Priority B Factors	Value	
Mean landform gradient (%)	Left bank: 29.2	Right bank:32.4
Mean stream flow rate during surveys (cfs)	2.0	
Mean water temperature during surveys (ºC)	16	
Summer mean minimum water temperature (ºC)[1]	15.1	
Summer mean maximum water temperature (ºC)[1]	22.1	
Number of days max. temperature exceeded 27ºC[1]	0	
Mean air temperature during surveys (ºC)	28	
Turbidity description	Clear	
Mean conductivity	176	
Mean pH	7.0	
Mean dissolved oxygen (% saturation)	67	
Mean dissolved oxygen (mg/l)	6.6	

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable along Secret Creek, due to abundant and diverse perennial vegetation in the riparian zone (Table A). Riparian vegetation for the most part consists of forbs, grasses, and thick stands of willow and other woody perennials.

Shading of the water surface
Due to abundant riparian vegetation including willow and other shrubs, about 60% of the stream surface is shaded. This contributes to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Secret Creek (Table C). The high diversity of invertebrate taxa is indicative of the variety of aquatic habitats in Willow Creek. The presence of Odonata indicates areas of slow-water pool habitat. The presence of Oligochaeta indicates areas with fine sediment. The presence of Gastropoda is often associated with aquatic vegetation.

Table C. Results of invertebrate sampling conducted on Secret Creek (EL 205) during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	2	7.5	17.4
Plecoptera	1	4.0	9.3
Trichoptera	4	21.0	48.8
Diptera	1	2.0	4.7
Odonata	1	2.0	4.7
Coleoptera	1	2.5	5.8
Gastropoda	1	1.5	3.5
Amphipoda	1	1.5	3.5
Oligochaeta	1	1.0	2.3
Percent EPT Taxa[1]			75.6

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
No fisheries surveys were conducted at Secret Creek in 2003.

Potential to support Lahontan fish species
Based on results of the survey, Secret Creek could support Lahontan cutthroat trout. There is a high concentration of dissolved oxygen, and ample shade keeps the stream relatively cool. Water temperature did not exceed 26ºC during the summer of 2003, and mean summer maximum temperature was 22.1ºC, right at the top of the temperature scale recommended for optimum growth and survival of Lahontan cutthroat trout. However, the pool/riffle ratio is less than optimum, and the moderately high proportion of fine sediment (39%) would limit trout spawning habitat. Secret Creek could also support other Lahontan fish species including Tahoe sucker, mountain sucker, tui chub, Lahontan redside, and speckled dace, and Paiute sculpin. However, lack of riffle habitat and stream sedimentation would limit abundance of Paiute sculpin.

Summary of Stream Habitat Conditions
Susan River

Current Conditions
General Description
Susan River is one of the main rivers within the Lahontan Basin. At the time of the survey, mean width was 10.5m, and mean depth was 0.33m. This stream has a high proportion of riffle habitat (pool / riffle ratio = 21 / 79), and little aquatic vegetation (Tables A and B).

Condition of stream bank vegetation and bank stability
Stream banks were quite stable, due to abundant riparian vegetation (Table B). Riparian vegetation was diverse and vigorous, and included primarily perennials such as willow shrubs.

Shading of the water surface
Due to the high ratio of water width to height of riparian vegetation, there is little shading of Susan River during most of the day. However, due to the fact that Susan River is in a valley and large trees grow within several meters of the banks, there is some shading of the water surface in early morning and late afternoon. This contributes to cooler water in summer and reduced icing in winter.

Potential to support Lahontan fish species
Susan River currently provides habitat for rainbow trout and brown trout, according to data from surveys conducted in 1992 and 1996. Dissolved oxygen, measured at 5.7 mg/l, is sufficient for growth and survival of trout. The temperature in the Susan River is within a good range to support trout (Table B). Cutthroat trout require gravelly riffles with low amounts of sediment for spawning (reviewed in Moyle 2002). Susan River has 79% riffle habitat, and 30% gravel in the substrate. Desirable bottom materials, including boulders, cobble, and gravel, were 81%. A comparison of stream summaries reported here shows that the Susan River is the most suitable site for possible reintroduction of Lahontan cutthroat trout within the Eagle Lake Resource Area, with respect to physical habitat characteristics. However, the presence of rainbow trout and brown trout in Susan River would hamper the success of cutthroat trout reintroduction, due to effects of competition, predation, and interbreeding of cutthroat trout and rainbow trout. However, if the practice of stocking rainbow trout in the Susan River was discontinued, and large Lahontan cutthroat trout were stocked, these cutthroat trout would prey on smaller trout of other species. A concerted effort could potentially result in successful repopulation of the Susan River with Lahontan cutthroat trout. In addition, the aquatic habitat in the Susan River could potentially support other Lahontan fish species including paiute sculpin, tui chub, Lahontan redside, speckled dace, Tahoe sucker, and mountain sucker.

Invertebrate Sampling
As each invertebrate taxa is characteristically found in certain habitats, the presence of particular invertebrate taxa in a given stream location provides an indication of the type of habitat at the stream

location. In the Susan River, the abundance of Plecoptera and the high EPT ratio of 58% indicate good water quality (Table C). The presence of Hemiptera indicates some pool habitat, and the low relative abundance of Oligochaeta and Nematoda indicates a low proportion of fine sediment in the substrate.

Fisheries Surveys

No fisheries surveys were conducted on the Susan River in 2003. Fisheries surveys were conducted in the Susan River in 1992 and 1996. These surveys showed that fish species present in the Susan River included brown trout, rainbow trout, Tahoe suckers, speckled dace, and Lahontan redsides.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on the Susan River during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	21	43	Fair
Pool / Riffle ratio	21 / 79	43	Fair
Pool quality	2.4	71	Good
Percent stream bottom with desirable materials	81	81	Excellent
Bank cover	3.0	75	Good
Bank stability	3.5	81	Excellent
Percent Habitat Optimum	61	61	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on the Susan River during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.33	
Mean width of stream (m)	10.5	
Mean % of stream shaded	5	
Mean % of bottom with clinging vegetation	0	
Mean % of bottom with rooted vegetation	1.5	
Mean % sedimentation	19	
Mean stream gradient (%)	0.55	
Mean landform gradient (%)	Left Bank: 25.9	Right Bank: 28.3
Mean stream flow rate during surveys (cfs)[1]	72.5	
Mean water temperature during surveys (ºC)	20	
Summer mean minimum water temperature (ºC)[2]	15.6	
Summer mean maximum water temperature (ºC)[2]	22.2	
Number of days max. temperature exceeded 27ºC[2]	3	
Mean air temperature during surveys (ºC)	30	
Turbidity description	Cloudy	
Mean conductivity	70.6	
Mean pH	7.4	
Mean dissolved oxygen (% saturation)	65	
Mean dissolved oxygen (mg/l)	5.7	

[1]Flow rate was unusually high during the survey due to heavy rain the previous day.

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003. Values are means of temperature data from three stations.

Table C. Results of invertebrate sampling conducted on the Susan River during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	2	4.8	6.7
Plecoptera (stoneflies)	3	7.2	10.0
Trichoptera (caddisflies)	7	29.6	41.2
Diptera (true flies)	1	24.8	34.5
Hemiptera (true bugs)	1	2.0	2.8
Coleoptera (water beetles)	2	2.2	3.1
Megaloptera (Dobson flies, etc.)	1	0.2	0.3
Oligochaeta (segmented worms)	1	0.4	0.6
Nematoda (round worms)	1	0.6	0.8
Percent EPT Taxa[1]			57.9

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Summary of Stream Habitat Conditions
Cheney Creek (EL199)

Current Conditions

General Description

Cheney Creek is a small, shallow creek (mean width 2.5m, mean depth 0.08m), with a high proportion of boulders and cobble in the substrate. This stream has 70% pool habitat, 33% sedimentation, and little aquatic vegetation (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Cheney Creek (EL 199) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	70	59	Fair
Pool / Riffle ratio	70 / 30	59	Fair
Pool quality	4.0	40	Fair
Percent stream bottom with desirable materials	67	67	Good
Bank cover	2.3	58	Fair
Bank stability	3.8	95	Excellent
Percent Habitat Optimum	62	62	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Cheney Creek during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.08	
Mean width of stream (m)	2.5	
Mean % of stream shaded	25	
Mean % of bottom with clinging vegetation	1.3	
Mean % of bottom with rooted vegetation	4.4	
Mean % sedimentation	33	
Mean stream gradient (%)	1.8	
Mean landform gradient (%)	Left bank: 32	Right bank: 31
Mean stream flow rate during surveys (cfs)	0.2	
Mean water temperature during surveys (ºC)	14.4	
Summer mean minimum water temperature (ºC)[1]	14.3	

Priority B Factors	Value
Summer mean maximum water temperature (ºC)[1]	20.8
Number of days max. temperature exceeded 26ºC[1]	0
Mean air temperature during surveys (ºC)	19.5
Turbidity description	Clear
Mean conductivity	220
Mean pH	7.05
Mean dissolved oxygen (% saturation)	59
Mean dissolved oxygen (mg/l)	6.1

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable, due to abundant riparian vegetation (Table A). Riparian vegetation is diverse and vigorous, and includes primarily perennials such as willow shrubs.

Shading of the water surface
Abundant perennial vegetation shades 25% of the water surface, which contributes to cooler water in summer and reduced icing in winter (Table B).

Potential to support a native assemblage of Lahontan species
Cheney Creek presently provides habitat for trout. Dissolved oxygen, measured at 6.1 mg/l, is sufficient for growth and survival of trout. The temperature in Cheney Creek is within a good range to support trout, with mean maximum summer water temperature of 20.8ºC in 2003. Cutthroat trout require gravelly riffles with low amounts of sediment for spawning. Cheney Creek has 30% riffle habitat. However, at the time of the survey, the substrate consisted for the most part of boulders, cobbles and fines, with little gravel. A logging operation upstream in the Cheney Creek watershed earlier in the summer, followed by heavy rain, contributed a substantial load of sediment into Cheney Creek. This probably contributed to the lack of visible gravel substrate observed during the survey. The mean depth of Cheney Creek is only 0.08m, which would limit the habitat to small fish with the possibility of a few larger fish in pools. Lahontan fish species which could potentially be supported by the habitat in Cheney Creek include Lahontan cutthroat trout, paiute sculpin, tui chub, Lahontan redside, speckled dace, Tahoe sucker, and mountain sucker.

Invertebrate Sampling
The presence of Plecoptera and abundance of Trichoptera indicates good water quality in Cheney Creek (Table C). Dipterans were the most abundant invertebrates found in Cheney Creek during the survey. Various types of Dipterans can inhabitat a variety of substrates and environmental conditions, but several species are associated with fine substrate. The high relative abundance of this insect order may be associated with the 33% sedimentation in Cheney Creek in summer 2003.

Table C. Results of invertebrate sampling conducted on Cheney Creek during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	2	5.0	4.6
Plecoptera (stoneflies)	1	4.0	3.7
Trichoptera (caddisflies)	3	23.0	21.1
Diptera (true flies)	1	71.5	65.6
Hemiptera (true bugs)	1	2.0	1.8
Coleoptera (water beetles)	2	3.5	3.2
Percent EPT Taxa[1]			29.4

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
No fisheries surveys were conducted at Cheney Creek in 2003. California Department of Fish and Game reports a reproducing rainbow trout population occurs in the stream (Paul Chappell, personal communication).

Smoke Desert South

Summary of Stream Habitat Conditions
Stony Creek (EL208)

Current Conditions
General Description
Stony Creek is a small, shallow creek (mean width 1.8m, mean depth 0.17m), with a high proportion of fine sediment in the substrate. This slow-moving stream has a pool/riffle ratio of 93/7, 91% sedimentation, and abundant aquatic vegetation (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Stony Creek (EL 208) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	93	14	Poor
Pool / Riffle ratio	93 / 7	14	Poor
Pool quality	2.0	80	Excellent
Percent stream bottom with desirable materials	8	8	Poor
Bank cover	2.5	62	Good
Bank stability	3.0	76	Good
Percent Habitat Optimum	54	54	Fair

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Stony Creek (EL 208) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.17	
Mean width of stream (m)	1.6	
Mean % of stream shaded	91	
Mean % of bottom with clinging vegetation	9.6	
Mean % of bottom with rooted vegetation	63	
Mean % sedimentation	90	
Mean stream gradient (%)	1.5	
Mean landform gradient (%)	Left Bank: 32	Right Bank: 35
Mean stream flow rate during surveys (cfs)	0.1	
Mean water temperature during surveys (ºC)	12	
Summer mean minimum water temperature (ºC)[1]	14.6	
Summer mean maximum water temperature (ºC)[1]	18.9	
Number of days max. temperature exceeded 27ºC[1]	0	
Mean air temperature during surveys (ºC)	22	
Turbidity description	Clear	
Mean conductivity	210	
Mean pH	6.9	
Mean dissolved oxygen (% saturation)	47	
Mean dissolved oxygen (mg/l)	5.1	

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003. Values are means of temperature data from four stations.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable, due to abundant riparian vegetation (Table A). Riparian vegetation is diverse and vigorous, and includes perennials such as willow shrubs. At the downstream Stations 1 and 2, riparian vegetation consists primarily of grasses and forbs, with little woody perennial vegetation, while at the upstream Stations 3 and 4, there is abundant woody perennial vegetation.

Shading of the water surface
Abundant perennial vegetation shades 91% of the water surface, which contributes to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Stony Creek (Table C). The high relative abundance of Gastropoda is associated with the high abundance of aquatic vegetation, and also slow nonturbulent water. The presence of Odonata and Hemiptera indicates the presence of slow-water pool habitat.

Table C. Results of invertebrate sampling conducted on Stony Creek (EL 208) during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	2	40.3	26.6
Trichoptera	2	18.3	12.1
Diptera	3	10.3	6.8
Odonata	2	8.7	5.7
Hemiptera	3	15.7	10.3
Coleoptera	2	6.0	4.0
Gastropoda	1	41.3	27.3
Bivalvia	1	1.0	0.7
Amphipoda	1	6.7	4.4
Arachnida	2	3.3	2.2
Percent EPT Taxa[1]			38.7

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
No fisheries surveys were conducted at Stony Creek in 2003. A fishery survey was completed during 2005 with tahoe sucker, Lahontan redsides, and speckled dace being found.

Potential to support Lahontan fish species
At the time of the survey on Setember 15, 2003, dissolved oxygen was measured at 5.1 mg/l, which is approximately the minimum level which can support trout. Dissolved oxygen probably dips to below this level during July and August, when temperatures are warmer and bacterial and fungal metabolic rates are higher, therefore removing more oxygen. Slow-moving water in Stony Creek also contributes to the low dissolved oxygen content, as well to high sedimentation. Due to these factors, Stony Creek probably wouldn't support a trout population. Other Lahontan fish species which could potentially be supported by the habitat in Stony Creek include fish species tolerant of lower oxygen level, such as Tahoe sucker, tui chub, Lahontan redside, and speckled dace.

Summary of Stream Habitat Conditions
Upper Smoke Creek (EL166, 167, 168)

General Description
Upper Smoke Creek is a small creek (mean width 2.2m, mean depth 0.18m) with primarily pool habitat, 56% sedimentation, and heavy growth of rooted aquatic vegetation in some areas (Tables A and B). The flow rate was determined as 1.6 cfs during the survey, and dissolved oxygen was measured as 7.8 mg/l.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Upper Smoke Creek (EL166, 167, 168) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	84	33	Poor
Pool / Riffle ratio	84 / 16	33	Poor
Pool quality	4	40	Fair
Percent stream bottom with desirable materials	44	44	Fair
Bank cover	1.6	41	Fair
Bank stability	3.2	79	Good
Percent Habitat Optimum	53	53	Fair

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Upper Smoke Creek (EL166, 167, 168) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.18	
Mean width of stream (m)	2.2	
Mean % of stream shaded	2.1	
Mean % of bottom with clinging vegetation	4.8	
Mean % of bottom with rooted vegetation	28	
Mean % sedimentation	56	
Mean stream gradient (%)	1.3	
Mean landform gradient (%)	Left bank: 10	Right bank: 10
Mean stream flow rate during surveys (cfs)	1.6	
Mean water temperature during surveys (ºC)	18	
Summer mean minimum water temperature (ºC)[1]	16.4	
Summer mean maximum water temperature (ºC)[1]	20.6	
Number of days max. temperature exceeded 26ºC[1]	5	
Mean air temperature during surveys (ºC)	25	
Turbidity description	Clear (most stations)	
Mean conductivity	137	
Mean pH	7.4	
Mean dissolved oxygen (% saturation)	82	
Mean dissolved oxygen (mg/l)	7.8	

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003.
Values are means of temperature data from two stations.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable, due to abundant riparian vegetation (Table A). Riparian vegetation primarily consists of grasses and forbs. There is a lack of woody shrubs such as willows.

Shading of the water surface
Due to the low height of riparian vegetation relative to stream width, only about 2% of the water surface is shaded. This does not contribute significantly to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Upper Smoke Creek (Table C). The presence of Odonata indicates slow-water pool habitat. The presence of Gastropoda is associated with non-turbulent water and with the rooted aquatic vegetation at this site. The presence of Trichoptera indicates the presence of rocks to which they attach.

Table C. Results of invertebrate sampling conducted on Upper Smoke Creek (EL166, 167, 168) during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	2	13.6	12.4
Plecoptera	1	0.1	0.1
Trichoptera	6	45.1	41.3
Diptera	1	3.4	3.1
Odonata	4	14.1	12.9
Hemiptera	1	0.4	0.4
Coleoptera	1	0.9	0.8
Gastropoda	2	27.9	25.5
Bivalvia	1	0.3	0.3
Amphipoda	1	1.4	1.3
Oligochaeta	1	0.1	0.1
Arachnida	1	0.1	0.1
Hirudinea	1	1.9	1.7
Percent EPT Taxa[1]			53.8

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
Fish population surveys were conducted on Upper Smoke Creek in July 1980 by California Department of Fish and Game (CDFG) and in October 2003 by the Bureau of Land Management (BLM). Species found by CDFG in 1980 included Tahoe sucker, speckled dace, and Lahontan redside. Species found by BLM in 2003 included Tahoe sucker, speckled dace, and rainbow trout, with speckled dace and Tahoe suckers the most abundant (Table D).

Table D. Fish composition of Upper Smoke Creek sample sites, BLM 2003

Site #	Survey Length (m)	# of Fish	Speckled Dace (%)	Tahoe Sucker (%)	Rainbow Trout (%)
166	100	147	49.7	43.5	6.8
167	100	76	56.6	43.4	0
168	100	102	99.0	1.0	0

Potential to support Lahontan fish species
Upper Smoke Creek currently supports a small population of rainbow trout, and could probably support Lahontan cutthroat trout as well. Dissolved oxygen content of the water is quite adequate for trout (measured at 7.8 mg/l in summer 2003). Water temperature is rather warm for trout, but within the range which supports growth and survival. Mean summer maximum temperature was 20.6ºC in 2003, slightly

below the recommended maximum for optimum survival and growth of Lahontan cutthroat trout (22ºC). Maximum daily water temperature exceeded 26ºC on 5 days. The factors which probably limit population growth of rainbow trout, and which would similarly limit the success of Lahontan cutthroat trout, are lack of cover (including deep pools), and lack of spawning gravel due to heavy sedimentation of the stream bottom. This stream is now substantially smaller than it was previously, due to lower flow rates (see Trends Section below). Habitat area has therefore decreased. The likelihood of success of a reintroduction of Lahontan cutthroat trout to Upper Smoke Creek could be improved by decreasing sediment input, increasing flow rate to scour existing sediment and move it downstream, planting willows in riparian areas to provide shade and cover, and preventing excessive livestock use which could prevent establishment of willows.

TRENDS
Flow was measured as 9.8 cfs during a habitat survey by the BLM in 1977, whereas flow was measured as 1.6 cfs in 2003. Average width and depth were 3.2m and 0.23m in 1977, and 2.2m and 0.18m in 2003.

Summary of Stream Habitat Conditions
Lower Smoke Creek

General Description
Lower Smoke Creek is a medium-sized creek (mean width 5.6m, mean depth 0.26m) with primarily pool habitat, 63% sedimentation, and heavy growth of rooted aquatic vegetation (Tables A and B). The flow rate was determined as 0.8 cfs during the survey, and dissolved oxygen was measured as 6.1 mg/l.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Lower Smoke Creek (EL 198) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	84	20	Poor
Pool / Riffle ratio	90 / 10	20	Poor
Pool quality	2.9	62.9	Good
Percent stream bottom with desirable materials	38	38	Poor
Bank cover	3.0	75.0	Good
Bank stability	3.9	96.9	Excellent
Percent Habitat Optimum	**61.2**	**61.2**	**Good**

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Lower Smoke Creek (EL 198) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.26	
Mean width of stream (m)	5.6	
Mean % of stream shaded	30	
Mean % of bottom with clinging vegetation	6.3	
Mean % of bottom with rooted vegetation	71.3	
Mean % sedimentation	63.1	
Mean stream gradient (%)	0.8	
Mean landform gradient (%)	Left Bank: 10.9	Right Bank: 14.1
Mean stream flow rate during surveys (cfs)	0.8	
Mean water temperature during surveys (ºC)	26	
Summer mean minimum water temperature (ºC)[1]	14.2	
Summer mean maximum water temperature (ºC)[1]	23.5	
Number of days max. temperature exceeded 26ºC[1]	8	
Mean air temperature during surveys (ºC)	36	
Turbidity description	Clear	
Mean conductivity	287	
Mean pH	8.5	
Mean dissolved oxygen (% saturation)	76	
Mean dissolved oxygen (mg/l)	6.1	

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003.
Values are means of temperature data from two stations.

Condition of stream bank vegetation and bank stability
Stream banks are quite stable, due to abundant riparian vegetation (Table A). Riparian vegetation consists of grasses, forbs, and shrubs including willows and other woody perennials.

Shading of the water surface
Perennial shrubs, primarily willows, shade about 30% of the water surface. This contributes to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The high EPT ratio indicates good water quality in Lower Smoke Creek (Table C). The presence of Odonata indicates slow-water pool habitat. The presence of Gastropoda is probably associated with the abundant rooted aquatic vegetation at this site.

Table C. Results of invertebrate sampling conducted on Lower Smoke Creek (EL 198) during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	4	14.0	26.9
Trichoptera (caddisflies)	4	7.0	13.5
Diptera (true flies)	2	6.0	11.5
Odonata (dragonflies & damselflies)	5	9.5	18.3
Coleoptera (water beetles)	2	3.5	6.7
Gastropoda (snails)	1	3.0	5.8
Amphipoda (scuds)	1	9.0	17.3
Percent EPT Taxa[1]			40.4

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
Fish population surveys were conducted on Lower Smoke Creek by Nevada Department of Wildlife in the summer of 2003. Only two fish species were found: green sunfish and Tahoe sculpin. Both species were abundant.

Potential to support Lahontan fish species
Lower Smoke Creek probably would not support Lahontan cutthroat trout, due to the warm summer water temperature, high percent fine sediment on the stream bottom, and lack of riffle habitat. Mean summer maximum temperature was 23.5ºC, above the recommended maximum of 22ºC, and daily temperature maximum exceeded 26ºC on 8 days. The habitat at Lower Smoke Creek could support other Lahontan fish species including speckled dace, mountain sucker, Tahoe sucker, Lahontan redside, and tui chub. The lack of riffle habitat and predominance of fine sediment would limit abundance of paiute sculpin. The introduction of the non-native green sunfish may have contributed to the decline in fish species diversity in Lower Smoke Creek, due to effects of competition or egg predation by green sunfish.

Summary of Stream Habitat Conditions
West Fork Buffalo Creek (EL159)

Current Conditions
General Description
West Fork Buffalo Creek is a shallow creek with low flow rate (mean width 3.3m , mean depth 0.15m, flow rate 0.1 cfs). This stream has 100% pool habitat, 61% sedimentation, and 24% of the stream bottom is covered with rooted aquatic vegetation (Tables A and B). Due to the low flow rate and organic decomposition processes in West Fork Buffalo Creek, dissolved oxygen reaches low levels. Dissolved oxygen measured during the survey was 4.2 mg/l.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on West Fork Buffalo Creek (EL159) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	100	0	Poor
Pool / Riffle ratio	100 / 0	0	Poor
Pool quality	4.0	40	Fair
Percent stream bottom with desirable materials	39	39	Poor
Bank cover	3.6	90.6	Excellent
Bank stability	4.0	100	Excellent
Percent Habitat Optimum	61.5	61.5	Good

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on West Fork Buffalo Creek (EL159) during the 2003 field season

Priority B Factors	Value
Mean depth of stream (m)	0.15
Mean width of stream (m)	3.3
Mean % of stream shaded	75
Mean % of bottom with clinging vegetation	1.3
Mean % of bottom with rooted vegetation	24
Mean % sedimentation	61
Mean stream gradient (%)	2.3

Priority B Factors	Value	
Mean landform gradient (%)	Left Bank: 26.7	Right Bank: 21.3
Mean stream flow rate during surveys (cfs)	0.1	
Mean water temperature during surveys (ºC)	20	
Summer mean minimum water temperature (ºC)[1]	NA	
Summer mean maximum water temperature (ºC)[1]	NA	
No. days max. temperature exceeded 26ºC[1]	NA	
Mean air temperature during surveys (ºC)	33	
Turbidity description	Clear	
Mean conductivity	403	
Mean pH	7.5	
Mean dissolved oxygen (% saturation)	46	
Mean dissolved oxygen (mg/l)	4.2	

[1]Hobo temperature gage measurements not taken at this site in 2003.

Condition of stream bank vegetation and bank stability
Stream banks are very stable, due to abundant riparian vegetation (Table A). Riparian vegetation is diverse and vigorous, and includes primarily perennials such as willow shrubs.

Shading of the water surface
Willow shrubs in the riparian area provide ample shade, and water surface shaded is estimated at 75% (Table B). This certainly contributes to keeping water cooler in summer and reducing ice formation in winter.

Potential to support a native assemblage of Lahontan species
West Fork Buffalo Creek is not suitable habitat for Lahontan cutthroat trout. Cutthroat trout, as other trout, require water containing a high level of dissolved oxygen (minimum 5 mg/l). As stated above, dissolved oxygen measured in Middle Fork Buffalo Creek during the survey was 4.2 mg/l. Cutthroat trout also require gravelly riffles with low amounts of sediment for spawning. West Fork Buffalo Creek contains no riffle habitat, and high amounts of sediment. Lahontan fish species which could be supported by the habitat in West Fork Buffalo Creek include speckled dace, Tahoe sucker, and tui chub. These species are tolerant of warm water, a high proportion of sediment on the stream bottom, and low dissolved oxygen (Castleberry and Cech 1992, Moyle 2002). West Fork Buffalo Creek, when last surveyed, supported Tahoe sucker and specked dace (Nevada Department of Wildlife 1990).

In 1990, NDOW biologists conducted a stream survey on Buffalo Creek (main, middle and west forks). No trout species were collected or observed. Fish species present were Tahoe suckers, redside shiners and speckled dace. At the time of the survey, the biologist felt that the habitat along the west fork was suitable for trout introduction as it had good bank and vegetation stability, large, deep pools and water temps which were below the upper tolerance limits for trout (in August). The biologist also recommended that the level of grazing along the main stem be reduced to allow increased riparian shading which would lower water temps to allow for suitable conditions for trout introduction in the main stem (Tisdale 2006, Personal Communication).

Invertebrate Sampling
As each invertebrate taxa is characteristically found in certain habitats, the presence of particular invertebrate taxa in a given stream location provides an indication of the type of habitat at the stream location. At West Fork Buffalo Creek, abundance of Ephemeroptera and presence of Plecoptera indicates good water quality (Table C). Abundance of Odonata and Gastropoda indicate slow water pool habitat. These results are in accord with our findings regarding the stream habitat condition.

Fisheries Surveys
No fisheries surveys were conducted at West Fork Buffalo Creek in 2003. Electrofishing surveys were conducted on Buffalo Creek (main stem, West Fork and Middle Fork) in 1990 (Nevada Department of Wildlife 1990). Two fish species were found in the main stem and West Fork of Buffalo Creek: Tahoe sucker and speckled dace.

Table C. Results of invertebrate sampling conducted on West Fork Buffalo Creek (EL159) during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	3	32.0	49.2
Plecoptera	1	2.0	3.1
Diptera	4	5.0	7.7
Odonata	1	4.0	6.2
Coleoptera	4	7.0	10.8
Gastropoda	1	13.0	20.0
Arachnida	2	2.0	3.1
Percent EPT Taxa[1]			52.3

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Summary of Stream Habitat Conditions
Middle Fork Buffalo Creek (EL 161)

Current Conditions
General Description
Middle Fork Buffalo Creek is a very small creek with a low flow rate (mean width 1.6m , mean depth 0.13m, flow rate 0.13 cfs). This stream has 69% pool habitat, 87% sedimentation, and heavy growth of rooted aquatic vegetation (Tables A and B). Due to the low flow rate and organic decomposition processes in Middle Fork Buffalo Creek, dissolved oxygen reaches low levels. Dissolved oxygen measured during the survey was 3.6 mg/l.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Middle Fork Buffalo Creek (EL 161) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	69	61.2	Good
Pool / Riffle ratio	69 / 31	61.2	Good
Pool quality	4.0	40	Fair
Percent stream bottom with desirable materials	13	13	Poor
Bank cover	1.5	36.5	Poor
Bank stability	3.8	93.8	Excellent
Percent Habitat Optimum	**49.5**	**49.5**	**Fair**

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Middle Fork Buffalo Creek (EL 161) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.13	
Mean width of stream (m)	1.6	
Mean % of stream shaded	20	
Mean % of bottom with clinging vegetation	3.3	
Mean % of bottom with rooted vegetation	54	
Mean % sedimentation	87	
Mean stream gradient (%)	3.9	
Mean landform gradient (%)	Left Bank: 23	Right Bank: 22
Mean stream flow rate during surveys (cfs)	0.13	
Mean water temperature during surveys (ºC)	21	
Summer mean minimum water temperature (ºC)[1]	NA	
Summer mean maximum water temperature (ºC)[1]	NA	
No. days avg. temperature exceeded 22ºC[1]	NA	
No. days max. temperature exceeded 26ºC[1]	NA	
Mean air temperature during surveys (ºC)	31	
Turbidity description	Clear	
Mean conductivity	259	
Mean pH	7.2	
Mean dissolved oxygen (% saturation)	39	
Mean dissolved oxygen (mg/l)	3.6	

[1]Hobo temperature gage measurements not taken at this site in 2003.

Condition of stream bank vegetation and bank stability
Stream banks are for the most part quite stable, due to riparian vegetation (Table A). At transect 1, riparian vegetation is diverse and vigorous, and includes perennials such as willow shrubs. At transects 2, 3, and 4 riparian vegetation consists primarily of grasses and forbs. Stream banks seem to be stable primarily because of the low flow conditions which don't stress the banks. In some areas, stream banks are unstable, and bank sloughing is apparent.

Shading of the water surface
Although riparian vegetation mostly consists of grasses and forbs, the narrow width of the channel relative to the height of riparian vegetation results in about 20% shading of the water surface (Table B). This amount of shade probably contributes to keeping water cooler in summer and reducing ice formation in winter.

Potential to support a native assemblage of Lahontan species
Middle Fork Buffalo Creek is not suitable habitat for Lahontan cutthroat trout. Cutthroat trout, as other trout, require water containing a high level of dissolved oxygen (minimum 5 mg/l). As stated above, dissolved oxygen measured in Middle Fork Buffalo Creek during the survey was 3.6 mg/l. Cutthroat trout also require gravelly riffles with low amounts of sediment for spawning. Middle Fork Buffalo Creek contained some riffle habitat, but high amounts of sediment. Lahontan fish species which could be supported by the habitat in Buffalo Creek include speckled dace, Tahoe sucker, and tui chub. These species are tolerant of warm water, a high proportion of sediment on the stream bottom, and low dissolved oxygen (Castleberry and Cech 1992, Moyle 2002). Middle Fork Buffalo Creek, when last surveyed, supported only specked dace (Nevada Department of Wildlife 1990).

Invertebrate Sampling
As each invertebrate taxa is characteristically found in certain habitats, the presence of particular invertebrate taxa in a given stream location provides an indication of the type of habitat at the stream location. At Middle Fork Buffalo Creek, abundance of Ephemeroptera indicates good water quality (Table C). Abundance of Odonata, Hemiptera, and Gastropoda indicates slow water pool habitat. These results are in accord with our findings regarding the stream habitat condition.

Fisheries Surveys
No fisheries surveys were conducted at Middle Fork Buffalo Creek in 2003. Electrofishing surveys were conducted on Buffalo Creek (main stem, West Fork and Middle Fork) in 1990 (Nevada Department of Wildlife 1990). Two fish species were found in the main stem and West Fork of Buffalo Creek: Tahoe sucker and speckled dace. In the Middle Fork of Buffalo Creek, only speckled dace were found.

Table C. Results of invertebrate sampling conducted on Middle Fork Buffalo Creek (EL 161) during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	4	41.3	49.4
Trichoptera	1	0.3	0.4
Diptera	3	13.3	15.9
Odonata	2	7.3	8.8
Hemiptera	3	2.7	3.2
Coleoptera	1	1.0	1.2
Gastropoda	2	16.0	19.1
Amphipoda	1	0.3	0.4
Arachnida	1	1.3	1.6
Percent EPT Taxa[1]			49.8

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Summary of Stream Habitat Conditions
Buffalo Creek (EL177)

Current Conditions
General Description
Buffalo Creek is a very slow-moving creek with 100% pool habitat, 77% sedimentation, and heavy growth of both rooted aquatic vegetation and filamentous algae (Tables A and B). Buffalo Creek at Station 1 was dry at the time of the survey, so only Station 2 was surveyed. Due to the low flow rate, algae growth, and organic decomposition processes in Buffalo Creek, dissolved oxygen reaches low levels. Dissolved oxygen measured during the survey was 3.5 mg/l.

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Buffalo Creek (EL 177) during the 2003 field season

Priority A Factors	Value	Percent Optimum	Rating[1]
Percent total stream width in pools	100	0	Poor
Pool / Riffle ratio	100 / 0	0	Poor
Pool quality	3.3	55	Fair
Percent stream bottom with desirable materials	23	23	Poor
Bank cover	3.3	81.3	Excellent
Bank stability	3.4	84.4	Excellent
Percent Habitat Optimum	53.8	53.8	Fair

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Buffalo Creek (EL 177) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.34	
Mean width of stream (m)	4.9	
Mean % of stream shaded	10	
Mean % of bottom with clinging vegetation	25	
Mean % of bottom with rooted vegetation	73	
Mean % sedimentation	77	
Mean stream gradient (%)	2.3	
Mean landform gradient (%)	Left Bank: 9.0	Right Bank: 58.3
Mean stream flow rate during surveys (cfs)	0.2	
Mean water temperature during surveys (ºC)	17	
Summer minimum water temperature (ºC)[1]	17.7	
Summer mean maximum water temperature (ºC)[1]	28.0	
Number of days max. temperature exceeded 26ºC[1]	62	
Mean air temperature during surveys (ºC)	NA	
Turbidity description	Clear	
Mean conductivity	411	
Mean pH	7.5	
Mean dissolved oxygen (% saturation)	35	
Mean dissolved oxygen (mg/l)	3.4	

[1]Based on Hobo temperature gage measurements recorded hourly June 10 - August 31, 2003.

Condition of stream bank vegetation and bank stability
Except for a cut bank observed at transects 2 and 3, stream banks are quite stable, due to riparian vegetation (Table A). Riparian vegetation is diverse and vigorous, and includes perennials such as willow shrubs.

Shading of the water surface
Due to the low height of riparian vegetation relative to stream width, only about 10% of the water surface is shaded (Table B). This amount of shade has little effect on keeping water cooler in summer or reducing ice formation in winter.

Potential to support a native assemblage of Lahontan species
Buffalo Creek is not suitable habitat for Lahontan cutthroat trout. Cutthroat trout, as other trout, require water containing a high level of dissolved oxygen (minimum 5 mg/l). As stated above, dissolved oxygen measured in Buffalo Creek during the survey was 3.5 mg/l. The mean maximum summer temperature of

Buffalo Creek was 28ºC during the summer of 2003, considerably higher than the recommended mean maximum of 22ºC for optimum survival and growth of cutthroat trout. The daily maximum temperature exceeded 26ºC on 62 days during the summer of 2003. Therefore Lahontan cutthroat trout probably could not survive the warm temperatures there. Cutthroat trout also require gravelly riffles with low amounts of sediment for spawning (reviewed in Moyle 2002). In contrast, Buffalo Creek contains no riffle habitat and high amounts of sediment. Lahontan fish species which could be supported by the habitat in Buffalo Creek include speckled dace, Tahoe sucker, and tui chub. These species are tolerant of warm water, a high proportion of sediment on the stream bottom, and low dissolved oxygen (Castleberry and Cech 1992, Moyle 2002). Buffalo Creek, when last surveyed, supported Lahontan fish species including specked dace and Tahoe sucker (Nevada Department of Wildlife 1990).

Invertebrate Sampling
As each invertebrate taxa is characteristically found in certain habitats, the presence of particular invertebrate taxa in a given stream location provides an indication of the type of habitat at the stream location. At Buffalo Creek, abundance of Odonata and Gastropoda indicate slow water pool habitat (Table C). Presence of Oligochaeta and Nematoda indicate fine sediment. These results are in accord with our findings regarding the stream habitat condition.

Fisheries Surveys
No fisheries surveys were conducted at Buffalo Creek in 2003. Electrofishing surveys were conducted on Buffalo Creek (main stem, West Fork and Middle Fork) in 1990 (Nevada Department of Wildlife 1990). Two fish species were found in the main stem and West Fork of Buffalo Creek: Tahoe sucker and speckled dace. In the Middle Fork of Buffalo Creek, only speckled dace were found.

Table C. Results of invertebrate sampling conducted on Buffalo Creek (EL 177) during the 2003 field season

Invertebrate Order	Maximum Types in a Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera (mayflies)	2	9.0	18.8
Odonata (dragonflies and damselflies)	3	7.0	14.6
Hemiptera (true bugs)	1	2.0	4.2
Coleoptera (water beetles)	1	4.0	8.3
Gastropoda (snails)	1	8.0	16.7
Amphipoda (scuds)	1	15.0	31.3
Oligochaeta (segmented worms)	1	2.0	4.2
Nematoda (round worms)	1	1.0	2.0
Percent EPT Taxa[1]			18.8

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Summary of Stream Habitat Conditions
Red Rock Creek (EL 201, 202, 203)

Current Conditions
General Description
Red Rock Creek is a medium-sized creek (mean width 7.2m, mean depth 0.26m), which flows primarily within a canyon. Many boulders in the stream provide cover for fish, and sedimentation is moderate throughout most of the length of Red Rock Creek. There is and average of 25% sedimentation (Station 201-13.7, Station 202-22.7, and Station 203-43.8). Station 203 has the lowest bank stability. Most of Red Rock Creek is in Fair condition.

Only Station 201 was given an overall habitat condition rating of good. Ungulate damage was most evident at Station 203. This station is where the stream leaves the canyon. Red Rock Creek has a pool/riffle ratio of 88/12 (Tables A and B).

Table A. Values, percent optimum, and rating for Priority A Factors determined based on habitat surveys conducted on Red Rock Creek (EL 201, 202, 203,) during the 2003 field season

Priority A Factors	Rating	Percent Optimum	Rating[1]
Percent total stream width in pools		85	Excellent
Pool / Riffle ratio	88 / 12	24	Poor
Pool quality	3.6	48	Fair
Percent stream bottom with desirable materials		75	Good
Bank cover	1.8	45	Fair
Bank stability	3.1	77	Good
Percent Habitat Optimum	59	59	Fair

[1]Rating is based on Percent Optimum as 0-39 = Poor, 40-59 = Fair, 60-79 = Good, 80-100% = Excellent.

Table B. Values for Priority B Factors determined based on habitat surveys conducted on Willow Creek (EL 178, 179, 180, 184, 185, 204) during the 2003 field season

Priority B Factors	Value	
Mean depth of stream (m)	0.27	
Mean width of stream (m)	4.0	
Mean % of stream shaded	2.4	
Mean % of bottom with clinging vegetation	3.7	
Mean % of bottom with rooted vegetation	4.8	
Mean % sedimentation	25	
Mean stream gradient (%)	3	
Mean landform gradient (%)	Left bank: 34	Right bank: 30
Mean stream flow rate during surveys (cfs)	7.6	
Mean water temperature during surveys (ºC)	20	
Summer mean minimum water temperature (ºC)[1]	16.8	
Summer mean maximum water temperature (ºC)[1]		
Number of days max. temperature exceeded 26ºC[1]		
Mean air temperature during surveys (ºC)	23	
Turbidity description	Milky	
Mean conductivity	162	
Mean pH	8.2	
Mean dissolved oxygen (% saturation)	64.2	
Mean dissolved oxygen (mg/l)	5.8	

[1]Based on Hobo temperature gage measurements recorded hourly June 11 - August 31, 2003.
Values are means of temperature data from three stations.

Condition of stream bank vegetation and bank stability

Stream banks are reasonably stable throughout most of Red Rock Creek, due to its flowing through a canyon which limits access (Table A). Riparian vegetation for the most part consists of grasses and forbs, as well as some juniper.

Shading of the water surface

Due to the low height of riparian vegetation relative to the stream width, only 2.4% of the stream surface is shaded. This amount of shade contributes little to cooler water in summer and reduced icing in winter (Table B).

Invertebrate Sampling
The presence of Ephemeroptera and Trichoptera, and their high relative abundance indicates this is a healthy environment with little or no pollution. The presence of Odonata indicates some pool habitats. The presence of Oligochaeta indicates some silt or mud in the substrate.

Table C. Results of invertebrate sampling conducted on Willow Creek (EL 178, 179, 180, 184, 185, 204) during the 2003 field season

Invertebrate Order	Maximum Types per Sample	Mean Abundance per Sample	Relative Abundance (%)
Ephemeroptera	1	4.5	28
Plecoptera	1	0.25	0.01
Trichoptera	3	11	70
Diptera	2	2.8	18
Odonata	1	0.8	0.05
Hemiptera	0	0	0
Coleoptera	0	0	0
Gastropoda	1	0.75	0.05
Bivalvia	0	0	0
Decapoda	2	0.5	0.03
Amphipoda	1	0.25	0.01
Oligochaeta	1	0.8	0.05
Hirudinea	0	0	0
Nematoda	0	0	0
Percent EPT Taxa[1]	5	15.75	

[1]Percent EPT Taxa is percent invertebrate abundance in the orders Ephemeroptera, Plecoptera, and Trichoptera. High Percent EPT Taxa indicates good water quality.

Fisheries Surveys
Fish population surveys were conducted during 2005. Lahontan cutthroat trout tahoe sucker, and Lahontan redside were found.

Potential to support Lahontan fish specie: Habitat characteristics of Red Rock Creek are marginal for supporting trout populations.

Appendix N

Wind Energy Best Management Practices

Appendix N. WIND ENERGY BEST MANAGEMENT PRACTICES

N.1. Introduction

The following BMPs would be applied to all wind energy development projects to establish environmentally sound and economically feasible mechanisms to protect and enhance natural and cultural resources. These BMPs would be adopted as required elements of project-specific PODs and/or as ROW grant stipulations. They are categorized by development activity: site monitoring and testing, development of the POD, construction, operation, and decommissioning. The BMPs for development of the POD identify required elements of the POD needed to address potential impacts associated with subsequent phases of development.

Some of the proposed BMPs address issues that are not unique to wind energy development but that are more universal in nature, such as road construction and maintenance, wildlife management, hazardous materials and waste management, cultural resource management, and pesticide use and integrated pest management. For the most part, however, the level of detail provided by the BMPs is less specific than that provided in other, existing BLM program-specific mitigation guidance documents. As required by proposed policy, mitigation measures identified in or required by these existing program-specific guidance documents would be applied, as appropriate, to wind energy development projects; however, they are not discussed in detail in the programmatic BMPs proposed here.

In summary, stipulations governing specific wind energy projects would be derived from a number of sources: (1) the proposed BMPs discussed in this section; (2) other, existing and relevant program-specific mitigation guidance; and (3) the mitigation measures. Guidelines for applying and selecting project-specific requirements include determining whether the measure would (1) ensure compliance with relevant statutory or administrative requirements, (2) minimize local impacts associated with siting and design decisions, (3) promote post-construction stabilization of impacts, (4) maximize restoration of previous habitat conditions, (5) minimize cumulative impacts, or (6) promote economically feasible development of wind energy on BLM land.

N.2 Site Monitoring and Testing

- The area disturbed by installation of meteorological towers (i.e., footprint) shall be kept to a minimum.
- Existing roads shall be used to the maximum extent feasible. If new roads are necessary, they shall be designed and constructed to the appropriate standard.
- Meteorological towers shall not be located in or near sensitive habitats or in areas where ecological resources known to be sensitive to human activities (e.g., prairie grouse) are present.
- Installation of towers shall be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors.

N.3 Plan of Development Preparation

N.3.1 General

- The BLM and operators shall contact appropriate agencies, property owners, and other stakeholders early in the planning process to identify potentially sensitive land uses and issues, rules that govern wind energy development locally, and land use concerns specific to the region.

- Available information describing the environmental and sociocultural conditions in the vicinity of the proposed project shall be collected and reviewed as needed to predict potential impacts of the project.
- The project shall be planned to avoid, if possible, minimize, or mitigate impacts to wildlife, habitat, visual resources, surface water resources, cultural and historical resources, other valued resources, and other land use.
- The Federal Aviation Administration (FAA)-required notice of proposed construction shall be made as early as possible to identify any air safety measures that would be required.
- To plan for efficient use of the land, necessary infrastructure requirements shall be consolidated wherever possible, and current transmission and market access shall be evaluated carefully.
- The project shall be planned to utilize existing roads and utility corridors to the maximum extent feasible, and to minimize the number and length/size of roads, lay-down areas, and borrow areas.
- A monitoring program shall be developed to ensure that environmental conditions are monitored during the construction, operation, and decommissioning phases. The monitoring program requirements, including adaptive management strategies, shall be established at the project level to ensure that potential adverse impacts of wind energy development are mitigated.
- The monitoring program shall identify the monitoring requirements for each environmental resource present at the site, establish metrics against which monitoring observations can be measured, identify potential mitigation measures, and establish protocols for incorporating monitoring observations and additional mitigation measures into standard operating procedures and BMPs.
- "Good housekeeping" procedures shall be developed to ensure that during operations the site will be kept clean of debris, garbage, fugitive trash or waste, and graffiti to prohibit scrap heaps and dumps; and to minimize storage yards.

N.3.2 Wildlife and Other Ecological Resources

- Operators shall review existing information on species and habitats in the vicinity of the project area to identify potential concerns.
- Operators shall conduct surveys for federally and/or state-protected species and other species of concern (including special status plant and animal species) within the project area and design the project to avoid, if possible, minimize, or mitigate impacts to these resources.
- Operators shall identify important, sensitive, or unique habitats in the vicinity of the project and design the project to avoid, if possible, minimize, or mitigate impacts to these habitats (e.g., locate the turbines, roads, and ancillary facilities in the least environmentally sensitive areas; i.e., away from riparian habitats, streams, wetlands, drainages, or critical wildlife habitats).
- BLM shall prohibit the disturbance of any population of federally listed plant species.
- Operators shall evaluate avian and bat use of the project area and, design the project to minimize or mitigate the potential for bird and bat strikes (e.g., development shall not occur in riparian habitats and wetlands). Scientifically rigorous avian and bat use surveys shall be conducted; the amount and extent of ecological baseline data required shall be determined on a project basis.
- Turbines shall be configured to avoid landscape features known to attract raptors.
- Operators shall determine the presence of bat colonies and avoid placing turbines near known bat hibernation, breeding, and maternity/nursery colonies; in known migration corridors; or in known flight paths between colonies and feeding areas.

- Operators shall determine the presence of active raptor nests (i.e., raptor nests used during the breeding season). Measures to reduce raptor use at a project site (e.g., minimize road cuts, maintain either no vegetation or nonattractive plant species around the turbines) shall be considered.
- A habitat restoration plan shall be developed to avoid, if possible, minimize, or mitigate negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species.
- The plan shall identify revegetation, soil stabilization, and erosion reduction measures that shall be implemented to ensure that all temporary use areas are restored. The plan shall require that restoration occur as soon as possible after completion of activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
- Procedures shall be developed to mitigate potential impacts to special status species. Such measures could include avoidance, relocation of project facilities or lay-down areas, and/or relocation of biota.
- Facilities shall be designed to discourage their use as perching or nesting substrates by birds. For example, power lines and poles shall be configured to minimize raptor electrocutions and discourage raptor and raven nesting and perching.

N.3.3 Visual Resources

- The public shall be involved and informed about the visual site design elements of the proposed wind energy facilities. Possible approaches include conducting public forums for disseminating information, offering organized tours of operating wind developments, and using computer simulation and visualization techniques in public presentations.
- Turbine arrays and turbine design shall be integrated with the surrounding landscape. Design elements to be addressed include clustering of turbines, visual uniformity, use of tubular towers, proportion and color of turbines, nonreflective paints, and prohibition of commercial messages on turbines.
- Other site design elements shall be integrated with the surrounding landscape. Elements to address include minimizing the profile of the ancillary structures, burial of cables, prohibition of commercial symbols, and security lighting. Regarding lighting, efforts shall be made to minimize the need for and amount of lighting on ancillary structures.

N.3.4 Roads

- An access road siting and management plan shall be prepared incorporating existing BLM standards regarding road design, construction, and maintenance such as those described in the BLM 9113 Manual (BLM 1985) and the Surface Operating Standards for Oil and Gas Exploration and Development (RMRCC 1989) (i.e., the Gold Book).

N.3.5 Transportation

- A comprehensive transportation plan shall be developed, particularly for the transport of turbine components, main assembly cranes, and other large pieces of equipment. The plan shall consider specific object sizes, weights, origin, destination, and unique handling requirements and shall evaluate alternative transportation approaches. In addition, the process to be used to comply with unique state requirements and to obtain all necessary permits shall be clearly identified.

- A traffic management plan shall be prepared for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan shall incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary changes in temporary lane configuration.

N.3.6 Noise

- Proponents of a wind energy development project shall take measurements to assess the existing background noise levels at a given site and compare them with the anticipated noise levels associated with the proposed project.

N.3.7 Noxious Weeds and Pesticides

- Operators shall develop a plan for control of noxious weeds and invasive species, which could occur as a result of new surface disturbance activities at the site. The plan shall address monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching and the cleaning of vehicles prior to arrival at a location to avoid the introduction of invasive weeds shall be required.
- If pesticides are used on the site, an integrated pest management plan shall be developed to ensure that applications would be conducted within the framework of BLM and DOI policies and entail only the use of EPA-registered pesticides. Pesticide use shall be limited to nonpersistent, immobile pesticides and shall only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.

N.3.8 Cultural/Historic Resources

- The BLM shall consult with Indian Tribal governments early in the planning process to identify issues regarding the proposed wind energy development, including issues related to the presence of cultural properties, access rights, disruption to traditional cultural practices, and impacts to visual resources important to the Tribe(s).
- The presence of archaeological sites and historic properties in the area of potential effect shall be determined on the basis of a records search of recorded sites and properties in the area and/or, depending on the extent of existing information, an archaeological survey. Archaeological sites and historic properties present in the area of potential effect shall be reviewed to determine whether they meet the criteria of eligibility for listing on the National Register of Historic Places (NRHP).
- If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a cultural resources management plan (CRMP) shall be developed.
- This plan shall address mitigation activities to be taken for cultural resources found at the site. Avoidance of the area is always the preferred mitigation option.
- Other mitigation options include archaeological survey and excavation (as warranted) and monitoring. If an area exhibits a high potential, but no artifacts were observed during an archaeological survey, monitoring by a qualified archaeologist could be required during all excavation and earthmoving in the high potential area. A report needs to be prepared documenting these activities. The CRMP also shall (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of artifacts and destruction of property on public land.

N.3.9 Paleontological Resources

- Operators shall determine whether paleontological resources exist in a project area on the basis of the sedimentary context of the area, a records search for past paleontological finds in the area, and/or, depending on the extent of existing information, a paleontological survey.
- If paleontological resources are present at the site, or if areas with a high potential to contain paleontological material have been identified, a paleontological resources management plan shall be developed. This plan shall include a mitigation plan for collection of the fossils; mitigation could include avoidance, removal of fossils, or monitoring. If an area exhibits a high potential but no fossils were observed during survey, monitoring by a qualified paleontologist could be required during all excavation and earthmoving in the sensitive area. A report needs to be prepared documenting these activities. The paleontological resources management plan also shall (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of fossils on public land.

N.3.10 Hazardous Materials and Waste Management

- Operators shall develop a hazardous materials management plan addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The plan shall identify all hazardous materials that would be used, stored, or transported at the site. It shall establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess materials. The plan shall also identify requirements for notices to federal and local emergency response authorities and include emergency response plans.
- Operators shall develop a waste management plan identifying the waste streams that are expected to be generated at the site and addressing hazardous waste determination procedures, waste storage locations, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures. This plan shall address all solid and liquid wastes that may be generated at the site.
- Operators shall develop a spill prevention and response plan identifying where hazardous materials and wastes are stored on site, spill prevention measures to be implemented, training requirements, appropriate spill response actions for each material or waste, the locations of spill response kits on site, a procedure for ensuring that the spill response kits are adequately stocked at all times, and procedures for making timely notifications to authorities.

N.3.11 Storm Water

- Operators shall develop a storm water management plan for the site to ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion.

N.3.12 Human Health and Safety

- A safety assessment shall be conducted to describe potential safety issues and the means that would be taken to mitigate them, including issues such as site access, construction, safe work practices, security, heavy equipment transportation, traffic management, emergency procedures, and fire control.
- A health and safety program shall be developed to protect both workers and the general public during construction, operation, and decommissioning of a wind energy project. Regarding occupational

health and safety, the program shall identify all applicable federal and state occupational safety standards, establish safe work practices for each task (e.g., requirements for personal protective equipment and safety harnesses; Occupational Safety and Health Administration [OSHA] standard practices for safe use of explosives and blasting agents; measures for reducing occupational electric and magnetic fields [EMF] exposures), establish fire safety evacuation procedures, and define safety performance standards (e.g., electrical system standards, lightning protection standards). The program shall include a training program to identify hazard training requirements for workers for each task and establish procedures for providing required training to all workers. Documentation of training and a mechanism for reporting serious accidents to appropriate agencies shall be established.

- Regarding public health and safety, the health and safety program shall establish a safety zone or setback for wind turbine generators from residences and occupied buildings, roads, rights of ways, and other public access areas that is sufficient to prevent accidents resulting from the operation of wind turbine generators. It shall identify requirements for temporary fencing around staging areas, storage yards, and excavations during construction or decommissioning activities.

  It shall also identify measures to be taken during the operations phase to limit public access to facilities (e.g., permanent fencing would be installed only around electrical substations, and turbine tower access doors would be locked).
- Operators shall consult with local planning authorities regarding increased traffic during the construction phase, including an assessment of the number of vehicles per day, their size, and type. Specific issues of concern (e.g., location of school bus routes and stops) shall be identified and addressed in the traffic management plan.
- If operation of the wind turbines is expected to cause significant adverse impacts to nearby residences and occupied buildings from shadow flicker, low-frequency sound, or EMF, site specific recommendations for addressing these concerns shall be incorporated into the project design (e.g., establishing a sufficient setback from turbines).
- The project shall be planned to minimize electromagnetic interference (EMI) (e.g., impacts to radar, microwave, television, and radio transmissions) and comply with FCC regulations. Signal strength studies shall be conducted when proposed locations have the potential to impact transmissions. Potential interference with public safety communication systems (e.g., radio traffic related to emergency activities) shall be avoided.
- The project shall be planned to comply with FAA regulations, including lighting regulations, and to avoid potential safety issues associated with proximity to airports, military bases or training areas, or landing strips.
- Operators shall develop a fire management strategy to implement measures to minimize the potential for a human-caused fire.

N.4 Construction

N.4.1 General

- All control and mitigation measures established for the project in the POD and the resource specific management plans that are part of the POD shall be maintained and implemented throughout the construction phase, as appropriate.
- The area disturbed by construction and operation of a wind energy development project (i.e., ootprint) shall be kept to a minimum.

- The number and size/length of roads, temporary fences, lay-down areas, and borrow areas shall be minimized.
- Topsoil from all excavations and construction activities shall be salvaged and reapplied during reclamation.
- All areas of disturbed soil shall be reclaimed using weed-free native grasses, forbs, and shrubs. Reclamation activities shall be undertaken as early as possible on disturbed areas.
- All electrical collector lines shall be buried in a manner that minimizes additional surface disturbance (e.g., along roads or other paths of surface disturbance). Surface lines may be used in cases where burial of lines would result in further habitat disturbance.
- Operators shall identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquake activities, slope angles, and the dip angles of geologic strata). Operators also shall avoid creating excessive slopes during excavation and blasting operations. Special construction techniques shall be used where applicable in areas of steep slopes, erodible soil, and stream channel crossings.
- Erosion controls that comply with county, state, and federal standards shall be applied. Practices such as jute netting, silt fences, and check dams shall be applied near disturbed areas.

N.4.2 Wildlife

- Guy wires on permanent meteorological towers shall be avoided.
- In accordance with the habitat restoration plan, restoration shall be undertaken as soon as possible after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
- All construction employees shall be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons. In addition, pets shall not be permitted on-site.

N.4.3 Visual

- Operators shall reduce visual impacts during construction by minimizing areas of surface disturbance, controlling erosion, using dust suppression techniques, and restoring exposed soils as closely as possible to their original contour and vegetation.

N.4.4 Roads

- Existing roads shall be used, but only if in safe and environmentally sound locations. If new roads are necessary, they shall be designed and constructed to the appropriate standard and be no higher than necessary to accommodate their intended functions (e.g., traffic volume and weight of vehicles). Excessive grades on roads, road embankments, ditches, and drainages shall be avoided, especially in areas with erodible soils. Special construction techniques shall be used, where applicable. Abandoned roads and roads that are no longer needed shall be recontoured and revegetated.
- Access roads and on-site roads shall be surfaced with aggregate materials, wherever appropriate.
- Access roads shall be located to follow natural contours and minimize side hill cuts.
- Roads shall be located away from drainage bottoms and avoid wetlands.
- Roads shall be designed so that changes to surface water runoff are avoided and erosion is not initiated.

- Access roads shall be located to minimize stream crossings. All structures crossing streams shall be located and constructed so that they do not decrease channel stability or increase water velocity. Operators shall obtain all applicable federal and state permits.
- Existing drainage systems shall not be altered, especially in sensitive areas such as erodible soils or steep slopes. Potential soil erosion shall be controlled at culvert outlets with appropriate structures. Catch basins, roadway ditches, and culverts shall be cleaned and maintained regularly.

N.4.5 Transportation

- Project personnel and contractors shall be instructed and required to adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to ensure safe and efficient traffic flow and to reduce wildlife collisions and disturbance and airborne dust.
- Traffic shall be restricted to the roads developed for the project. Use of other unimproved roads shall be restricted to emergency situations.
- Signs shall be placed along construction roads to identify speed limits, travel restrictions, and other standard traffic control information. To minimize impacts on local commuters, consideration shall be given to limiting construction vehicles traveling on public roadways during the morning and late fternoon commute time.

N.4.6 Air Emissions

- Dust abatement techniques shall be used on unpaved, unvegetated surfaces to minimize airborne dust.
- Speed limits (e.g., 25 mph [40 km/h]) shall be posted and enforced to reduce airborne fugitive dust.
- Construction materials and stockpiled soils shall be covered if they are a source of fugitive dust.
- Dust abatement techniques shall be used before and during surface clearing, excavation, or blasting activities.

N.4.7 Excavation and Blasting Activities

- Operators shall gain a clear understanding of the local hydrogeology. Areas of groundwater discharge and recharge and their potential relationships with surface water bodies shall be identified.
- Operators shall avoid creating hydrologic conduits between two aquifers during foundation excavation and other activities.
- Foundations and trenches shall be backfilled with originally excavated material as much as possible. Excess excavation materials shall be disposed of only in approved areas or, if suitable, stockpiled for use in reclamation activities.
- Borrow material shall be obtained only from authorized and permitted sites. Existing sites shall be used in preference to new sites.
- Explosives shall be used only within specified times and at specified distances from sensitive wildlife or streams and lakes, as established by the BLM or other federal and state agencies.

N.4.8 Noise

- Noisy construction activities (including blasting) shall be limited to the least noise-sensitive times of day (i.e., daytime only between 7 a.m. and 10 p.m.) and weekdays.

- All equipment shall have sound-control devices no less effective than those provided on the original equipment. All construction equipment used shall be adequately muffled and maintained.
- All stationary construction equipment (i.e., compressors and generators) shall be located as far as practicable from nearby residences.
- If blasting or other noisy activities are required during the construction period, nearby residents shall be notified in advance.

N.4.9 Cultural and Paleontological Resources

- Unexpected discovery of cultural or paleontological resources during construction shall be brought to the attention of the responsible BLM authorized officer immediately. Work shall be redirected to avoid further harm, while the resources are evaluated and appropriate mitigation strategies are developed.

N.4.10 Hazardous Materials and Waste Management

- Secondary containment shall be provided for all on-site hazardous materials and waste storage, including fuel. In particular, fuel storage (for construction vehicles and equipment) shall be a temporary activity occurring only for as long as is needed to support construction and decommissioning activities.
- Wastes shall be properly containerized and removed periodically for disposal at appropriate offsite permitted disposal facilities.
- In the event of an accidental release to the environment, the operator shall document the event, including a root cause analysis, appropriate corrective actions taken, and a characterization of the resulting environmental or health and safety impacts. Documentation of the event shall be provided to the BLM authorized officer and other federal and state agencies, as required.
- Any wastewater generated in association with temporary, portable sanitary facilities shall be periodically removed by a licensed hauler and introduced into an existing municipal sewage treatment facility. Temporary, portable sanitary facilities provided for construction crews shall be adequate to support expected on-site personnel and shall be removed at completion of construction activities.

N.4.11 Public Health and Safety

- Temporary fencing shall be installed around staging areas, storage yards, and excavations during construction to limit public access.

N.5 Operation

N.5.1 General

- All control and mitigation measures established for the project in the POD and the resource specific management plans that are part of the POD shall be maintained and implemented throughout the operational phase, as appropriate. These control and mitigation measures shall be reviewed and revised, as needed, to address changing conditions or requirements at the site, throughout the operational phase. This adaptive management approach would help ensure that impacts from operations are kept to a minimum.
- Inoperative turbines shall be repaired, replaced, or removed in a timely manner. Requirements to do so shall be incorporated into the due diligence provisions of the ROW authorization.

Operators will be required to demonstrate due diligence in the repair, replacement, or removal of turbines; failure to do so could result in termination of the ROW authorization.

N.5.2 Wildlife

- Employees, contractors, and site visitors shall be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons. In addition, any pets shall be controlled to avoid harassment and disturbance of wildlife.
- Observations of potential wildlife problems, including wildlife mortality, shall be reported to the BLM authorized officer immediately.

N.5.3 Ground Transportation

- On-going ground transportation planning shall be conducted to evaluate road use, minimize traffic volume, and ensure that roads are maintained adequately to minimize associated impacts.

N.5.4 Monitoring Program

- Protocols defined in the site monitoring program for incorporating monitoring program observations and additional mitigation measures into standard operating procedures and BMPs to minimize future environmental impacts shall be implemented.
- Results of monitoring program efforts shall be provided to the BLM authorized officer.

N.5.5 Public Health and Safety

- Permanent fencing shall be installed and maintained around electrical substations, and turbine tower access doors shall be locked to limit public access.
- In the event an installed wind energy development project results in EMI, the operator shall work with the owner of the impacted communications system to resolve the problem. Additional warning information may also need to be conveyed to aircraft with onboard radar systems so that echoes from wind turbines can be quickly recognized.

N.6 Decommissioning

N.6.1 General

- Prior to the termination of the ROW lease, a decommissioning plan shall be developed and approved by BLM. The decommissioning plan shall include a site reclamation plan and monitoring program.
- All management plans, BMPs, and stipulations developed for the construction phase shall be applied to similar activities during the decommissioning phase.
- All turbines and ancillary structures shall be removed from the site.
- Topsoil from all decommissioning activities shall be salvaged and reapplied during final reclamation.
- All areas of disturbed soil shall be reclaimed using weed-free native shrubs, grasses, and forbs.
- The vegetation cover, composition, and diversity shall be restored to values commensurate with the ecological setting.

APPENDIX O

Comment Responses

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Appendix O. Comment Responses

INTRODUCTION

This comment response appendix for the BLM Eagle Lake Field Office's Proposed RMP / Final EIS identifies and provides responses to public comments that were received on the Draft RMP EIS. During the public comment period, which extended from April 28 to July 27, 2006, 7,302 comment submissions s were received from individuals, agencies, and organizations; 7,250 of these were faxes and emails containing identical text that had been suggested by an environmental interest group and three contained identical text submitted by three different individuals. Each comment letter typically contained multiple individual comments on one or more of the topics addressed in the Draft RMP EIS. A full listing of commenters, including name, affiliation, and comment number is provided in Table O-1. Table O-1 also identifies the topics addressed in each individual's comment letter, to assist the commenter in locating his or her comments and responses within the appendix. Comments were received in letters, electronic mail messages, and facsimiles.

The commenters include Federal, state, tribal, and local officials; public interest groups; and private citizens. The breakdown of respondents and number of comments is as follows:

- 10 comment submissions from public agencies, containing a total of 149 individual comments;
- 2 comment submissions from tribes, containing a total of 8 individual comments;
- 19 comment submissions from organizations, containing a total of 311 individual comments;
- 18 unique comment submissions from individuals, containing a total of 77 individual comments; and
- 7,253 submissions of two different sets of standard text, three of which contained a total of 4 unique comments, while 7,250 contained a total of 2 unique comments.

A summary of major changes made in the Proposed RMP / Final EIS, in response to public comment, is provided in Chapter 1.11. The comment letters are provided on a compact disc in the back flap of this volume (Volume 2). Individual comments within each letter are identified by numbers in the left-hand margin of the letter. A two-part reference number was used for each individual comment: the first number is the number assigned to each letter / commenter and the second number identifies the individual topic-specific comment.

Comment summaries, by topic, and responses to comments are provided in this appendix. The comment summaries provide a brief overview of the comments for the reader's convenience in reviewing the responses, and are not intended to provide a complete representation or interpretation of the comment's meaning. BLM's responses are based on the comments in the letters themselves.

Fourteen of the Eagle Lake commenters included comments on the Surprise and/or Alturas Field Office Draft RMP EISs within a single comment letter. While all comments within the letter were numbered, only those relevant to Eagle Lake are summarized and addressed in this appendix. Comments pertaining only to the Surprise or Alturas Draft RMP EISs are summarized and addressed in the respective comment response appendices of the Proposed RMP / Final EISs for those field offices; commenter numbers may differ among the documents prepared for the three different field offices.

The comment entries are organized according to resource, as listed in the Table of Contents for this appendix. Comment responses for topics under each category provide: (1) a list of the comment numbers addressed in that response, (2) a summary of the comments, and (3) the response. Frequently, more than one commenter submitted identical or similar comments; in those cases, comments were grouped together, summarized, and given a single response. Also, where a single response addressed several unique comments, these comments were summarized as a set. In compliance with the provisions of NEPA and CEQ regulations, public comments on the Draft RMP EIS were assessed both individually and collectively by BLM. Some comments resulted in changes or modifications to the Proposed RMP / Final EIS. Comments that were not associated with modifications to the Proposed RMP / Final EIS may have generated responses to correct readers' misinterpretations, to explain or communicate government policy, to clarify the scope of the Proposed RMP / Final EIS, to explain the relationship of the Proposed RMP / Final EIS to other NEPA documents, to refer commenters to other information in the Proposed RMP / Final EIS to answer technical questions, or to further explain technical issues.

The Record of Decision will present the decisions made by BLM, and will reflect consideration of these public comments on the Draft RMP EIS.

Table O-1 Summary of Comment Letters on Eagle Lake Draft RMP EIS

Commenter Number	Commenter Name	Commenter Affiliation	Comment Categories
1	Donald Armentrout		Editorial, livestock, vegetation, wild horses and burros, wildlife and fisheries
2	Martin Balding		Lands and realty, WSRs
3	Alice Baldrica	Nevada SHPO	Cultural resources and paleontology, historic trails, public involvement, coordination with other agencies
4	Joe and Joan Becker		Recreation and visitor services
5	Brad Beffort	Friends of Nevada Wilderness	Lands and realty, travel management, public involvement
6	Form letter submitted by 7,253 different individuals		Recreation opportunity spectrum, WSAs
7	DeEllen Brasher	US Navy	Coordination with other agencies
8	Frank Cady	Lassen Municipal Utility District	Energy and minerals
9	Form letter submitted by three different individuals: Steve and Kathy Callen, Elin Klassen, Jane Turny		Energy and minerals, recreation opportunity spectrum, WSRs, WSAs
10	Karen Coulter	League of Wilderness Defenders	Alternatives-general, energy and minerals, fire and fuels, forestry, livestock, recreation opportunity spectrum, ACECs, WSRs, WSAs, travel management, vegetation, water supply, wild horses and burros, wildlife and fisheries
11	Stacy Dixon	Susanville Indian Rancheria	Cultural resources and paleontology, lands and realty, public involvement
12	John Dozier		WSRs
13	James Easton		Wildlife and fisheries
14	Eric Eiserman	Pacific Gas and Electric	Energy and minerals
15	John Espil	Espil Sheep Company/Ranch	Editorial, purpose and need, air, cultural resources and paleontology, energy and minerals, fire and fuels, lands and realty, livestock, recreation and visitor services, soils, ACECs, historic trails, WSRs, WSAs, travel management, vegetation, visual resource management, wildlife and fisheries
16	John & Lani Estill	Estill Ranches	Energy and minerals, livestock, recreation and visitor services, vegetation, water supply
17	Steven Evans	Friends of the River	ACECs, WSRs, public involvement
18	Steven Evans	Friends of the River	WSRs

Commenter Number	Commenter Name	Commenter Affiliation	Comment Categories
19	Brian Griess	Transmission Agency of Northern California (TANC)	Energy and minerals
20	Pierre Hascheff	Bright Holland Company (landholder)	Cultural resources and paleontology, energy and minerals, lands and realty, livestock, ACECs, historic trails, WSRs, visual resource management, public involvement
21	Vicky Hoover	Sierra Club	Alternatives-general, livestock, recreation opportunity spectrum, ACECs, WSRs, WSAs, visual resource management, wildlife and fisheries
22	Peter Humm		Recreation and visitor service
23	Geary Hund Henson Johnson Delfino Wild	Wilderness Society California Wilderness Coalition California Wild Legacy Project Defenders of Wildlife Natural Resource Defense Council	Editorial, energy and minerals, fire and fuels, forestry, lands and realty, livestock, recreation opportunity spectrum, ACECs, WSRs, WSAs, travel management, visual resource management, wildlife and fisheries
24	La Verne Ireland		Recreation opportunity spectrum, WSAs
25	Wayne Jambois		Lands and realty, livestock, ACECs, wildlife and fisheries, coordination with other agencies
26	Duane James	EPA Region 9	Livestock, travel management, water quality and hydrologic function
27	Kevin Justis		WSRs
28	Al Luedecke		Alternatives-general
29	Dan Macsay	Modoc County Board of Supervisors	Editorial, livestock, socioeconomics, travel management, vegetation
30	Bob McLaughlin		Alternatives-general, livestock, recreation opportunity spectrum, WSAs
31	Jen Nordstrom	Western Watersheds Project	Purpose and need, alternatives-general, fire and fuels, livestock, soils, vegetation, wildlife and fisheries
32	Michael Painter	Californians for Western Wilderness	Alternatives-general, recreation opportunity spectrum, ACECs, WSRs, travel management, vegetation, visual resource management, wildlife and fisheries
33	Bill Phillips		Editorial
34	Bill Phillips		Editorial, alternatives-general, vegetation, wild horses and burros

Commenter Number	Commenter Name	Commenter Affiliation	Comment Categories
35	Robert Pyle	Lassen County Administrative Services	Alternatives-general, energy and minerals, lands and realty, ACECs, travel management, vegetation, water quality and hydrologic function, water supply, wild horses and burros, wildlife and fisheries, coordination with other agencies
36	Mark Salvo	Sagebrush Sea Campaign	Alternatives-general, livestock, ACECs, vegetation, wildlife and fisheries
37	Linda Schreiber		Alternatives-general, energy and minerals, lands and realty, recreation opportunity spectrum, ACECs, WSRs, WSAs, travel management
38	Lisa Jo Sedlacek	Lassen National Forest	Alternatives-general
39	Ali Shahroody	Pyramid Lake Paiute Tribe	WSRs, water quality and hydrologic function, water supply
40	Todd Swickard	Five Dot Land and Cattle Company	ACECs, vegetation, wild horses and burros
41	Todd Swickard	Lassen County Cattleman's Association	ACECs, vegetation, water supply, wild horses and burros, wildlife and fisheries
42	Dianna Thrasher	Sierra Club, Shasta Group	Alternatives-general, livestock, recreation opportunity spectrum, ACECs, WSRs, WSAs, wildlife and fisheries
43	Shirley Whalen		Lands and realty
44	Bill Whitney	Washoe County	Editorial, air, energy and minerals, forestry, ACECs, travel management, vegetation, water supply, coordination with other agencies
45	Robert Williams	US Fish and Wildlife Service	Editorial, energy and minerals, lands and realty, livestock, travel management, vegetation, wildlife and fisheries
46	Patricia Wormington	Residents of Sierra Valley	Lands and realty
47	Scott Maas	Lassen Motorcycle Club	Editorial, recreation and visitor services, recreation opportunity spectrum, WSAs, public involvement
48	Russell & Lori Collier		Recreation and visitor services, vegetation
49	George Cramer		Livestock, vegetation
50	Alan Meurer		Recreation and visitor services
51	Bruce Warden	Lahontan Regional Water Quality Control Board (RWQCB)	Editorial, livestock, water quality and hydrologic function, coordination with other agencies

COMMENT RESPONSES

1.0 Editorial

This section is divided into the following subsections:

1.1 - Editorial Changes Incorporated into Proposed RMP / Final EIS
1.2 - Editorial Changes Not Made or Made with Qualification

1.1 Editorial Changes Incorporated into Proposed RMP / Final EIS

Editorial changes were made in the document in response to the following public comments:

#1-1	#33-7	#44-21	#45-20
#1-2	#33-8	#44-23	#45-27
#15-11	#33-9	#44-24	#45-29
#23-81	#34-6	#44-25	#45-30
#29-11	#34-8	#44-28	#45-33
#33-1	#34-16	#44-29	#45-45
#33-2	#34-18	#44-32	#51-4
#33-6	#34-21	#45-7	

These include changes to the text, maps, tables, figures, and glossary.

1.2 Editorial Changes Not Made or Made with Qualification

Table O-2 lists the editorial comments, including comments on text, maps, tables, and figures that were reviewed but for which the suggested revisions were not incorporated or were made with a qualification. A summary of the comments and rationale for their final disposition is provided in the table.

Table O-2 Editorial Changes Not Made or Made with Qualification

Comment Number	Comment	Disposition and Rationale
#15-8	Document is poorly written and fails to reference most of proposed action and alternatives to the maps and tables included in document	References to the appropriate map number and name are included as part of the text in Chapter 2.
#29-1	Give each chapter its own table of contents to improve readability	We believe that one table of contents is sufficient.
#33-4	Asks whether definition of climax condition allows for natural changes over time.	Yes; no revisions made.
#33-5	Revision to grammar in definition of Great Basin.	The existing language was retained.
#34-3	Page ES-4, change: maintain 987,779 acres open to livestock grazing on 54 allotments (first bullet under livestock grazing).	This bullet is intended to provide information on an allotment basis only.
#34-4	Page ES-4, change: Grazing systems will provide periodic rest or deferment from grazing by domestic livestock on 80% to 90% of total area open to livestock grazing.	This text has been revised for clarity using language other than that suggested by the commenter.
#34-5	Page ES-7, change: Work toward restoring Wyoming and mountain big sagebrush ecosystems containing sage-grouse habitat. Does not seem possible to restore all sagebrush ecosystems within 20 years.	This text has been revised for clarity using language other than that suggested by the commenter.
#44-22	Recommend removing words “withdrawal” and “condemnation” since they don’t fit as acquisition methods (page 2-41, 7th bullet, Ch 1.1).	This text has been revised for clarity using language other than that suggested by the commenter.
#44-36	Recommend including name of relevant sage grouse working groups “Washoe-Modoc Working Group” in 2nd bullet (page 2-198).	The existing text is correct.
#45-3	Difference in program listings between Chapters 2, 3 and 4….should be consistent to ease tracking through document.	These sections have been made consistent where appropriate to the subject matter.
#45-44	Appendix G (A-73 to A-82). Consider adding list of fish species known to occur in ELFO in addition to wildlife species already covered.	The requested information has been added to Appendix G.
Maps, Tables, Figures		
#15-12	No maps provided of where CRMAs would occur under other than Preferred Alternative	CRMA locations were shown on Map CR-1 for Alternative 2 and the Preferred Alternative in the Draft RMP EIS. The listing of CRMAs was provided for No Action, Alternative 1, and Alternative 3 in text and table form.
#23-102	Confused by fact that on page 2-81 RMP states primitive ROS zones are proposed in “core” areas of WSAs and in some large roadless areas outside WSAs, but ROS map (REC-6) does not show any primitive zones outside of WSAs. Primitive ROS zones should be established in cores of six roadless areas listed.	The statement “and in some large roadless areas outside WSAs” is incorrect, and has been revised in the text.” The ROS map is correct.

Comment Number	Comment	Disposition and Rationale
#29-2	Add sufficient landmarks to maps so can recognize area.	At the present map scale, landmarks would not be visible.
#29-3	Add page numbers to maps that reference text of same subject.	References to the appropriate map number and name are included as part of the text in Chapter 2.
#29-4	Include in tables a reference to page number of text that contains same subject.	References to the appropriate tables are included as part of the text.
#33-3	Suggests revision to definition of brush-beating.	The current definition is appropriate.
#44-37	Recommend including additional data such as sage-grouse lek locations in addition to PMU boundary (Map WL-3).	BLM has not published these data on this widely disseminated, publicly available map to prevent ready location of (and risk of harm to) species / areas we are trying to protect.
#45-8	No map in portion of document that shows by category the acres proposed as open to leasing and those proposed as closed. Recommend including such a map.	The ELFO has very low potential for leasable minerals, so we do not feel this map is necessary. Areas closed to mineral leasing are primarily WSAs and/or ACECs, which are shown on Map ACEC-1, and Map WSA-1.
#47-3	Lassen MC requested detailed map of Dry Valley. There are numerous existing trails (around 50%) that are not shown on the map. Can't tell which trails will be open/ closed.	The text in Chapter 2 has been revised to address the route network in South Dry Valley.

2.0 PURPOSE AND NEED

Comment Number: #15-9

Comment: With respect to livestock management and its effects on soils, watershed, vegetation, riparian issues, and wildlife species, there exists no purpose and need. There is nothing in the current situation that "needs" to be changed; the current land use plan provides for or does not preclude the proposals in the Draft RMP.

Response: BLM is required to periodically review each RMP providing the management approach for lands under the agency's care. As pointed out in the Draft RMP EIS, new information, changed circumstances, and changed resource conditions since development of the original 10 plans or amendments for Eagle Lake require development of a new consolidated and updated Resource Management Plan. If, for any issue, the agency determines that the current RMP's approach remains appropriate, the No Action alternative can be selected or specific appropriate actions can be carried forward in other alternatives.

Comment Numbers: #31-3, #31-4, #31-5

Comment: Maintaining and improving wildlife habitat and restoring degraded range conditions should be reflected in P&N in compliance with Taylor Grazing Act of 1934, FLPMA of 1976, and other laws governing livestock management. This direction, based on laws and regulations, should be explicitly stated in P&N. Selection of any alternative that does not provide direction for meeting those goals violates intent of laws and regulations governing public land management. Correction of resource degradation caused by domestic livestock and prevention of future

degradation should be driving force behind RMP and reflected in NEPA document and future agency decisions regarding livestock grazing.

Response: The purpose and need for the RMP is to provide overall management and long-term direction for the public lands and resources administered by BLM's Eagle Lake Field Office, in accordance with FLPMA, as stated in Section 1.1. The legislative, regulatory, and policy direction — which guided the development of the management alternatives for each resource — is clearly stated in each resource-specific subsection of Chapter 2 (which now includes reference to the Taylor Grazing Act for livestock management).

3.0 ALTERNATIVES – GENERAL

This section summarizes and addresses comments on the alternatives that are not specific to a particular program area (program area-specific comments are addressed in the subsequent sections). Only those comments considered very general in nature are included here.

Comment Numbers: #10-1, #10-20, #21-1, #31-6, #32-1, #36-1, #37-6, #42-10

Comment: These comments expressed a general preference for all or part of Alternative 2 over the preferred alternative, and several recommended further modification of Alternative 2 to provide more protection of wildlife, habitat, soils, water quality, and other natural values.

Response: BLM appreciates the importance of environmental protection and acknowledges the challenges of balancing environmental protection with site access for public use. We believe that the preferred alternative, with some additional modifications as identified in Section 1.11, best balances environmental protection and site access in accordance with Section 302(a) of FLPMA, which requires the Secretary to manage BLM lands under the principles of multiple use and sustained yield, and the other planning criteria that are described in Section 1.7.

Comment Numbers: #28-1, #30-4, #38-1

Comment: These comments supported selection of the proposed action or components of it.

Response: BLM acknowledges and appreciates support for selection of the preferred alternative.

Comment Numbers: #34-1, #34-2

Comment: Does DRMP have objectives that are beyond the capability of BLM to accomplish in next 20 years or set limitations on actions that may be desired in the future?

Response: The capability of BLM to achieve the objectives of the RMP depends on many factors, including the annual Federal budget, personnel resource allocations, shifting agency priorities over time, and the response of natural systems to the management approaches that are implemented. We recognize that this RMP will be replaced by another plan within approximately 20 years, yet much of the plan's focus remains long term, since only in the long term can we attain many of the plan's key objectives. Should any of the actions or requirements within the RMP act as an unforeseen limitation to desired future actions, BLM could amend the RMP (through a public process) to address that issue, if required.

Comment Number: #35-2

Comment: DRMPs reflect differences and inconsistencies between the three field offices.

Response: BLM acknowledges that the three RMPs contain differences. These reflect field office-specific issues, and also are reflective of authorship by different field office-specific resource specialists. However, each RMP follows BLM's guidelines for resource management planning. Editorial improvements to the Proposed RMPs / Final EISs may address some of the specific differences that prompted this comment.

4.0 AIR QUALITY

Comment Numbers: #15-10, #44-16

Comment: Does not oppose adoption of preferred alternative as long as BLM coordinates fire management activities with Espil and livestock operations are not unduly impacted. Include text about coordinating prescribed fire projects with adjacent BLM field offices due to potential "down-wind" impacts on special events on public lands.

Response: Prior to conducting any prescribed fire projects, BLM would prepare a project-level review (environmental assessment) that would analyze site-specific impacts (including impacts to areas down wind). Such projects would be coordinated with all potentially affected parties, including adjacent or nearby landowners, prior to implementation. Any prescribed fire project also would be carefully timed and managed in such a manner that Federal (CAA), state, and local standards for particulate matter (PM_{10}) are not exceeded. Smoke management plans would continue to be written and implemented for all prescribed fires, and would include information and techniques used to reduce or alter smoke emission levels. Site-specific information would also be used to assist fire managers in determining what weather conditions, firing methods, and mop-up standards should be used to minimize impacts.

5.0 CULTURAL RESOURCES AND PALEONTOLOGY

This section is divided into the following subsections:

5.1 - General

5.2 - Cultural Resource Management Areas (CRMAs)

5.3 - Impacts to Cultural Resources

5.1 General

Comment Number: #3-1

Comment: Concerns listed under Issue 8 are also concerns for all archaeological sites, not just traditional cultural properties.

Response: Scoping Issue Area 8 has been revised to state: *How should public lands be managed to sustain cultural resources and traditional cultural properties?*

Comment Number: #3-2

Comment: How will BLM consult with tribes to integrate tribal needs for traditional plants with restoration activities (references page 2-6)?

Response: The Eagle Lake Field office will consult with tribes as part of the site specific planning and environmental review for individual vegetation restoration projects.

Comment Number: #3-3

Comment: Who identified culturally sensitive areas in preferred alternative (references page 2-15)?

Response: The culturally sensitive areas listed in the preferred alternative were identified through the *Class I Cultural Overview for Northeast California* (King et al, 2004). BLM archaeology staff has added information to Section 2.2.5 describing the cultural resource sensitivity that would be used to structure future inventory needs.

Comment Number: #3-5

Comment: If impacts are occurring from vandalism [as stated in 3.2], would be helpful to make recommendations regarding future management.

Response: The preferred alternative has been revised to include implementation of regular law enforcement patrols, as feasible, to monitor and protect known cultural sites and unauthorized use of paleontological material.

Comment Number: #3-6

Comment: Add a statement of support for site stewards to monitor endangered cultural resources.

Response: An existing sentence in Section 2.2.1 was clarified to support an increase in site stewardship by ELFO resource managers.

Comment Number: #3-7

Comment: Requested information on interrelationships among cultural resources, the larger ecosystem, National Register eligibility criteria and context for eligibility for inclusion, BLM use categories, and BLM priorities for funding and staffing.

Response: In response to this comment, additional information has been added to Section 2.2.3 (Objectives) and a more detailed description of the proposed management actions is provided in Section 2.2.5. Current BLM priorities for funding and staffing have been assumed, but are subject to changes that cannot be predicted with any level of accuracy.

Comment Number: #3-9

Comment: How will historic landscapes be identified and treated if goal [of Alt 2] is to restore ecosystem to pre-1850 conditions (references p. 4-16)?

Response: The level of detail requested by the commenter was not developed as part of this broad planning document. The RMP states that "Where possible all (CRMA) plans would use a model of pre-1850's ecosystems. . ." Models would be developed during site-specific implementation planning using a variety of data inputs in an effort to closely approximate these conditions. Such sources as emigrant journals, relict populations, and soil types and others would be used.

Comment Number: #11-1

Comment: Best alternative for cultural and paleontological resources is Alternative 2.

Response: BLM notes the commenter's preference and appreciates this input, but believes the preferred alternative provides the best balance among resource use and protection.

5.2 Cultural Resource Management Areas (CRMAs)

Comment Number: #3-10

Comment: Regarding recommendation [in Alt 2] to increase CRMAs from 15 to 19, what are benefits and would sites be evaluated (references p. 4-16)?

Response: Like Alternative 2, the preferred alternative recommends increasing CRMAs from 13 to 17 areas. (The Draft RMP EIS stated 15 to 19 CRMAs; however, two of these areas have been consolidated [Dry Valley Complex and Smoke Creek Complex] to total 13 and 17, respectively.) The list of CRMAs in Table 2.2-3 in the Proposed RMP / Final EIS has been revised to match those depicted on Map CR-1. The text in Section 2.2.3 has been revised to better describe the criteria used in evaluating sites, each having been evaluated on its own merits. The wording in Chapter 4.2 has been improved so as not to imply (as could have been interpreted from the language in the Draft RMP EIS) that a simple increase in the number of CRMAs was a BLM goal.

Comment Numbers: #15-11, #15-12, #15-13

Comment: Opposes preferred alternative for cultural resources and paleontology and urges adoption of no action or traditional uses alternatives. CRMA is not defined in glossary. DRMP is not specific as to relationship of a CRMA to other uses (what is intended and what are consequences for establishment of CRMAs). No maps were provided of where CRMAs would occur under other than Preferred Alternative. Does not believe no action or traditional use alternatives are portrayed correctly since the commenter (rancher) was not involved in the development of CRMAs purported to already exist under these two alternatives.

Response: BLM notes the commenter support for the no action or traditional uses alternatives, but believes that the preferred alternative offers the best management approach to cultural resources. A definition of CRMA has been added to the glossary. The 13 CRMAs that are in existence now (see Comment Response #3-10) and identified under the no action and traditional use alternatives were developed by BLM as management emphasis designations. A CRMA designation is used as an internal management tool, and does not carry any use restrictions within the designated area.

Comment Number: #20-1

Comment: The restrictions placed on public land for historic trails and CRMA may limit existing or future uses of the neighboring BHC properties or they may impede access or utility rights of way through the CRMA to or from these private properties.

Response: BLM does not have authority on private land and the rights of private landowners would continue regardless of adjacent land use designations. Owners of private land surrounded by public land (managed under the FLPMA) would be granted access across public land to permit reasonable use of their property. A CRMA is a BLM discretionary designation that describes only an area of management emphasis. However, any new rights-of-way proposals would be subject to an on-site NEPA review, regardless of the CRMA designation.

5.3 Impacts to Cultural Resources

Comment Number: #3-8

Comment: Chap 4 does not appear to address impacts to traditional cultural properties (page 4-10 to 4-11); can this be done?

Response: The discussion of impacts to cultural resources has been expanded to address traditional cultural properties. See revisions to Chapter 4.2, Potential Effects on Cultural Resources and Paleontology.

6.0 ENERGY AND MINERALS

This section is divided into the following subsections:

6.1 - Transmission Corridors

6.2 - New Energy Development

6.3 - Energy and Minerals Development Restrictions

6.1 Transmission Corridors

Comment Numbers: #8-1, #8-2, #8-3, #8-4, #14-1, #16-35, #19-2, #35-10

Comment: Encourages development of energy / utilities corridors. Use of existing north-south high-voltage energy lines or corridors will not address need; real need is for east-west corridor north of Lassen National Park. Lassen County Community Development Department has identified potential routes north of Eagle Lake that would appear to facilitate significant segment of this line from Nevada border to the Lassen/Shasta County border. LMUD has adopted a policy to create Lassen Energy Zone to allow "clean and green" energy to be transmitted west directly to California load centers via east-west routes. BLM needs to consider preserving potential east-west utility corridors to meet state's renewable energy resource goals. BLM's preferred approach will not work as it would close off land that could provide crucial access to generation development. BLM needs to be more flexible in allowing transmission siting to assure development of renewable resources. In the West-wide Energy Corridor process, PG&E identified at least one general corridor with potential to access renewable resources, which comes in from the Oregon border around Goose Lake and continues on down to Chico. While it seems that the distance between the Lava WSA and Pit River Canyon WSA is sufficient to accommodate such a corridor, the maps are not detailed enough to provide clarity. RMPs should be updated in light of the National Energy Act proposed Trans-Sierra Route alternatives and recognize that such energy transmission corridors and related facilities siting be coordinated and consistent with DOE together with policies and programs of Lassen County and Lassen Municipal Utility District.

Response: BLM is aware of the ongoing study to identify east-west corridor routes and is a cooperating agency for preparation of a *West-wide Energy Corridor Programmatic EIS* (PEIS). The Draft PEIS is scheduled to be issued in winter 2006-2007. As such, BLM will work with other agencies in designating appropriate energy corridors on Federal lands in 11 Western States, perform any environmental reviews required to complete corridor designation, and incorporate designated corridors into relevant agency land use plans. The *Preliminary Draft Map of Potential Energy Corridors on Federal Lands* (a document prepared in support of that PEIS) depicts an east-west transmission corridor between northern California and northern Nevada, which will

potentially be routed through the Eagle Lake Field Office area. This corridor, when coupled with related renewable generation development, will create markets for renewable energy between California and Nevada and will augment California's energy supplies by allowing additional energy to flow into the state at a northerly point other than the California-Oregon border. The routes indicated on the *Preliminary Draft Map* of the PEIS are very general and exact corridor locations will need to be identified by BLM to minimize any impacts to sensitive resources. BLM will complete the necessary site-specific environmental reviews necessary to identify and evaluate proposed routes within the requisite time frames outlined in the *Programmatic EIS*. This Proposed RMP / Final EIS (see Section 2.7.6.1) has been revised to address the need for an east-west corridor transmission route.

Comment Number: #14-2, #14-3, #19-3

Comment: To balance environmental concerns with need for reliable, renewable energy, PG&E believes that corridor widths could be increased to a minimum of one mile to allow adequate room for avoidance of sensitive resources and to maintain sufficient separation of facilities within the corridor so as not to compromise safety, reliability, and national security concerns. BLM's preference to consolidate transmission ROWs does not give consideration to ROW separation for system reliability purposes. For example, ROW separation will typically need to be wider if the lines traverse forest land because a fast moving forest fire can cause outage of both lines if the ROW separation is not wide enough. PG&E urges to include due consideration of system reliability in addition efficient land resource utilization. Need to support objectives of Section 368(d) of Energy Policy Act of developing energy corridors that improve reliability, relieve congestion, and enhance delivery capabilities of national grid.

Response: We agree that factors such as reliability, congestion, and enhanced delivery capabilities are important considerations in the development and selection of energy corridor routes as well as in the determination of sufficient corridor widths. We take such considerations into account when we identify potential utility corridors and manage these corridors for right-of-way development. While a corridor width of up to one mile may be ideal with respect to reliability and sensitive resource avoidance concerns, it is not necessarily practical in terms of (1) the amount of land that would have to be withdrawn from other important public uses; (2) the challenges in identifying one or more possible routes of this width that avoid exclusion areas or minimize impacts to other special management areas within the ELFO, such as WSRs, WSAs, ACECs, CRMA, cultural resources, or important wildlife habitat; and (3) the fact that existing corridor widths within the ELFO planning area have proven sufficient in terms of reliability, delivery capability, and low/minimal impact to nearby sensitive resources.

Utility corridors included in the Western Regional Corridor Study (WRCS) and the Tuscarora Pipeline Empire Lateral (within the ELFO) will be available for right-of-way development, unless environmental analysis reveals the likelihood of significant adverse impacts on other resources. As stated in this Proposed RMP / Final EIS (Section 2.7.6.1), corridor width would be a maximum of 2,000 feet (1,000 feet on either side of centerline), unless adjacent to an exclusion area, in which case the corridor would extend 2,000 feet opposite the special management area boundary.

6.2 New Energy Development

Comment Number: #19-1

Comment: Urges BLM to continue and expand support for and recognition of need to develop renewable energy resources (wind and geothermal)

Response: We agree with the comment and have included a discussion on wind energy in the Proposed RMP / Final EIS that addresses how wind energy projects will be designated and developed in accordance with the 2005 Final PEIS on *Wind Energy Development on BLM-Administered Lands in the Western United States* (see Section 2.3.6). Management actions regarding the development of leasable minerals (Section 2.3.3) include geothermal energy, and Appendix D addresses the potential for geothermal power plant development in the ELFO planning area. In addition, the North Dry Valley ACEC has been revised in the Proposed RMP / Final EIS to remove the "no surface occupancy" restriction to leasables, to allow for potential geothermal exploration and development.

Comment Number: #20-3

Comment: Owns properties within North Dry Valley ACEC believed to have substantial geothermal resource potential. NSO stipulations would prohibit any use of surface lands for geothermal operations associated with leases (e.g., construction of well sites, access roads, pipelines). Requests that preferred alternative be revised to include stipulations which specifically protect only those "unique" resources for which ACEC is being proposed (as identified on pages 2-93 and 2-94.

Response: The "no surface occupancy" (NSO) restrictions have been removed from the North Dry Valley ACEC (10,156 acres) to allow for exploration and development of geothermal resources. Leases would carry stipulations that would protect the relevant and important resource values of the ACEC.

Comment Number: #23-121

Comment: RMPs should incorporate BMPs for oil and gas development activities, and make them mandatory, especially in sensitive areas. Commenter specifies BMPs to include.

Response: Potential for commercially viable oil and gas deposits is low throughout the management area. Existing oil and gas leases in the Honey Lake Valley and Ravendale areas have not been sufficiently promising to spur development. Further interest in oil and gas leasing is not expected unless technological advances reduce the cost and financial risk of exploring beneath the volcanic overlay. However, if oil and gas development were to take place in the future, BMPs would be prescribed and implemented based upon project-specific and site-specific conditions and requirements, including those necessary to protect sensitive resources from oil and gas development. Once implemented, BMPs would be monitored, evaluated, and modified as necessary through an iterative process to ensure the protection of sensitive resources and compliance with other resource management objectives.

Comment Number: #45-1

Comment: There is no discussion related to wind, solar, or biomass energy development. Please clarify proposed action with regards to development of these types of renewable energy. If wind is to be considered, adhere to FWS guidance. Effects of this type of development on other resources should also be analyzed in Ch. 4.

Response: The ELFO planning area is open and available for renewable energy development, including wind, solar, and biomass, as discussed in Section 2.3.6 of this Propose RMP / Final EIS. Effects of site-specific renewable energy development projects would be comprehensively addressed in separate NEPA documentation at the project level. Effects of site-specific renewable

energy development projects would be comprehensively addressed in separate wind-energy specific NEPA analysis. Potential impacts to wildlife and visual resources would be mitigated by following the best management practices identified in the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM Administered Lands in the Western United State.* Adverse impacts to wildlife and their habitats from wind energy development would be avoided or minimized by following the U.S. Fish and Wildlife Service's *Interim Guidelines to Avoid and M*

6.3 Energy and Minerals Development Restrictions

Comment Numbers: #9-3, #10-17, #10-22, #23-41, #23-45, #23-48, #23-49, #23-87, #37-9, #44-18, #44-19, #45-6, #45-9

Comment: Close primitive and non-motorized management areas to mineral leasing to protect wild character. Close all or specific ACECs to locatable minerals development and / or saleable mineral extraction. Designate Aspen Groves ACEC and close this ACEC to leasable, saleable, and locatable mineral entry. All WSAs are closed to mineral leasing and saleable mineral activities under the preferred alternative; carry this forward to the Final EIS. Allow less mineral extraction / leasing and more "no surface occupancy" restrictions. Oppose non-essential rock removal and ask for fewer acres to be open to sand, cinder, gravel extraction.

Response: We believe that the preferred alternative includes the most appropriate mix of management measures to adequately protect the unique resources found in ACECs and sensitive resources in other management areas from minerals development, while also considering the relative significance of the public land products, services, and use to local economies. These measures, as described in Section 2.3 of the Proposed RMP / Final EIS, include closure, no surface occupancy (NSO) restrictions, or other types of restrictions (such as seasonal restrictions).

Specific minerals or energy project proposals will be considered on a project-specific basis in accordance with FLPMA, regulations, and BLM policy. This would include conducting a separate environmental review of each proposal prior to development to evaluate (and minimize) potential site-specific impacts and, in the case of ACECs, developing a detailed plan of operations that addresses how impacts to sensitive resources will be avoided. Additional restriction stipulations would be applied as needed and appropriate. Finally, it should also be noted that, with respect to leasable and locatable mineral development in the ELFO, active mining is expected to be very low or nonexistent, with the primary focus on existing claims.

Comment Number: #8-5

Comment: Agrees that NEPA would need to be followed for location-specific energy projects.

Response: We appreciate your support for the need to conduct separate site-specific NEPA reviews on energy projects in response to specific energy proposals.

Comment Number: #15-14

Comment: Does not oppose preferred alternative with respect to energy and minerals as long as development is compatible with authorized livestock use.

Response: Specific minerals or energy project proposals will be considered on a project-specific basis in accordance with FLPMA, regulations, and BLM policy, including this PRMP, which balances multiple land uses, including livestock grazing.

Comment Number: #44-17

Comment: Recommend moving protection of sage-grouse leks from seasonal restriction to a closed category (Leasable Minerals, page 2-17 of DRMP).

Response: The proposed management actions have been revised to state that areas within 0.25 miles of sage-grouse leks, pronghorn kidding grounds, and known raptor nesting sites would be closed to exploration and development of leasable minerals. Other sensitive wildlife habitats may be closed as additional information is obtained.

7.0 FIRE AND FUELS MANAGEMENT

Comment Numbers: #10-13, #23-29, #23-30, #23-31, #23-35, #23-122

Comment: Commenters expressed preferences for a return to a natural fire regime, increased wildland fire use, or adoption of AMR instead of full suppression in areas where full suppression was the preferred alternative.

Response: The statement of desired future condition (Section 2.4.2) has been rewritten to state that "unplanned fires will be aggressively suppressed *only* where they threaten the wildland urban interface, private timber and property, special resources, or sensitive habitats, and in areas where vegetation is at risk of type-conversion to noxious weeds" and that "Fire managers would reintroduce fire—and its ecological benefits—to restore and maintain healthy ecosystems." These principles will guide BLM's response to wildland fire.

Comment Numbers: #10-15, #23-123

Comment: Other tree removal should focus on smallest trees (most flammable) and leave mature trees. The Final RMP should identify specific provisions to restore natural fire regimes, such as an upper diameter limit on the size of trees to be cut so that largest and most fire resistant trees in each stand are retained.

Response: There are other factors to consider besides upper diameter, and these factors vary depending on specific needs of a given area. Therefore, BLM prefers to maintain flexibility in the RMP to consider all the relevant issues.

Comment Number: #15-15

Comment: Requests modified preferred alternative for fuels management that gives first priority for fine fuels reduction to livestock grazing, with second priority to prescribed fire and/or "let burn" actions. Prescribed fire and let-burn decisions on his allotments should be coordination with commenter well in advance.

Response: Hazardous fuels reduction plans will be developed in coordination with resource specialists, and will identify the appropriate treatment method for a specific site. Adjacent landowners and lease holders will be notified of prescribed burns several months prior to implementation.

Comment Number: #31-37

Comment: RMP proposes numerous vegetation treatments, including prescribed fire, reducing conifer encroachment, etc. to improve conditions. Is BLM proposing to reduce fuel loads in sagebrush communities?

Response: Restoration of sagebrush-steppe ecosystems encroached by western juniper would be one of the highest priorities for fuels treatment to restore these areas to a healthy condition. Specific action items for sagebrush-steppe communities are given in Chapter 2, Vegetation, specifically in Table 2.17-2.

8.0 FORESTRY

Comment Number: #10-16

Comment: No logging in roadless areas

Response: In general, there are no forests within Wilderness Study Areas within ELFO; therefore logging in these areas would not be an issue on Eagle Lake lands. Prescribed fire and biological treatments would be used as tools for vegetation restoration according to the Interim Management Policy (IMP). Under this policy, BLM cannot issue land-use authorizations for activities that would compromise wilderness values or contaminate BLM-administered lands (such as hazardous waste disposal sites, landfills, shooting ranges) on lands that are under consideration for wilderness designation.

Comment Number: #23-123

Comment: The Final RMP should identify specific provisions to restore natural fire regimes, such as an upper diameter limit on the size of trees to be cut so that largest and most fire resistant trees in each stand are retained.

Response: In general we are trying to do this, but there are other factors to consider besides upper tree diameter, and these factors vary depending on specific needs of a given area. Therefore, BLM prefers to maintain flexibility in the RMP to consider all the relevant issues.

Comment Number: #44-20

Comment: Recommend preferred alternative limit post-fire timber salvage sales on commercial forestlands to existing roads and low-impact methods.

Response: We are limiting sales on forestlands to existing roads and low-impact methods. Each action will be evaluated independently with the intent to minimize environmental impacts.

9.0 LANDS AND REALTY

This section is divided into the following subsections:

9.1 - Land Acquisition, Exchange, and Disposal
9.2 - Rights of Way
9.3 - Tuscarora Pipeline

9.1 Land Acquisition, Exchange, and Disposal

Comment Number: #2-2, #2-3

Comment: BLM needs a formal process by which a person or entity can request that BLM acquire certain lands; one is suggested by commenter. BLM should plainly state the procedure for land disposal.

Response: While BLM has general processes in place to request land acquisition or to handle land disposal, these are not included in detail in this document because, although they are related, the processes themselves are not within the scope of the RMP analysis. Any disposals or acquisitions would be assessed to ensure that they are consistent with the resource management goals of this PRMP. Also the commenter, or any interested public, is encouraged to contact the local field office directly to review the acquisition or disposal process, and to determine BLM's interest in acquiring a particular piece of property or to determine whether any lands might be identified for disposal in the near future. Information may be obtained over the phone, in response to a written request, or in person; BLM staff would be happy to set up a meeting at the ELFO. The public will have an opportunity to participate when specific proposals are identified for disposal.

Comment Number: #5-1

Comment: Supports all points made in Eagle Lake Section 2.7.1 (Lands for Potential Acquisition) regarding management common to all alternatives and requests that they be applied to Surprise RMP as well.

Response: Thank you for your support of the Eagle Lake proposed management actions. The latter part of this comment is addressed in the Proposed RMP / Final EIS for the Surprise Field Office.

Comment Number: #11-3

Comment: SIR wants to transfer land it owns SW of Buckhorn Reservoir (adjacent to BLM lands) to BLM in exchange for property closer to SIR land base in Susanville identified within RMP; please incorporate this into Lands and Realty section of RMP

Response: Information pertaining to specific land exchanges is better discussed directly with staff in the ELFO, and is outside of the scope of the Proposed RMP / Final EIS. SIR has contacted the ELFO on this issue and BLM will be entering discussions on this in 2007. Exchanges will be completed only after a determination is made that the public interest will be well served and the resource values to be disposed are not more than the resource values to be acquired. Any disposals or acquisitions would be assessed to ensure that they are consistent with the resource management goals of this PRMP.

Comment Number: #15-16

Comment: Does not oppose preferred alternative for lands and realty assuming grazing and adjacent landowner is given first right of refusal to acquire public lands subject to any sale disposal.

Response: There is no first right of refusal for adjacent landowners to acquire land subject to any sale disposal. However, adjacent landowners would be notified in advance of the sale, and would be provided an opportunity to enter into the bid process. BLM will make every effort to ensure a competitive and successful land sale disposal process.

Comment Numbers: #25-6, #35-8

Comment: Adamantly opposed to sale of Bald Mountain which is next to Bass Hill Wildlife Area and contains significant wildlife values, open space, and recreation opportunities. Preferable to transfer land to State of California to be annexed to Bass Hill instead of to private developers. The recommendation to dispose of BLM lands on Bald Mountain is not consistent with the Wildlife Element of the Lassen County General Plan due to very high deer winter range habitat values.

Response: As stated in Section 2.9.6.4, BLM does not intend to dispose of Bald Mountain to the public. Rather, only a state wildlife agency (or other similar management entity) could purchase or exchange the land, or else BLM would manage it for public use as a special recreation management area, and for wildlife habitat.

Comment Numbers: #43-1, #46-1

Comment: Protesting plans to sell off parcels of land from Sierra Valley. Do not dispose of parcels on mountainous edge of Sierra Valley; appears to be a giveaway to developers and timber interests. Reasons: Sierra Valley is at top of watershed and important water source. Disposal of land will lead to degraded air quality. Wildlife impacts – resident deer herd lives there that does not migrate. East side of valley is important winter range for Truckee Tahoe deer herd. North side comprises deer migration route into Nevada. Home to other species as well. Sierra Valley is ancient lake with many archaeological sites and Indian villages. Offers good recreation opportunities/regional park for local residents. Parcels comprise mountainous rim and make up scenic vistas which can be seen from designated scenic Highway 70. Plumas and Sierra County economies dependent on tourism – from tourists who come for scenic quality.

Response: Sierra Valley is a scenic area with many important attributes and we understand and appreciate the commenter's opposition to any disposal sale of parcels in this valley. However, following careful consideration of these parcels, we have determined that they meet the criteria for disposal: the parcels are difficult/uneconomical to manage due to their small size and scattered and isolated locations with no or limited public access. BLM would only dispose or exchange these sites to acquire other lands which would have higher public values. All exchanges/disposals include an appraisal of fair market value, and exchange proponents can include adjoining landowners, commercial interests or conservation organizations, etc. Prior to any disposal, the action would be evaluated for potential impacts in a separate NEPA review (environmental assessment), which is also a public process. The commenter and other interested / affected members of the public will have an opportunity to review and comment on the proposed sale, including potential impacts to wildlife resources, at the time of this subsequent, and more detailed, NEPA review.

Comment Number: #45-10

Comment: Recommend including a stipulation in Section 2.7 regarding disposal of lands with T&E habitat.

Response: BLM agrees and has added such a stipulation to the Proposed RMP / Final EIS (Section 2.7.5.1). In addition, any BLM land disposal would require preparation of a site-specific environmental assessment to evaluate potential impacts prior to disposal, including impacts to T&E species and their habitat. If T&E species or critical habitat has the potential to be affected, BLM would prepare a biological assessment and conduct any required consultation in accordance with Section 7 of the Endangered Species Act.

9.2 Rights of Way

Comment Number: #20-9

Comment: Request all proposed ACECs allow issuance of ROW permits without restrictions. For example, all private owners should not be prohibited from transporting its water from its property through public lands in North Dry Valley area and along Tuscarora pipeline corridor. RMP and EIS should be amended accordingly. Similar concern for Pine Dunes RNA/ACEC.

Response: BLM does not dictate what occurs on private land and the rights of private landowners would continue regardless of adjacent land use designations. Owners of private land surrounded by public land (managed under the FLPMA) would be granted access across public land to permit reasonable use of their property. Rights-of-way established across public lands prior to the passage of the FLPMA would be recognized as a valid use. ACECs have been designated as such per BLM policy to manage and protect unique and important resources, including cultural resources, scenic resources, sensitive vegetation, and important wildlife habitat. Due to the sensitive nature of these relevant and important resources, all ACECs have been designated as rights-of-way avoidance areas. This means that any applications for new rights-of-way or utility corridors would undergo a site-specific NEPA review, and would only be granted if BLM concurs 1) the only feasible location is within the ACEC, and 2) no relevant and important resources would be adversely affected. It is incumbent on the ROW applicant to investigate and document that the only feasible location is within the ACEC. BLM will utilize the applicant's documentation to evaluate concurrence. However, utility corridors included in the Western Regional Corridor Study (WRCS) and the existing Tuscarora Pipeline Empire Lateral (within the ELFO) will be available for right-of-way development, unless environmental analysis reveals the likelihood of significant adverse impacts on other resources.

Comment Number: #20-10

Comment: Utility corridor designations should follow existing roads and other disturbed areas by preference, e.g., two historic trails which travel through and adjacent to BHC properties (Nobles Emigrant Trail, Buffalo Hills Toll Road).

Response: Currently both the Buffalo Hills Toll Road and portions of the Nobles Emigrant Trail lie within Wilderness Study Areas. Management direction for WSAs is governed by BLM's Interim Management Policy for Lands under Wilderness Review (IMP) until Congress makes a decision regarding wilderness designation. The wilderness IMP generally takes precedence over other management direction. The IMP regulates that all WSAs are right-of-way exclusion areas.

BLM will manage the Nobles Emigrant Trail (a branch of the California National Historic Trail), outside of WSAs, to protect visual and historic resources. A portion of the trail on BLM administered lands lies within the Lower Smoke Creek ACEC. Similarly, the Buffalo Hills Toll Road lies within the Buffalo Creek Canyons ACEC. ACEC management direction is currently superseded by WSA policy. However, if WSA status is removed by Congress, management of the

areas as an ACEC is designed to protect the unique scenic and historical resources within these areas. Due to these unique resources, all ACECs are designated as rights-of-way avoidance zones. Any applications for new rights-of-way or utility corridors would undergo a site-specific NEPA review, and would only be granted if BLM concurs 1) the only feasible location is within the ACEC, and 2) no relevant and important resources would be adversely affected. It is incumbent on the ROW applicant to investigate and document that the only feasible location is within the ACEC. BLM will utilize the applicant's documentation to evaluate concurrence.

Comment Number: #23-38

Comment: Request consideration of alternative that closes Lower Smoke Creek ACEC to rights-of-way.

Response: We agree with the commenter and would manage Lower Smoke Creek ACEC as right-of-way avoidance area under the preferred alternative. This ACEC is primarily within a WSA where ROW issuance is guided by BLM's WSA Interim Management Policy for Lands under Wilderness Review (H-8550-1). If WSA status is removed, any applications for new rights-of-way or utility corridors would undergo a site-specific NEPA review, and would only be granted if BLM concurs 1) the only feasible location is within the ACEC, and 2) no relevant and important resources would be adversely affected.

Comment Number: #37-3

Comment: Acquire public ROWs along abandoned railroad grades for non-motorized trails.

Response: Thank you for your comment supporting the preferred alternative, which proposes to "Work with Lassen and Modoc Counties to acquire abandoned railroad right-of-ways suitable for trail-conversion. These lines would be "rail banked" for possible railroad use at a future date, but used presently for walking, wildlife viewing, hiking, biking, and possibly motorized recreation on some stretches."

Comment Numbers: #45-11, #45-12

Comment: Add bullet in preferred alternative Rights of Way regarding guidance for avian protection (for future electric utility line developments). Add bullet that says future BLM communication site development would be consistent with USFWS guidance to minimize effects to migratory birds.

Response: Chapter 2.7.6.1 has been revised to state: "All land use authorizations will be evaluated for their impact to sensitive resources, including critical and/or important wildlife habitat. Future BLM-granted rights-of-way, including utility corridors and communication sites, would be consistent with USFWS guidance to minimize effects to migratory birds."

9.3 Tuscarora Pipeline

Comment Number: #20-8

Comment: The existing Tuscarora pipeline and right of way should not be affected by any of the designations under the RMP, and should receive a "utility corridor" designation allowing pipelines, power, water, and utilities through this existing right of way and allowing the right of way to be extended or widened, if necessary, for construction easements.

Response: We agree and have revised the preferred alternative to include designation of the existing Empire Lateral of the Tuscarora natural gas pipeline as a right-of-way utility corridor.

10.0 LIVESTOCK GRAZING

This section is divided into the following subsections:

10.1 - Rangeland / Land Health Assessments and Permitted Use Levels
10.2 - Permittee Maintenance Responsibilities
10.3 - Sheep
10.4 - Allotment-Specific Decisions
10.5 - Forage Allocation / Production
10.6 - Impacts on Livestock Grazing
10.7 - Impacts from Livestock Grazing
10.8 - Alternatives
10.9 - Affected Environment – Livestock Grazing
10.10 - General

10.1 Rangeland / Land Health Assessments and Permitted Use Levels

Comment Number: #15-3, #26-3, #31-29

Comment: Fails to specify which of several rangeland or land health indicators were not met or missing so that accuracy of rest of document (purpose and need, affected environment, appropriateness of alternatives and environmental consequences) cannot be verified. As an example, there is no basis for conclusions in 2.11.5 that half of surveyed acres do not meet land health standard; also claims characterization is not supported by maps (SOILS 1 and 2). Final EIS should include RHA ratings for existing allotments in the field office area, and indicate goals for improving RHA ratings under each alternative.

Response: Information relating to which land health indicators are specifically met or not, on an allotment-specific basis, would be a level of detail beyond this RMP and the nature of the decision(s) it supports. The actions in this Proposed RMP / Final EIS are designed to provide general management guidance in most cases. Decisions regarding specific allotments—such as adjustments to existing levels of use, forage allocation, allotment boundaries, and changes to management level categories—would be made at the activity plan level. Appendix K of this document describes the land health assessment on-the-ground procedures and identifies the 17 land health indicators used in making an assessment. Appendix J, “Livestock Grazing Allotments”, lists each allotment by name and number, size, livestock numbers, animal unit months, and management category.

Land health assessment information is available at the field office for allotments in the ELFO area as a result of recently completed land health assessments on these allotments. The proposed management actions in Section 2.11.5 are based on the results of land health assessments that have been completed on approximately 200,000 acres in the ELFO area to date. Footnotes clarifying this information have been added to Section 2.11.5. However, detailed results on an allotment-by-allotment basis are not appropriate to include in this level of review, as noted previously. Maps (SOIL-1 and SOIL-2) depict only two of the 17 indicators that determine land health: soil/site stability and upland hydrologic function. While these factors may have rated out as a “slight” deviation from the reference ecological site description at a particular assessment

site, other factors (e.g. plant functional/structural groups, litter amount, invasive plants) at that site rated lower to result in the final assessment rating. (See also response to related comment #31-7 below.)

Comment Numbers: #15-5, #16-14, #26-4

Comment: RMP needs to identify a method to determine changes in livestock permitted use if standards and guidelines are met on a grazing allotment, as well as determining changes if standards and guidelines are not met. Fails to disclose methodology (to determine permitted use levels) on which assessments would be made. Final EIS should discuss how stream survey, monitoring, and rangeland health data will be used to determine specific management activities for individual allotments that are renewed over life of RMP.

Response: Section 2.8.5 has been revised to include additional information on the review of existing permitted use-levels (AUMs) and the decisions regarding adjustments to existing levels of use. Such reviews would be conducted on individual allotments through assessment of existing activity plans (allotment management plans or their functional equivalents); they are not appropriate at the RMP level of review. Land/rangeland health assessments and formal determinations of health on which use levels would be based, as well as decisions regarding appropriate grazing strategies and adjustments in existing levels of use, would all have to comply with the Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing (see also Appendix B to the Proposed RMP / Final EIS for more information pertaining to the Standards and Guidelines).

Comment Number: #15-53

Comment: While Section 3.9.3 discloses that Rangeland Health Assessments have been conducted, it fails to disclose that monitoring of utilization, actual use, and range condition has also occurred over time on the allotments subject to the DRMP.

Response: Section 3.9.5, Observed Trends, describes that livestock grazing is monitored on an ongoing basis. This includes monitoring of utilization, actual use, and range condition.

Comment Number: #20-4

Comment: Requests that grazing entitlements remain in place without restriction or changes to existing quantity of livestock allowed to avoid impacts to BHC lands.

Response: The proposed action as defined in Proposed RMP / Final EIS would initially retain the same use levels with respect to grazing entitlements. No change would be allowed unless future assessments indicate adjustments are needed relating to land health standards. Any adjustments (increased or decreased use levels) would be implemented in full consultation and coordination with the permittee, and would not include allotment cancellation or conversion (e.g., from sheep to cattle), unless the permittee voluntarily agreed to such a change. As stated in the revised Section 2.8.5 of this document, permitted grazing use—including reduction of animal numbers and/or season-of-use—would be assessed annually to reflect prevailing conditions.

Comment Number: #31-7

Comment: Specific livestock grazing levels that will be used to meet standards are lacking in all alternatives and must be included in Final EIS; stating that specific standards will be developed at

site-specific level violates law and allows degradation to continue. Need to include allowable use standards and guidelines and/or objectives paramount to achieving or maintaining standards.

Response: It is not possible to set grazing levels until a formal determination of land health has been made/completed. Such determinations have not yet been made for all allotments in the ELFO. These determinations will form the basis for setting livestock grazing levels in the ELFO planning area. While completing these determinations is a priority for the ELFO – and we have made good progress – it is a very intensive process. We do not expect to complete this work until 2010. Please see Appendix B of the Proposed RMP / Final EIS for BLM reporting requirements regarding progress in rangeland health assessments, including (1) what standards, if any, are not being met; (2) whether significant progress is being made toward meeting standards that are not currently being met, (3) magnitude of those standards not being met, (4) progress made in determining and implementing needed management changes, and (5) results of making the management changes as determined from monitoring and assessment information – with a summary of the information consolidated for all of the allotments made available to the public annually. The process involves two major steps: first is to conduct a rangeland health assessment – which has been completed for all allotments; second is to conduct a rangeland evaluation. In summary, the assessment characterizes the status of resource conditions so that status can be evaluated relative to land health standards; it sets the stage for an evaluation, but it is not a decision. The rangeland evaluation takes the results from the assessments and evaluates the degree of achievement of Land Health Standards; it also analyzes the causal factors for not achieving a land health standard. An evaluation of the causal factors provides the foundation for a determination.

Each of the 5 standards and 17 guidelines are included in Appendix B of the Proposed RMP / Final EIS. The standards are expressions of physical and biological condition or degree of function required for healthy, sustainable rangelands. They relate to the capability or potential of a specific site; some standards may not apply to all acres. The guidelines for grazing management are the types of grazing management methods and practices determined to be appropriate to ensure that standards can be met or significant progress can be made toward meeting the standard. Guidelines are designed to provide direction yet offer flexibility for implementation through activity plans and terms and conditions for grazing permits.

Comment Number: #31-8

Comment: By not stating minimum livestock utilization standards in RMP, public has no recourse if BLM fails to improve habitat conditions and resources.

Response: Recommended grazing strategies and permitted use levels would be consistent with the approved Standards for Rangeland Health and Guidelines for Livestock Grazing Management in Northeastern California and Northwestern Nevada (Standards and Guidelines) (July 2000). These Standards and Guidelines are identified in Appendix B (see also response to comment 31-7 above for more information).

Comment Number: #31-9

Comment: DEIS fails to define what constitutes a sustainable level of livestock grazing or what constitutes “reasonable” utilization in stating goal of livestock grazing program (pages 2-50, 2-55).

Response: Chapter 2.8 has been revised and no longer contains the term "reasonable utilization". A sustainable level of livestock would be defined if a particular area met all five of five standards. See also Appendix B for further discussion and identification of the five standards; and see related responses to other comments in this subsection of this appendix.

Comment Number: #31-10

Comment: Modifications to existing grazing strategies and existing discussion of proposed changes to livestock grazing management fail to discuss how this direction in new RMP will or will not comply with the Standards for Rangeland Health (SRH).

Response: BLM will comply with the referenced Standards and Guidelines as described in revised Section 2.8.5.

10.2 Permittee Maintenance Responsibilities

Comment Number: #15-27

Comment: Section 2.8.8 implies that permittees need to maintain water developments for wildlife use at times other than when livestock are using the pasture and/or allotment. This is an unreasonable burden, a logistical impossibility, and contrary to state water law and existing cooperative agreements/permits.

Response: Some permits do place responsibility for water maintenance on the permittees; however, BLM would work with the permittees on a site-specific basis in determining what additional activities would be necessary and reasonable. Development of a major new water source, such as a pumping well, would not be considered a reasonable requirement.

Comment Number: #29-5

Comment: Preferred alternative includes many proposals that will require increased level of protection that, in many cases, will take form of fenced enclosures. Unfair for grazers to be burdened with increased workload of fence maintenance. Need to develop fence maintenance strategy that utilizes resources other than grazers (offers suggestions such as use of fire crews).

Response: Similar to response to previous comment, grazing permits do place responsibility for fence repair and maintenance on the permittees, although BLM does maintain some fences in the ELFO. We agree that some of the proposed protection measures (specifically additional exclosures) would place an added burden on the livestock operators/permittees, and BLM would work with the permittees to determine, on a site-specific basis, how much additional fencing maintenance would be needed and reasonable to require. The suggestion to use other resources is a good one and we note that BLM does use fire crews for fence work when they are available.

10.3 Sheep

Please refer to responses to wildlife-related comments (Section 25.0 of this appendix) for response to comments #15-51, #23-109, #31-23, #31-25, and #31-26), and to water quality-related comments (Section 22.0 of this appendix) for response to comment #51-3.

10.4 Allotment-Specific Decisions

Comment Number: #10-11

Comment: Permanently cancel all livestock allotments not currently in use or that have been vacant for over a year.

Response: This proposal would not be allowed under BLM regulations. There have been occasions where we have taken away permits for non-use, but there has to be a sufficient justification to allow us to take such action.

Comment Number: #15-22

Comment: Revise 2.8.5 to provide for allotment management plans (AMPs) or their functional equivalents.

Response: Section 2.8.5 has been revised accordingly.

Comment Number: #16-1, #16-2, #16-3

Comment: DRMP does not contain discussions of alternatives, affected environment, or environmental consequences relative to specific allotments. Commenter can't discern where we are and intending to go. Need specific discussions of what standards were met or not met and the basis for the findings and where

Response: The identification and evaluation of individual allotments is not appropriate for the level of detail appropriate to an RMP and the level of decisions that it supports. The actions in this Proposed RMP/Final EIS are designed to provide general management guidance in most cases. Decisions regarding specific allotments, such as changes to class of livestock authorized and future suitability of existing allotments for grazing, would be made at the activity plan level. This would be done when plan assessments reveal changes are necessary and compatible with RMP and activity plan goals and objectives. These plans and processes would address more precisely how a particular area or resource is to be managed and additional NEPA analysis and documentation may be conducted as needed. See also responses to comments in Section 10.1 above.

Comment Number: #31-1

Comment: Request that RMP include provision to allow BLM and/or permittees to permanently retire grazing allotments when conditions permit.

Response: This is not an option available to us under BLM regulations.

Comment Number: #36-3

Comment: Recommend that RMP include a grazing allotment management decision matrix for planning area similar that that recently adopted by BLM Prineville District in Oregon for Upper Deschutes Resource Area.

Response: We have seen the particular matrix referenced by the commenter, and it addresses livestock grazing and public (recreational) conflict issues, which have not been identified as

significant issues in the ELFO management area. While we acknowledge the value of such a matrix for use as a planning/decision tool, the issues it covers are not appropriate to our land use planning effort.

10.5 Forage Allocation / Production

Comment Number: #15-23, #15-25

Comment: Section 2.8.7 (Alternative 1, Economic Development) does not provide basis (scientific, economic, resource) for proposed limitation of livestock forage allocation to 60,000 AUMs, or proposed limitation of new seedings to area of 8,000 acres. Section 2.8.8 proposes to use lowest utilization level as recommended by RAC; however, this is contrary to implementation procedures of Guidelines 16.

Response: Our proposed permitted AUMs for this alternative were selected based on the need to identify and evaluate a reasonable range of alternatives in the RMP EIS under NEPA. This included, for comparative purposes, an alternative that provided maximum livestock grazing and permitted uses on those lands where land health standards are being met or progress is being made toward meeting the standards. Alternative 1 incorporated this maximum grazing scenario, which also included minimal livestock rest or deferment.

Comment Number: #16-28

Comment: Reject concept that forage production and availability naturally fluctuate annually (page 3-46 in Eagle Lake DRMP).

Response: Thank you for your opinion. BLM believes there is ample evidence and research to support the fact that vegetation production, and hence, forage availability are dependent on the amount of annual (or seasonal) rainfall that an area receives.

Comment Numbers: #31-12, #31-13

Comment: BLM has failed to accurately and quantitatively determine how much forage (i.e., forage capacity) is currently available. RMP DEIS fails to properly allocate that forage to watershed and stream protection, wildlife habitat and food, then to livestock if available.

Response: A rangeland inventory has not been conducted to specifically determine forage capacity for this RMP. Rather, we have carried forward existing permitted AUMs based on previous and ongoing assessments conducted to assess grazing allotment conditions and land health assessments. We will update / modify this information as we complete our standards evaluation. In the meantime, we would observe and conduct photo monitoring to ensure that the guidelines are being followed and capacity is not being exceeded. Where impacts from livestock are identified, ELFO would make the necessary adjustments to livestock grazing activities with which the permittees would have to comply. All grazing activities would have to follow the Standards and Guidelines contained in Appendix B of the Proposed RMP / Final EIS. In particular, Guideline 17 of the Standards and Guidelines requires that rangeland monitoring be conducted to determine utilization of forage resources and trend of rangeland health in each allotment based on current accepted practices and techniques as directed in the Interagency Technical Reference: *Utilization Studies and Residual Measurements* and *Sampling Vegetation Attributes*.

Comment Number: #31-16

Comment: Commenter cites studies regarding effects of different livestock grazing intensities on forage plant production, use of quantitative ecology in range management, and other topics to make point that grazing during different seasons was less important than grazing intensity. Additional studies referenced on long-term stocking rate appear to show that under actual field conditions, light grazing (25% or less by livestock) is most appropriate to meet BLM's mandate for sustainable use. BLM should require at least minimum compliance with these standards in RMP until standards can be evaluated at site-specific level.

Response: We appreciate your comment and bringing these other studies to our attention. However, BLM will be implementing the Standards and Guidelines as directed by our grazing regulations (43 CFR 4180.2(c)). In accordance with these Standards and Guidelines, we would adjust livestock levels, as needed and appropriate, on a site-specific basis. As stated in the revised Section 2.8.5, review of existing permitted use-levels (AUMs) would be conducted on individual allotments through assessment of existing activity plans (allotment management plans or their functional equivalents, livestock grazing decisions, habitat management plans, watershed management plans, biological opinions, multiple-use decisions). Decisions regarding adjustments to existing levels of use, forage allocation, allotment boundaries, and changes to management level categories would be made at the activity plan level.

10.6 Impacts on Livestock Grazing

Comment Number: #15-1

Comment: Needs more site specific analysis, particularly relating to livestock management and predicts some impacts will be "major" but cannot quantify**.**

Response: Chapter 4 has been revised to expand the impact analysis, including impacts to livestock management activities. However, the actions in this Proposed RMP/Final EIS are designed to provide general management guidance in most cases. Site-specific impacts from specific projects for a given area/allotment or resource will be detailed in future activity plans or site-specific proposals developed as part of interdisciplinary project planning or other means. These plans and processes address more precisely how a particular area or resource is to be managed and additional National Environmental Policy Act (NEPA) analysis and documentation would be conducted, as needed.

Comment Number: #15-2

Comment: RMP does not specify where actions and impacts are expected to occur, i.e., does not discuss specific grazing allotments in alternatives, affected environment, or environmental consequences.

Response: Chapter 4 has been revised to better address impacts from implementation of proposed management actions relative to each resource area. However, detailed descriptions of site-specific actions and impacts are not appropriately addressed at the level of this RMP. Rather, they are more appropriately addressed in site-specific environmental reviews that BLM would conduct on a given management action – with the intent to evaluate and minimize any potential adverse impact – prior to implementation of that proposed management action. Permittees would be notified in advance, and have the opportunity to participate in the environmental review process.

Comment Number: #15-4, #15-58

Comment: There is internal inconsistency in impact analysis because it does not specify what impacts would be considered adverse impacts in some sections, such as livestock grazing.

Response: Chapter 4.8.1 has been revised to address what impacts would be considered adverse impacts to livestock grazing.

Comment Number: #25-7

Comment: Preferred alternative impacts (p. 4-87). Troubled by number of acres and AUMs discussed in last 2 paragraphs. How firm they are and what is meant by "levels"? What happens in event of a severe drought or other calamity? Important to remain flexible.

Response: The acres and AUMs identified in the analysis of the potential effects of the Preferred Alternative are based on current conditions; however, adjustments are allowed, such as for drought conditions or other calamities, under the proposed action in Proposed RMP / Final EIS. See revised Section 2.8.5 for additional information on the types of adjustments that can be made and under what conditions they might be required.

10.7 Impacts from Livestock Grazing

Comment Number: #25-2, #31-14

Comment: Concern about annual percent of livestock grazing land rested (E-4) and whether will be effective in maintaining healthy rangeland, which, in turns, benefits wildlife. RMP fails to provide for long-term rest to facilitate recovery.

Response: In general, management focus since 2000 has been on meeting land health standards through development of grazing systems that allow vegetation to receive periodic rest, shortened periods of use, use deferment, and varied seasonal use. Under the proposed action, 75 to 85% of the total grazed acres within the Eagle Lake planning area (48% of currently grazed allotments) would continue to be managed to receive periodic rest or deferment from livestock grazing annually. We believe this target percentage range would be sufficient in maintaining already healthy rangeland, and would allow a more intensive and necessary focus on those areas exhibiting moderate departure from land health standards or considered to be "at risk"; emphasis on improve overall rangeland health will also benefit wildlife in the ELFO planning area. See revised Section 2.8.5 for additional clarification of livestock grazing strategies regarding rest and deferment.

Comment Number: #31-11, #31-18

Comment: ELFO failed to take a "hard look" at impacts of domestic livestock grazing. Fails to scientifically and accurately determine those lands which are capable and suitable for livestock grazing. Need to provide underlying data that are basis for professional opinions regarding impacts to resources from domestic livestock.

Response: BLM is taking additional steps to look at the impacts of domestic livestock grazing, and under the proposed action will have the ability to make additional changes/adjustments on a variety of fronts where it is determined that livestock grazing is causing adverse impacts on other resources in ELFO planning area. See revised Section 2.8.5 for additional discussion of the types

of changes and when they can be made; see also revised Chapters 4.17 and 4.23 of the Proposed RMP / Final EIS for an expanded discussion of adverse impacts from livestock grazing on vegetation and wildlife.

Comment Number: #31-15

Comment: Any discussion of impacts should have addressed unwillingness of permittees to use peer-reviewed range science principles for management and their strong opposition to the most minimal standards of performance. Instead, rely on unfounded solutions such as time-controlled grazing and "holistic" management.

Response: We acknowledge your opinion; however, we do not believe this to be an accurate statement or relevant to the discussion of impacts. BLM considers a variety of grazing strategies and management options that comply with the Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing; these guidelines offer both direction and flexibility for management and implementation. Management focus since 2000 has been on meeting land health standards through development of grazing systems that allow vegetation to receive periodic rest, shortened periods of use, use deferment, and varied seasonal use. BLM currently requires "rest" on approximately 250,000 acres for at least part of the growing season. Approximately 75 to 85% of the total grazed acres within the Eagle Lake planning area (48% of currently-grazed allotments) will continue to be managed to receive periodic rest or deferment from livestock grazing annually.

Comment Number: #31-17

Comment: BLM must show that benefits of domestic livestock grazing out-weigh the costs to comply with Multiple Use Sustained Yield Act (MUSYA). DEIS fails to disclose any of the direct, indirect, or cumulative impacts associated with domestic livestock grazing from proposed management direction under any of analyzed alternatives, as the analysis is limited to 2 pages (refers to pages in Section 4.8.8).

Response: MUSYA does not apply to BLM; therefore, BLM is not required to include such a discussion in the RMP. The Federal Land Policy and Management Act guides BLM planning and management, and requires the agency to manage for a variety of uses while maintaining the long-term health and productivity of the land. Impacts <u>from</u> livestock grazing are addressed in Chapter 4 under each of the various resource areas that could be impacted by grazing (for example, vegetation or wildlife). Chapter 4.8 presents the evaluation of impacts <u>on</u> livestock grazing from the proposed management actions. See Chapter 4 of Proposed RMP / Final EIS.

Comment Number: #31-19, #31-20

Comment: Not clear how management actions influence habitat (refers to page in Section 4.8.8); what are impacts? Negative impacts associated with domestic livestock grazing are missing from DEIS. DEIS does not disclose this information. DEIS asserts grazing as proposed will be beneficial to forage, vegetation, watershed conditions, bank stabilization, riparian resources, soils and wildlife but presents no supporting evidence (refers to page in Section 4.8.8).

Response: As stated in response to previous comment, impacts <u>from</u> livestock grazing on vegetation and wildlife are addressed in the revised Sections 4.17 and 4.23. Section 4.8 presents the evaluation of impacts <u>on</u> livestock grazing from the proposed management actions. See Chapter 4 of Proposed RMP / Final EIS.

10.8 Alternatives

Comment Number: #10-12

Comment: Exclude livestock from sensitive riparian areas via fencing or allotment cancellation.

Response: BLM ELFO currently uses riparian fencing to protect riparian areas from livestock, where deemed appropriate, and will continue to construct riparian fencing on a site-specific basis where needed under the proposed action. Allotment cancellation is not an option available under BLM regulations.

Comment Number: #15-6, #16-13

Comment: RMP is biased toward "recreation" being the highest and best use of planning area, often stating directly that livestock grazing will take less precedence if conflicts occur. Reject notion, both factually and legally, that livestock grazing should be made compatible to other resources and resource uses, if compatible means "subordinate". Not defined in RMP.

Response: BLM ELFO is charged with managing for multiple use and sustained yield. While these sometimes present conflicting challenges – such as where managing the uses of one resource for economic gain (e.g., livestock grazing) may conflict with another use targeting resource protection – we believe that our proposed action in the Proposed RMP / Final EIS provides the best balance to achieving these directives and is consistent with our intent to maximize resource use compatibility while avoiding any favoritism of one use over another. Under the preferred alternative, we take into account the rights of grazing permittees in our determination of recreation activities. We would recognize any valid existing rights under a valid permit.

Comment Number: #15-7

Comment: RMP fails to accurately describe and analyze the no action alternative. For example, in Section 2.8.6, the current land use plan does NOT: (1) restrict livestock forage allocation to 52,250 AUMs, but provides for, predicts, and prescribes increases in livestock forage allocation; (2) preclude or de-emphasize new rangeland projects; or (3) restrict species seeded in new seedlings to native species only.

Response: We appreciate your comment; however, we believe that the no action alternative was accurately described and analyzed in the Draft RMP EIS. The regulations can allow increases (or decreases) in AUMs.

Comment Number: #15-24, #16-15

Comment: There is no scientific basis for resting allotments for 2 years out of 3. Rejects provision that burned lands would be rested from livestock grazing for a minimum of 2 growing seasons; should rely on assessment process to determine suitable resting period—it is possible that less time may be warranted.

Response: Our local information and data show that two growing seasons is the minimum resting period necessary for recovery of plants following fire, in order to meet land health conditions. In addition, plants must meet the ability to withstand grazing; this would be determined based on a

site-specific assessment at the end of the two-year growing cycle. We have revised Section 2.8.5 to indicate that less time may be allowed, based on assessment and monitoring results if certain conditions are met: "Areas burned by wild or prescribed fire would be rested from livestock grazing for a minimum of two growing seasons. Decisions to re-open burned areas to grazing would be based on monitoring and assessment. Areas may be re-opened in less than two growing seasons only if such use can be shown to meet resource management objectives of the fire recovery plan specific to that site." In general, BLM believes that a two growing season minimum is sufficiently protective, based on past experience and best professional judgment.

Comment Number: #15-26

Comment: Use of aggressive herbicide treatment should not be limited to ecosystem alternative (2.8.8) but should be common to all alternatives.

Response: Herbicide treatment is included as an option under our proposed Integrated Weed Management approach for vegetation control, as described in Chapter 2.18.5. Its selection as a treatment option would be determined on a site-specific basis.

Comment Numbers: #21-11, #23-4, #23-28, #23-33, #23-37, #23-40, #23-44, #23-47

Comment: Seek grazing closure for Eagle Lake Basin to protect sensitive vegetation. Regarding Willow Creek, Lower Smoke Creek, Eagle Lake Basin, North Dry Valley, and Buffalo Creek ACECs, recommend that BLM adopt grazing Alt. 2 as preferred alternative where it would limit grazing to 1 year out of 3. Concerned that all proposed ACECs (except Pine Dunes and Susan River) will remain open to grazing with limited exceptions. Even if don't adopt Alt. 2, adopt grazing prescription from Alt. 2 (especially for ACECs) and include additional modifications to protect sensitive resources. Should also incorporate free use grazing permits in place of traditional lease agreements where maximum management flexibility is needed.

Response: Please refer to responses to comments in Section 15.4 of this appendix regarding land use restrictions in ACECs.

Comment Number: #29-9

Comment: Strong opposition to Alt. 2 which is essentially a "no graze" proposal. Proposal is unacceptable with respect to livestock grazing.

Response: Your preference has been noted. Thank you for your comment.

Comment Number: #30-1, #42-6

Comment: Close Eagle Lake Basin to grazing to protect sensitive vegetation and put on same course as Susan River and Pine Dunes.

Response: Management actions currently being implemented in the Eagle Lake Basin have provided adequate protection for vegetation and are taking us in the right direction in terms of overall land health objectives. We do not believe that making the Eagle Lake Basin unavailable for grazing is a necessary management action under the preferred alternative. Please also note that 85% of the BLM-administered Eagle Lake shoreline will be unavailable for grazing and that grazing in other areas of the basin is tightly managed.

Comment Number: #31-41

Comment: Removal of livestock from sagebrush communities in less than satisfactory condition should be a seriously considered alternative in RMP.

Response: We believe that the alternatives identified and evaluated in the Draft EIS provided a reasonable range of management alternatives from which to make our decision. Under the preferred alternative / proposed action, we would prioritize adjustments to grazing strategies for allotments or areas where plant communities are at risk or show moderate departure from land health standards.

Comment Number: #36-2, #45-14

Comment: Request that additional acres on ELFO land base be closed to livestock grazing so that needs of grazing permittees are better balanced with need to conserve biological resources. Recommend areas to focus on. Grazing closures recommended in preferred alternative are minimal.

Response: BLM's management focus since 2000 has been on meeting land health standards through development of grazing systems that allow vegetation to receive periodic rest, shortened periods of use, use deferment, and varied season of use. We believe that continuation of this strategy, in combination with other resource management actions included in the proposed action (such as designation of ACECs, protection of winter habitat for wildlife and T&E species habitat) provides an optimal balance between economic use/livestock grazing and resource protection. Our proposed approach also includes sufficient flexibility to make future adjustments as and where needed to address land health concerns.

10.9 Affected Environment – Livestock Grazing

Comment Number: #15-52

Comment: In Section 3.9.1, provide historical reference or remove inflammatory statement regarding "applicants' exaggerated claims of historical use" relative to establishment of grazing levels under the Taylor Grazing Act.

Response: Chapter 3.9.1 has been revised to better characterize the historical setting of livestock grazing.

Comment Number: #15-54

Comment: Section 3.9.4, Current Livestock Management, is incorrect in stating that the primary management objective for livestock management is an increase in perennial grass composition. Currently effective plan refers to variety of objectives including maintenance and improvement of rangeland ecological condition, riparian maintenance and improvement, etc.

Response: Section 3.9.4, Current Livestock Management, has been revised to include other important management objectives for livestock grazing.

Comment Number: #29-8

Comment: Need to rewrite historical setting for livestock grazing. Does not paint complete picture of livestock grazing over past 140 years.

Response: Chapter 3.9.1 has been revised to better characterize the historical setting of livestock grazing.

Comment Number: #31-30

Comment: DEIS fails to disclose amount of existing range "improvements" in the planning area including cattle guards, miles of fence, acres of seeding, acres of land treatments, reservoirs and stock ponds, spring development, miles of pipeline, guzzlers, and wells. Yet DEIS claims more "improvements" are needed to alleviate impacts to riparian areas and other resources.

Response: The commenter is correct in that ELFO has implemented a number of range improvements in the planning area, over the past 30 years, as necessary to facilitate improved grazing strategies. However, additional improvements or enhancements may still be necessary for those allotments exhibiting moderate departure from land health standards or those areas "at risk". Specific improvements are more appropriately identified and implemented on a site-specific basis and would include additional site-specific NEPA analysis prior to construction.

10.10 General

Comment Number: #1-6

Comment: A grazing decision is required to designate priority species; recommends certain vegetation species to be designated as priority for grazing and species-specific schedules for rest in each grazing cycle.

Response: Chapter 2.17 outlines vegetation alliances that are a priority for management and treatment, and lists treatments proposed for each alliance, according to land health assessment ratings. Within these treatment areas, site-specific objectives will be determined, including priority species for management. Within grazing allotments, site-specific conditions would determine the appropriate rest or deferment period, and Section 2.8.5 has been revised to clarify livestock grazing strategies involving rest or deferment. In general, unique plant communities, such as bitterbrush, serviceberry, mountain mahogany, quaking aspen, California black oak, and buffaloberry will be managed by controlling the grazing periods and season of use by livestock. Site-specific areas of these communities may be fenced from both livestock and wildlife for two years to ensure seed production.

Comment Number: #15-17

Comment: Desired future conditions for livestock grazing are actually DFCs for vegetation.

Response: We acknowledge that there is overlap between DFCs for livestock and vegetation. BLM's management focus since 2000 has been on meeting land health standards through development of grazing systems that allow vegetation to receive periodic rest, shortened periods of use, use deferment, and varied seasonal use. In order for BLM to maintain a sustainable livestock grazing program, vegetation resources must be managed to meet land health standards.

Comment Number: #15-18, #15-19, #15-20

Comment: DFCs for livestock grazing should provide for authorization of maximum livestock permitted use consistent with other resource management objectives. Revise goal statement in 2.8.2 to reflect "optimum" level (maximum level consistent with other resource management objectives) of livestock grazing authorization. Rewrite objectives (2.8.3) to focus on livestock use instead of vegetation, including authorization to harvest additional forage available on a sustained basis.

Response: Given BLM's directives to manage for both multiple use and sustained yield, the potential for grazing to impact other resources, and the lack of information associated with high end permitted uses for livestock, BLM prefers a management approach oriented more toward "average" permitted use levels rather than a maximum use scenario. Permitted levels, in certain allotments, have the potential to be increased in the future depending on site-specific conditions, and the results of ongoing rangeland health evaluations and determinations. We believe that the objectives are appropriate as stated given BLM's overall approach to managing livestock grazing: Management focus since 2000 has been on meeting land health standards through development of grazing systems that allow vegetation to receive periodic rest, shortened periods of use, use deferment, and varied seasonal use. This strategy will continue under the proposed action described in the Proposed RMP / Final EIS.

Comment Number: #15-21

Comment: Reference Taylor Grazing Act in 2.8.4.

Response: Reference to the Taylor Grazing Act has been added to Section 2.8.4.

Comment Number: #16-16

Comment: Reject adoption of BLM policies regarding use of native plant materials in California when seeking to rehabilitate wild or prescribed burn areas or augment forage resources of an area. Cost or unavailability of native seed might allow noxious weeds or other undesirable plants to obtain a stronghold there instead.

Response: Natural regeneration for site-rehabilitation would be used following fire where this appears adequate and would not lead to proliferation of weeds. Where assessment shows a need, re-seeding with native vegetation would occur, to the extent possible. However, BLM acknowledges that, if re-seeding with native seed is not possible, the use of non-native seed may be necessary to re-establish vegetation and facilitate erosion control. The use of non-native seed would be determined on a case-by-case and site-specific basis in accordance with existing BLM policy (see Section 2.17.6).

Comment Number: #25-3

Comment: New communities of bluebunch wheatgrass (which should be predominant perennial grass on these lands) should be left alone for at least 2 years.

Response: All new seedings, including new communities of bluebunch wheatgrass would be rested from grazing until they are determined able to withstand grazing without damage to individual plants.

Comment Number: #25-4

Comment: Need discussion of rest for habitats of woody vegetation and only 1 year of rest for newly established seedlings (not adequate for protection).

Response: Selective areas with land health assessment ratings of 'at risk' or 'unhealthy' would be restored through reseeding and other methods. For these planting efforts to be successful, the new seedings must be rested from grazing until the new plants can withstand grazing pressure. BLM would comply with policies set forth in California BLM Supplemental Manual 1745 and Handbook 1745-1, Use of Native Plant Materials in California. Management of woody plant communities is discussed in Chapter 2.17, Vegetation. Grazing strategies, including rest or deferment, within individual grazing allotments would be designed to maintain and promote woody plant communities, as appropriate.

Comment Number: #25-5

Comment: New seedings should be native plants and not exotics like crested wheat grass.

Response: By preference, native perennials would be used for seeding. However, crested wheatgrass (and other non-native plants) would be considered for rehabilitation of sites where non-native plants were used in the past. The use of non-native seed would be determined on a case-by-case and site-specific basis in accordance with existing BLM policy.

Comment Number: #26-1

Comment: Encourage consideration of setting higher goals, as in Alt 2, for PFC and functioning at risk with static or upward trends. Manage grazing in wetland/riparian areas functioning at risk to facilitate recovery. It is unclear if preferred alternative would require 100-foot or 50-foot buffer zones in surface waters that do not meet PFC or water quality standards. Recommend grazing buffer zones of at least 100 feet along these waters to reduce stresses that could impede improvements of these conditions.

Response: We have revised the goals for achieving PFC of riparian/wetland areas in the preferred alternative to be more like Alternative 2; see revised Chapter 2.19. BLM believes that the proposed action will offer sufficient protection of wetland and riparian areas from livestock grazing. With respect to grazing, emphasis will be on adjusting existing grazing strategies where livestock grazing is limiting progress toward land health goals, PFC, and DFC – i.e., "at risk" sites. Once the ecological potential of the riparian community is determined, site-specific riparian management objectives and management actions would be established. Table 2.19-1 in the Proposed RMP / Final EIS shows more than 100 miles of flowing water and approximately 180 acres of wetland or standing water that have been inventoried and assessed to date. In both flowing and standing riparian areas, most sites were found to be in PFC. Many sites were assessed as functional at risk but with an upward trend. When combined with PFC, these types represent more than 87% of the sites meeting or making progress toward meeting properly functioning condition and land health standards.

Comment Number: #31-43, #36-9

Comment: How will agencies and management plan provide resources to address apparent conflict between healthy sage-grouse and livestock grazing in some areas of ELFO? How will sage-grouse, leks, brood rearing cover, and other resources be affected by proposed management

direction? Recommend BLM follow recommendations for managing sage-grouse that are found in A Blueprint for Sage-Grouse Conservation and Recovery.

Response: Grazing activities under the proposed action will comply with the Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing (July 2000). Livestock grazing practices would be modified in selected allotments to improve sage-grouse habitat, based on guidelines set forth in Appendix H, "RMP Alternatives Necessary to Ensure Compliance with the Conservation Strategy for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit". These guidelines would be used to set goals and objectives for maintaining or restoring sage-grouse habitat elements at specific sites within allotments; they would not be used as threshold criteria for livestock management. Implementation of the Conservation Strategy, as described in Section 2.25.5, is a major component of our management approach for the protection of sage-grouse and sagebrush ecosystems under the proposed action. Essential components of the Conservation Strategy include protection, restoration, monitoring, research, and ongoing adaptive management for sage-grouse and sagebrush ecosystems within the management unit. See also responses to comments in Section 25.4.1 of this appendix relating to sage-grouse.

Comment Number: #36-4

Comment: Oppose making additional AUMs available to domestic livestock as vegetation treatments are accelerated under the juniper management plan.

Response: The primary objective of juniper management is to support ecosystem restoration of sagebrush communities, and to improve wildlife habitat. However, as a result of improved land health, and enhanced plant communities, additional vegetation biomass, hence additional forage for livestock grazing, may be an added benefit of these improvements. However, any adjustments to current grazing levels, including increases in AUMs, would occur under a specific, longer-term process outlined in the grazing regulations; see also revised Section 2.8.5 and Appendix B.

Comment Number: #36-5

Comment: Generally oppose creation of grassbanks or forage reservoirs for grazing permittees, particularly in areas where grazing is already dominant use of landscape.

Response: Grassbanks or forage reservoirs are not being considered for, or applicable to, the ELFO planning area; there are no vacant allotments in the ELFO planning area.

Comment Number: #45-13

Comment: Concern regarding BLM EIS DES 03-62, Proposed Revisions to Grazing Regulations for Public Lands, which commenter understands have been finalized. If BLM is actively implementing these policy changes, need to present discussion in description of preferred alternative and in management common to all alternatives. Also may be need to revise livestock grazing discussions in all appropriate sections of RMP/EIS to account for these changes in grazing policy.

Response: BLM will manage livestock grazing according to the most up-to-date policies and regulations. In regard to BLM EIS DES 03-62, Proposed Revisions to Grazing Regulations for Public Lands, the basic premise that requires BLM to manage livestock grazing to meet land health standards, has not changed. The new policy may create a change in how BLM implements

decisions for grazing on a site-specific or allotment level. We believe that our language in the Proposed RMP / Final EIS is current in accordance with this policy.

Comment Number: #49-1

Comment: Cattle grazing should be encouraged instead of discouraged. Land that is grazed will not burn, based on commenter's experience.

Response: Under the proposed action, current cattle grazing levels would continue at present level, at least initially, with future levels having the potential to increase or decrease based on final land health determinations.

Comment Number: #51-2

Comment: Monitoring has shown that livestock, especially cattle, must be excluded from surface waters if fecal coliform standards are to be met. Suggests that exclusion fencing be utilized extensively around surface waters, and that off-stream watering facilities be developed, rather than allowing direct access.

Response: We agree with the importance of excluding livestock from surface waters for the protection of water quality and note that a significant number of areas within the ELFO include fenced exclosures (for example, approximately 85% of the BLM-administered shoreline of north Eagle Lake is currently excluded from livestock and the remaining 15% is managed under an improved grazing strategy). In addition, we also use riparian pastures that have a reduced season of use. Additional fencing will continue to be installed if water quality assessments indicate a need to do so. Additional off-stream watering facilities are a useful protective measure, and may be developed as needed. In addition, Section 2.8.5 (Livestock Grazing) of the Proposed RMP / Final EIS states that "BLM would consider expanding the size of currently-protected riparian areas and would protect additional areas where this is advisable (i.e. where unfenced seeps, springs, creeks, and other riparian/wetland habitats are not meeting land health standards). New or modified fencing (built to BLM wildlife specifications), and intensive (time-controlled) management of grazing, would be used to accelerate recovery. Decisions would be based on site-specific environmental assessments and identified needs."

11.0 RECREATION AND VISITOR SERVICES

Comment Number: #4-1, #50-1

Comment: Support for outdoor recreation and management (including wildlife and their habitat) that allows hunting and fishing; consider needs of hunters and fishermen. Opposition to closing lands to hunters

Response: Thank you for your comment. We believe that the preferred alternative provides an optimal balance between public access for a multitude of recreational activities (including hunting and fishing) and resource protection.

Comment Number: #15-6, #16-13

Comment: The RMP is biased toward "recreation" being the highest and best use of planning area. Commenter opposes preferred alternative and urges adoption of no action relative to recreation opportunity spectrum assuming ROS classification as shown in maps is accurate. ROS

preferred alternative would impact ability to maintain livestock management infrastructure and result in more concentrated recreation in areas where roads remain open (which will increase conflicts among recreationists and between recreationists and wildlife/livestock).

Response: Following the principles of multiple use and sustained yield requires BLM to balance between changing public needs and desires, including an increase in demand for access, the significance of public land products, services and use to local economies (including grazing), and resource protection. We believe that our preferred alternative provides the best balance between these multiple use objectives. That said, additional balancing may be appropriate to fully consider the right of the grazing permittees. Under the preferred alternative, we take into account the needs of the grazing permittees in our determination of ROS and road closures or restrictions. The ROS classes also would not affect any uses the permittees currently have, and would recognize any existing authorizations under a valid permit.

Comment Number: #15-28

Comment: Commenter opposes creation of South Dry Valley SRMA and urges adoption of no action alternative instead. States increased OHV use will have adverse impacts on area resources outside of SRMA as well.

Response: Our designation of the South Dry Valley SRMA is based on careful consideration and a thorough evaluation of current and projected visitor use, resource impact and protection issues, user conflicts, and health and safety concerns. We believe that the preferred alternative provides the optimal balance between public access for a multitude of recreational activities and resource protection. We will continue to monitor OHV use and initiate the process to change the designated route system (including closure and rehabilitation of routes) where needed to meet land health standards/protect resources and meet the changing public's needs and desires

Comment Number: #22-1

Comment: Objects to blanket closures of lands adjoining Bizz Johnson Trail to all hunting and shooting (2.9.5.8, page 2-60), and indicates rationale for their closure (3.1, page 3-54) is inadequate. No restriction currently and BLM provides no documentation or study of any safety problem with shooting and hunting on or near the BJT. Hunting ban is arbitrary and capricious. As example, equestrian use is identified as impact on BJT (page 3-52) but not banned. Indicator of favoritism for one activity over another.

Response: We have determined it is appropriate to close the area within the Susan River Canyon, between Susanville and Highway 36 at Devils Corral to shooting to ensure safety in this high-use recreation area, and this restriction remains in the preferred alternative. We also plan to close 300 feet on each side of the Bizz Johnson Trail west of Highway 36, to the Lassen National Forest boundary, to shooting. Signs within the area have been shot on the trail which indicates potential harm to trail users by firearm discharge. There is also a visual barrier created by the canyon that reduces visibility to hunters. As use increases, the potential for injury or death also increases, and we plan to reduce that risk. Please also note that, in reviewing all proposals for this Final EIS, most BLM lands remain open for shooting. BLM would also relocate equestrian use from the Bizz Johnson Trail to the South Side Trail if equestrian use causes the trail surface to become too soft for walking, running, or cycling, or for use by the disabled (see Section 2.9.5).

Comment Number: #47-2

Comment: RMP did not address loss of recreational use in the Dry Valley area per the recommended limited use area designation.

Response: Chapter 2.16 Travel Management has been revised to state the following: Within the South Dry Valley SRMA (exact boundaries not yet identified), the designated route network will be identified as an interim route network (IRN). Within the next 5 years, a planning team made up of motorized and non-motorized users of the Dry Valley riding area and other affected users of the Dry Valley Area would assist BLM resource specialists in the development of a management plan for the South Dry Valley SRMA. The Dry Valley SRMA planning team would establish the detailed South Dry Valley SRMA boundaries, identify and resolve the issues, and—through collaboration—analyze the IRN and identify a final designated route network.

Comment Number: #47-5

Comment: Supports full hook ups at Fort Sage staging area. RMP needs to address how this can be made possible.

Response: In designing the preferred alternative to provide the optimal balance between public access for a multitude of recreational activities, BLM has determined that the Fort Sage OHV trailhead should be managed for day-use and self-contained camping. This plan goal is consistent with national BLM recreation facility policies, which focus agency efforts on providing for rustic settings and facilities.

Comment Numbers: #48-1, #48-2

Comment: Want BLM to consider constructing or designating additional OHV trails and non-motorized trails, as well as more spacious trail heads at these types of trails for overnight camping and equestrian trailer parking.

Response: We believe that our preferred alternative provides the best balance between public and administrative access, a multitude of recreational activities, and resource protection. The preferred alternative proposes construction of 264 miles of new nonmotorized trails. BLM acknowledges that the inadequate size of some trailheads can be a problem for equestrian users. As funding is available for facility upgrades, BLM will consider these issues in any new developments of trailheads and turn around loops.

12.0 RECREATION OPPORTUNITY SPECTRUM (ROS)

This section is divided into the following subsections:

12.1 - General ROS Comments
12.2 - Roadless Area Management

12.1 General ROS Comments

Comment Numbers: #32-9, #42-4

Comment: Buffalo Creek should be managed totally as primitive under the ROS to eliminate vehicle use within it. Manage Buffalo Creek ACEC entirely under ROS category of primitive which does not allow motorized vehicle use.

Response: We believe that our preferred alternative provides the best balance between public and administrative access and resource protection. WSA Interim Management Policy requirements on Buffalo Hills would take preference over ROS management direction such as backcountry, although some motorized use could occur on designated routes within the Buffalo Hills WSA to provide access to private inholdings.

Comment Number: #47-4

Comment: 1,325 acres of BLM-owned land on east side of Sierra Army Depot (SIAD) demolition site which has been fenced. BLM doesn't want to acknowledge that this land used to be under their management as multiple-use recreation land. Land is still owned by BLM. Lassen MC deserves to be mitigated for loss of 10 miles of enduro trails. This issue needs to be addressed in RMP.

Response: Section 2.7.5 in this Proposed RMP / Final EIS has been revised in response to this comment to clarify the existing arrangements between BLM and the Sierra Army Depot, which is charged with receiving, issuing, and renovating munitions, and their efficient and safe deactivation. As a result of a detonation that extended beyond the demolition range boundary some years ago, the Sierra Army Depot built a safety fence encompassing an additional 1,328 acres of BLM-administered land. The Army Corps of Engineers is now seeking an official withdrawal of this area. This withdrawal (and subsequent loss of acreage) was taken into account when BLM developed proposed management actions for travel and recreation. We believe the existing routes and trails, as shown on Map Travel-2 in the Proposed RMP / Final EIS, are sufficient to satisfy current public desires and needs / demands.

Comment Numbers: #23-85, #23-102, #23-104

Comment: Include all WSAs in a primitive ROS zone in preferred alternative. Page 2-81 of the DRMP states primitive ROS zones are proposed in "core" areas of WSAs and in some large roadless areas outside WSAs, but ROS map (REC-6) does not show any primitive zones outside of WSAs. Primitive ROS zones should be established in cores of six roadless areas listed. New road construction should be prohibited in primitive zones in their cores except for landowner's access or emergency purposes.

Response: Please see response to first comment in Section 18.1 and comments in Section 19.1 of this appendix, on WSAs and Travel Management, respectively. The statement on Page 2-81 of the DRMP that primitive ROS zones are "proposed in some large roadless areas outside WSAs" was an error, and has been corrected. The ROS categories as depicted on Map REC-6 in the DRMP and now in Map REC-2 in the Proposed RMP / Final EIS are correct.

12.2 Roadless Area Management

Comment Numbers: #6-2, #9-2, #10-3, #10-7, #10-23, #21-3, #24-1, #30-3, #32-3, #32-6, #37-1, #37-8, #42-12

> **Comment:** Confine vehicles to designated routes and manage roadless areas as primitive. Manage core portions of Observation Peak, Shaffer Mountain, Shinn Mountain, Skedaddle Flats, Skedaddle West, and Snowstorm Mountain roadless areas as primitive areas to provide fullest protection to these high quality wilderness areas. Manage Buffalo Creek ACEC as primitive zone. To Preferred Alternative, add "restrict vehicle access to designated routes only and manage land between routes as primitive and non-motorized zones." Support Alt 2 road closures or more and decommissioning of non-essential roads if possible.
>
> **Response:** Thank you for your support of the designated route system in the preferred alternative. We believe that our preferred alternative provides the best balance between public and administrative access and resource protection. Please also see comments regarding management of the areas off of the designated route system in Section 18.1 of this appendix regarding WSAs.

Comment Number: #42-7

> **Comment:** Supports proposal to close all ACECs to off road vehicle use (or at least confine routes to those presently designated).
>
> **Response:** BLM appreciates your support of this proposal.

13.0 SOCIAL AND ECONOMIC CONDITIONS

Comment Number: #29-13

> **Comment:** While the county economic data displayed are accurate, more current socioeconomic data are available and should be used (2000-2001 used currently).
>
> **Response:** The data that were used (which were the most readily available when the RMP / EIS process was started) are considered adequate for making decisions within the framework for this assessment, which covers a 15-20 year future planning period; therefore, the existing analysis was retained.

Comment Number: #29-14

> **Comment:** The analysis does not address impacts on possessory interest tax levied on grazing permits. As it is collected on an "as used" basis, Alt 2 would directly impact county revenue.
>
> **Response**: BLM acknowledges that Alternative 2 would have the impact on county revenue identified by the commenter. This impact has been added to the impact summary table at the end of Chapter 2.

Comment Number: #29-15

> **Comment:** Alt 2 fails to capture true loss of grazing; it uses direct paper calculation of grazing 1 out of 3 years when in reality most grazers would cease to use their permit because of lack of forage the remaining two years.

Response: The analysis of Alternative 2 states that "In view of all these factors, the grazing program under Alternative 2 is likely to reduce livestock production and result in major effects or substantial financial impacts on all BLM permits. Eliminating BLM grazing capacity could also indirectly affect management of private lands as operators scale back or leave the livestock business." The intent of these statements is that BLM acknowledges a more direct overall impact to livestock operators than just losing forage every 2 years. For these reasons, BLM has not selected Alternative 2 as part of the preferred alternative.

Comment Number: #29-16

Comment: The IMPLAN model has flawed assumptions when used for estimating grazing impacts in NE California and NW Nevada; does not take into account that all available private forage is used every year. While County does not expect Alt 2 to be selected, a failure to accurately display true losses creates false impression that it would not be as economically devastating as it truly would be.

Response: Within the limitations of the IMPLAN model, the economic analysis as presented is believed to provide an appropriate and useful comparison of the economic impacts from each of the alternatives, and therefore the existing analysis has been retained. As clearly presented in the EIS, Alternative 2 stands in contrast to the other alternatives in that it is the only one resulting in a negative impact of any kind on employment and income. For these reasons, BLM has not selected Alternative 2 as part of the preferred alternative.

14.0 SOIL RESOURCES

Comment Number: #15-29

Comment: The objective to prevent erosion and sedimentation is unrealistic and unattainable. If DRMP intends to address higher than background erosion and sedimentation areas, it needs to specify what levels constitute concern and where they exist on the landscape.

Response: The objective has been clarified to state that BLM's objective is to prevent erosion and sedimentation in sensitive aquatic (or other) sensitive environments to ensure there is no threat to property or human health.

Comment Numbers: #15-30, #15-31

Comment: Regarding sediment intrusion buffer zones, need to define the type of water bodies that would be protected. This lack of specificity renders the document ambiguous and the impact analysis invalid. Need to define what is meant by the "sensitive vegetation" that would be protected.

Response: Sediment intrusion buffer zones would be constructed for ground-disturbing projects to protect any type of water body adjacent to the project area (perennial or intermittent streams, ponds, reservoirs, lakes, wetlands, or springs). Sensitive vegetation includes any plant species needing additional protection, as determined by the BLM staff. This would include all categories of special status plants as listed in Chapter 2.20 Special Status Plants.

Comment Number: #15-55

Comment: Soils resources subsection (3.12.2) fails to report which of 12 parameters resulted in soil functionality being "at risk" or "non-functioning" for different areas.

Response: The Chapter 3.12.2 discussions of soil conditions in each watershed, which follow the referenced listing of the 12 parameters that are used to rank Soil / Site Stability and Hydrologic Function, generally specify which, if any, of these primary indicators caused a rating of reduced condition. The data sets for these ratings have not been included in this Proposed RMP / Final EIS, but are available on request from BLM.

Comment Number: #31-31

Comment: DEIS fails to disclose any impacts that have resulted from already existing range improvements and impacts that will result from constructing even more (cites studies of impacts to vegetation and soils from water developments).

Response: The Chapter 3.12.2 discussions referenced in response to the previous comment identify the soil conditions within each watershed and describe the factors (including, where appropriate, livestock use) that are associated with any degraded conditions. Chapter 4.11 includes disclosure of the potential for soil compaction around range improvements, including water developments for livestock. Impacts from existing range improvement projects, whether beneficial, or adverse, are reflected in the current land health assessment ratings, as shown in Table 2.17-1. Site-specific impacts from improvements are examined on an allotment basis, and are not included specifically in this Proposed RMP / Final EIS. However, all improvements are monitored to ensure that they are improving resource conditions, as intended. Chapter 4 examines impacts from range improvements in general on vegetation, soils, and other resources. Chapter 4 states that livestock exclosures would have beneficial effects on riparian areas and temporary adverse effects on vegetation communities during construction, and that water developments would have minor and short-term effects during construction and cattle use. All range improvement projects must go through a site-specific environmental analysis prior to implementation.

15.0 SPECIAL DESIGNATIONS – AREAS OF CRITICAL ENVIRONMENTAL CONCERN

This section is divided into the following subsections:

15.1 - Support for ACECs Recommended in Preferred Alternative
15.2 - Support for Additional ACECs Not Identified in RMP
15.3 - Opposes Proposed ACECs
15.4 - Land Use Restrictions in ACECs
15.5 - Effect of ACEC Restrictions on Private Lands
15.6 - AMR as Fire Use in ACECs
15.7 - Other ACEC-Related Comments

15.1 Support for ACECs Recommended in Preferred Alternative

Comment Numbers: #10-2, #21-7, #23-30, #23-31, #23-32, #23-36, #23-39, #23-43, #23-46, #32-7, #37-2

Comment: Support all proposed ACECs and full protection of wilderness values in WSAs.

Response: BLM appreciates your support of the ACECs recommended in the preferred alternative.

15.2 Support for Additional ACECs Not Identified in RMP

Comment Numbers: #15-34, #21-8, #21-9, #21-10, #23-1, #23-2, #23-3, #23-5, #23-27, #23-49, #23-56, #36-20

Comment: Some commenters requested that that the acreage of the proposed ACECs be expanded and that other ACECs not identified in the Draft RMP EIS be considered, such as those nominated by other agencies during scoping. These include the corridor along Skedaddle Creek, an aspen grove ACEC, a sage-grouse and sagebrush ecosystem ACEC (such as Chalk Bluff/Smoke Creek/Mud Flat Complex), an old growth western juniper ACEC, and a riparian areas ACEC. Commenters requested additional data and a complete analysis that documents the decision not to designate those ACECs nominated (including external nominations) but not recommended for designation.

Response: In general, ACEC designation is based on whether or not a potential ACEC requires special management attention to protect unique resources in the selected plan alternative. ACEC designation requires a closer look at activities that occur in the area to ensure that they do not impact the primary values of the area. Management decisions are based on the most current information available, BLM policy, and existing laws. Areas that contain high-value resources or critical natural systems, processes, or hazards are eligible for consideration, if certain relevance and importance criteria are fulfilled. In order to meet these criteria, an area must contain significant historical, cultural, scenic, wildlife habitat, or other natural values. Furthermore, the site's importance – and potential for adverse effects on the protected resource--must extend beyond the local level. The suggested areas were not recommended for ACEC designation for the following reasons:

Skedaddle Creek was evaluated for suitability for designation as a wild and scenic river, but was not recommended due to determination of not having outstanding remarkable values (see Table L-1 in Appendix L). For similar reasons, BLM did not recommend the area as an ACEC, as it did not meet the relevance and importance criteria.

Aspen groves were not proposed for designation as an ACEC because the aspen resource is scattered over approximately 25 locations throughout the field office area, with some stands less than half an acre and others larger at 35 to 45 acres, but most less than 5 acres. Managing each aspen stand as an ACEC is not practical, effective, or efficient. However, BLM agrees that the management of aspen is a high priority. Aspen is a unique vegetative community and BLM is taking specific steps for their protection and recovery. Examples of current management practices for aspen including fencing where necessary, rest from livestock after wildfire, and from wild horses and burros when possible to prevent wild horse concentration. Livestock management changes have been made in aspen areas that include adjustments in the season of use. Also, recent

juniper and conifer reduction has been shown to stimulate saplings, stabilization, and increase recovery and expansion of aspen (as well as riparian areas).

Like aspen stands, riparian/wetlands areas are numerous (there are hundreds within the field office area), of varying size (many are small), and scattered throughout the field office lands. Every riparian area does not have relevant or important, or regionally unique resources to qualify as an ACEC. These areas are considered important habitat, but because they are numerous, they do not qualify as being regionally unique resources. However, BLM agrees that protection of our major perennial river corridors is a high priority and has taken steps towards river corridor protection. Three of the recommended ACECs are found along major perennial river corridors: Lower Smoke Creek, Susan River, and Willow Creek. In addition, Upper Smoke is being recommended as suitable for Wild and Scenic River designation.

A sage-grouse and sage-grouse habitat ACEC was not selected for the following reasons. The Buffalo-Skedaddle Population Management Unit encompasses almost 1.5 million acres, which is too large an area to effectively manage as an ACEC. Similarly, it would be difficult to designate which habitat(s) within the PMU should be set aside as an ACEC if it were to be broken down to a more manageable area, and whether to emphasize leks, nesting habitat, brood-rearing and/or late brood-rearing habitat. However, BLM agrees with the commenter that protection of this valuable habitat is important, and we will be managing sage-grouse and sagebrush ecosystems in accordance with the "Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit." This strategy outlines conservation goals, objectives, and associated actions to guide conservation and management actions for sage-grouse and sagebrush ecosystems within the PMU. Telemetry work is ongoing to obtain further information on habitat usage areas, and a multi-year intensive study is being undertaken regarding sage-grouse in the ELFO area.

An old growth western juniper ACEC was not designated because these areas are also scattered throughout the resource area, and do not qualify as a regionally unique resource. However, BLM agrees that protection of native juniper woodlands is important due to their visual appeal, and biologic importance. Chapter 2.17 Vegetation has been revised to reflect management actions specific to native juniper woodlands.

Regarding expanded acreage for currently recommended ACECs, BLM believes that the ACEC acreages as currently proposed are sufficient to protect the unique resources they are intended to protect.

Comment Numbers: #21-7, #23-49, #23-58, #32-8, #42-3

Comment: Commenters requested that BLM develop management prescriptions for sage-grouse-sagebrush ACECs using the "Blueprint for Sage-Grouse Conservation and Recovery," exclude development ROWs from an aspen groves ACEC, and close an aspen groves ACEC to leasable, locatable, and saleable mineral recovery.

Response: As described in the response to the previous set of comments, these areas were not recommended for ACEC designation; therefore, ACEC management approaches were not developed. See also responses to comments on Wildlife issues for sage-grouse-sagebrush management prescriptions.

15.3 Opposes Proposed ACECs

Comment Numbers: #15-32, #15-33, #15-34

Comment: Opposes designation of Buffalo Creek Canyons ACEC, Lower Smoke Creek ACEC, and North Dry Valley ACEC.

Response: BLM acknowledges the commenter's opposing position; however, BLM followed agency-specific policy in the designation of these ACECs (see Section 2.12.4 for regulatory and policy citations) and believes that these areas meet all the criteria and warrant ACEC status.

15.4 Land Use Restrictions in ACECs

These comments discuss restrictions in ACECs related to grazing, oil and gas, locatable minerals, OHV, ROWs and utilities. Additional related comments and responses are included in comments on livestock grazing, energy and minerals, and travel management.

Comment Numbers: #23-4, 23-28, #23-33, #23-37, #23-40, #23-44, #23-47, #25-1, #42-6

Comment: In preferred alternative for grazing, majority of proposed and considered ACECs remain open with few, if any, restrictions. Recommend BLM adopt grazing prescriptions of Alt 2 into preferred alternative and include additional modifications to protect sensitive resources. Should also incorporate free use grazing permits in place of traditional lease agreements where maximum management flexibility is needed. (Commenter #25-1 incorrectly interpreted the Executive Summary of the Draft RMP EIS as stating that the Deep Cut Allotment would be designated as an archaeological ACEC, and went on to state that this area should be rested from grazing until it is healthy.)

Response: Text added to Appendix E describes grazing management in each ACEC. BLM believes that current grazing strategies in the ACECs are sufficient, with ongoing protection management strategies including the use of monitoring data, and that grazing does not have to be further limited to one in three years. BLM grazing allotments within the North Dry Valley and Buffalo Creek ACECs have a regulated management season, and 85% of the shoreline at Eagle Lake (on BLM-administered lands) is closed to grazing. The preferred alternative includes livestock grazing strategies proposed for use in ACECs; see Section 2.12. A correction has also been made to Table 2.12-1 to clarify that 85% of the Eagle Lake BLM-administered shoreline is closed to grazing.

Comment Numbers: #23-41, #23-45, #23-48

Comment: Request closing of ACECs (Eagle Lake, North Dry Valley) to saleable minerals as preferred alternative (adopt Alternative 2). Regarding Buffalo Creek, adopt Alternative 2, closing the area to saleable minerals and add adoption of closing area to locatable minerals.

Response: BLM believes that the preferred alternative includes the most appropriate mix of management measures to adequately protect the unique resources found in ACECs from minerals development, while also considering the relative significance of the public land products, services, and use to local economies. These measures, as described in Section 2.3 of the Proposed RMP / Final EIS, include closure, no surface occupancy (NSO) restrictions, and seasonal or other restrictions. In all cases of mineral development a separate NEPA review would be conducted (environmental assessment) at the site- specific level. Additional restrictive stipulations would be

applied as needed and appropriate, according to a detailed plan of operations to protect the relevant and important ACEC values as identified in this RMP. It should also be noted that, with respect to locatable mineral development in the ELFO, active mining is expected to be very low or nonexistent, with a focus on existing claims.

Management objectives for the Eagle Lake Basin, Buffalo Creek Canyons, and North Dry Valley ACECs include management and protection of visual resources. Each ACEC has a visual resource management (VRM) rating of Class II (the highest level attainable outside of a WSA), which protects scenic values. The Buffalo Creek Canyons ACEC currently lies within the Buffalo Hills and Poodle Mountain WSAs, and hence is currently closed to leasable and saleable minerals under BLM's WSA Interim Management Policy for Lands under Wilderness Review (H-8550-1). If WSA status is removed by Congress, extraction of saleable minerals would be limited to areas not visible from the Buffalo Hills Toll Road or from the four-wheel drive road up the North Fork of Buffalo Creek.

Comment Numbers: #23-34, #23-38, #42-1, #42-2

Comment: Consider alternative that closes Lower Smoke Creek ACEC to rights-of-way. Eliminate consideration of removing WSA status from Lower Smoke Creek ACEC, which would exclude the area from ROWs. Close Willow Creek ACEC to any potential future dam building or water diversions.

Response: BLM agrees with the commenter and would manage both Lower Smoke Creek and Willow Creek ACECs as right-of-way avoidance areas under the preferred alternative. Both ACECs are currently within wilderness study areas (WSAs), and as such, ROW issuance is guided by BLM's WSA Interim Management Policy for Lands under Wilderness Review (H-8550-1). If WSA status were removed, ROWs could be issued only if ACEC resources would be protected.

Comment Number: #42-4

Comment: Manage Buffalo Creek ACEC entirely under ROS category of primitive which does not allow motorized vehicle use.

Response: The majority of the Buffalo Creek Canyons ACEC is designated as ROS category primitive. However, some motorized routes do exist within the Buffalo Creek Canyons ACEC that provide access to private inholdings. All motorized travel within the ACEC would be limited to designated routes. Some route closures are also proposed, as shown on Map Travel-2.

Comment Number: #44-26

Comment: Recommend adding specific management actions that will keep OHV use in proposed South Dry Valley Special Recreation management Area from negatively impacting resources in adjacent North Dry Valley ACEC (page 2-94).

Response: Under the preferred alternative, OHV use in both South and North Dry Valley would be limited to designated routes and routine monitoring would also occur. Given the natural topographic separation between the two areas, and the fact that OHV use is typically tied to special events (where more effective monitoring can be performed), we believe the proposed OHV designations offer the optimum balance between recreational use and protection. BLM will be preparing ACEC and SRMA Management Plans for these areas, which will include site-

specific objectives and management actions for both areas. During this time BLM will evaluate the need for installing additional signage to clearly mark the boundary between the South Dry Valley SRMA and the North Dry Valley ACEC.

15.5 Effect of ACEC Restrictions on Private Lands

Comment Numbers: #20-3, #20-5, #20-9

Comment: All proposed ACECs should allow issuance of ROW permits without restrictions; for example, all private owners should not be prohibited from transporting its water from its property through public lands in North Dry Valley area and along Tuscarora pipeline corridor, with a similar concern for Pine Dunes RNA/ACEC. Privately owned properties within North Dry Valley ACEC are believed to have substantial geothermal resource potential, but NSO stipulations would prohibit any use of surface lands for geothermal operations associated with leases (such as construction of well sites, access roads, pipelines). Preferred alternative should specifically protect only those "unique" resources for which the ACEC is being proposed (as identified on pages 2-93 and 2-94).

Response: BLM does not dictate what occurs on private land and the rights of private landowners would continue regardless of adjacent land use designations; this would apply to the development of geothermal resources, water access/rights, and other rights. Owners of private land surrounded by public land (managed under the FLPMA) would be granted access across public land to permit reasonable use of their property. BLM agrees with commenter that no surface occupancy restrictions in North Dry Valley be removed. See changes in text, Chapters 2.3 and 2.12, which allow for exploration and potential development of geothermal resources in North Dry Valley on BLM-administered land.

15.6 AMR as Fire Use in ACECs

Comment Numbers: #23-30, #23-31, #23-35, #23-42

Comment: Adopt AMR as fire management suppression approach in Pine Dunes, Susan River, Willow Creek, and Eagle Lake Basin ACECs.

Response: As described in Section 2.4 of the RMP, full suppression as a wildland fire management approach can be the appropriate management response where sensitive resources or adjacent high-risk communities are present, as has been determined to be the case in these ACECs. BLM does recognize that fire is an important component of the ecology of these areas. BLM uses prescribed fire as a hazardous fuels reduction treatment in the Eagle Lake Basin.

15.7 Other ACEC-Related Comments

Comment Number: #17-10

Comment: During scoping, commenter recommended that outstandingly remarkable fish, wildlife, and ecological values be considered for portions of Smoke Creek and Willow Creek. Willow Creek had been identified as potential Aquatic Diversity Management Area in recognition of need to protect native species and aquatic biodiversity, and a master thesis documents possible unique gastropod species on Smoke Creek potentially found nowhere else. Need to document in Final EIS the results of review and consideration of this information.

Response: BLM has evaluated and recognizes Outstandingly Remarkable Values for Upper Smoke Creek, Lower Smoke Creek, and Willow Creek (see Appendix L for details). Upper Smoke Creek is being recommended as suitable for designation as a wild and scenic river to protect aquatic and other resources. As part of this Proposed RMP/ Final EIS, BLM has developed a Biological Assessment of all T&E species, as provided to us by the US Fish and Wildlife Service (USFWS). To date, we have received no comments from them on a unique gastropod in Smoke Creek. This issue will be more fully explored in development of the management plans for Upper Smoke Creek WSR and Lower Smoke Creek ACEC. If unique species are found to be present, BLM will comply with guidelines from the USFWS regarding candidate and listed species under the Endangered Species Act. Willow Creek and Lower Smoke will be managed as ACECs, to protect unique resources within these areas.

Comment Number: #35-20, #41-9

Comment: Regarding ACEC (Eagle Lake Basin), Page 2-94 indicates preferred alternative is identical to Alternative 2 but several important differences noted (see Table 2.12-1). Need to revise as appropriate. Upland grazing management described in table for Alt 2 is unacceptable and the confusion of equating Alt 2 and preferred alternative on page 2-94 needs to be corrected or deleted. Regarding Table 2.12-1, what specifically are the grazing restrictions in the uplands? If restrictions in the uplands are intended to be above and beyond the current grazing program they need to be clarified and justified in the RMP. Current grazing management should be recognized and identified as the preferred alternative. RMP should recognize grazing management in ACEC simply as a continuation of current management already in place. Additional restrictions are unnecessary and/or redundant.

Response: The revised management summary details for Eagle Lake Basin ACEC under the preferred alternative are presented correctly in Table 2.12-1 in this Proposed RMP / Final EIS. The discussions in Chapter 2 of this document describe the grazing management approach for the preferred alternative without encompassing reference to Alternative 2. BLM believes that this approach best balances the requirements of livestock grazing with resource protection.

Comment Number: #40-2

Comment: Table on pages 2-96 and 2-97 contains errors regarding grazing in Eagle Lake Basin ACEC, do not correspond with text [specific errors noted in comment].

Response: Thank you for identifying these inconsistencies. The revised management summary details for Eagle Lake Basin ACEC under the preferred alternative are presented correctly in Table 2.12-1 in this Proposed RMP / Final EIS.

16.0 SPECIAL DESIGNATIONS – HISTORIC TRAILS

Comment Number: #3-4

Comment: Have organizations such as OCTA and Trails West been consulted regarding management of historic trails; they could be helpful to BLM in meeting desired future conditions (reference page 2-99)

Response: BLM has coordinated with Trails West who has expressed a general interest in the RMP. Management of the national historic Nobles Emigrant Trail would include development of

a plan and coordination with stakeholders. BLM's management responsibility for this trail would be on public land only.

Comment Number: #15-32

Comment: Opposition for preferred alternative for historic trails and urges adoption of no action relative to historic trails.

Response: BLM acknowledges the commenter's opposing viewpoint but believes the preferred alternative provides the best balance to managing historic trails.

Comment Number: #20-1

Comment: The restrictions placed on public land for historic trails and CRMA may limit existing or future uses of the neighboring BHC properties or they may impede access or utility rights of way through the CRMA to or from these private properties.

Response: Please refer to response to this comment under Section 5.2 of this comment response appendix, above.

17.0 SPECIAL DESIGNATIONS – WILD AND SCENIC RIVERS

This section is divided into the following subsections:

17.1 - Support for Designation of Upper Smoke Creek
17.2 - Support for Designation of Other Eligible Rivers
17.3 - Opposition to Recommended Designation of Eligible Rivers
17.4 - Rationale for Suitability Determinations
17.5 - Management of WSRs
17.6 - Interim Protection
17.7 - Potential Factual Errors

17.1 Support for Designation of Upper Smoke Creek

Comment Numbers: #23-64, #37-5

Comment: Support for recommendation of Upper Smoke Creek as "suitable" for WSR designation.

Response: We appreciate your support for our recommendation of Upper Smoke Creek as suitable for WSR designation.

17.2 Support for Designation of Other Eligible Rivers

Comment Numbers: #2-1, #9-4, #10-4, #12-1, #17-1, #17-2, #17-3, #21-4, #23-62, #23-63, #23-65, #27-1, #32-4, #37-5, #39-1, #42-8

Comment: Recommended that Susan River, Willow Creek, and Lower Smoke Creek also be designated as "suitable" for WSR designation.

Response: BLM ELFO has conducted additional evaluation and we have continued our determination that these rivers are not suitable for WSR designation. We recognize and acknowledge the outstandingly remarkable values of these rivers, and propose to implement various protection measures relating to visual resource management, livestock grazing, OHV use, rights-of-way, energy and mineral development, and timber harvesting. In addition, all of these areas will be managed as ACECs, and the Susan River will also be managed as a special recreation management area. See Chapter 2.14 of this Proposed RMP / Final EIS, and WSR Suitability Determinations in Appendix L.

17.3 Opposition to Recommended Designation of Eligible Rivers

Comment Number: #15-35

Comment: Opposes adoption of preferred alternative and/or alternative 2 relative to designation of Upper Smoke Creek and Lower Smoke Creek as Wild and Scenic Rivers.

Response: Lower Smoke Creek has not been recommended as suitable for WSR designation, while Upper Smoke Creek has. BLM's rationale for both recommendations, and WSR suitability determinations for all 22 streams evaluated for eligibility, has been added to Table L-1 and Suitability Determinations for Susan River, Upper Smoke Creek, Lower Smoke Creek, and Willow Creek, in Appendix L of this Proposed RMP / Final EIS.

17.4 Rationale for Suitability Determinations

Comment Numbers: #17-8, #17-9

Comment: Suitability rationale documentation is critical to understanding BLM's decision not to recommend eligible rivers and should be included in final RMP/EIS with additional opportunity for public review and comment before ROD is signed. Each Draft should, at a minimum, list every stream evaluated and why specific streams were rejected as ineligible

Response: The ELFO WSR suitability rationale has been added to this Proposed RMP / Final EIS (Table L-1 in Appendix L), and includes the results of the evaluation of 22 streams for potential eligibility under the Wild and Scenic Rivers Act.

17.5 Management of WSRs

Comment Number: #20-2

Comment: Proposed WSR segment is within or adjacent to portions of the Upper Smoke Creek Ranch owned by BHC. WSR designation (with a "wild" classification) provides highest degree of protection, but commenter seems to prefer "recreational" classification which allows broader uses while still protecting qualifying values.

Response: Recommendation for WSR designation is based on the relative importance attached to quality of the river segments, manageability of outstandingly remarkable values by BLM, and economic impacts. BLM's determination of a "wild" classification is based on an assessment of the level of development along the study corridor as outlined in the Wild and Scenic Rivers Act and BLM Manual 8351. BLM feels that a "wild" classification is most appropriate for this

segment. The final decision for Wild and Scenic River classification and designation rests with Congress.

Comment Number: #20-5

Comment: Designation of Upper Smoke Creek as WSR could adversely impact BHC water rights by limiting water diverted and used by BHC ranching operations. BHC included (as attachment) Statements of Diversion and Use filed with CA State Water Control Board. Designation of Lower Smoke Creek should not interfere with BHC existing water right entitlements. Designation of North Dry Valley ACEC should not prohibit land owners from transporting water from their property through public lands.

Response: The WSR suitability determination for the BLM administered lands of Upper Smoke Creek will not affect privately held water rights, as per BLM WSR Manual 8351. Lower Smoke Creek and North Dry Valley will be managed as ACECs, and use restrictions on public lands will apply as per Table 2.12-1. BLM has corrected Chapters 2.7 Lands and Realty and 2.12 ACECs to acknowledge the Tuscarora Pipeline as it currently exists within the ELFO as a utility corridor, with a nominal corridor width of 1,000 feet on each side of the centerline of the existing facility.

Comment Number: #27-1

Comment: Recommends changing preferred alternative to include designation of Susan River as recreational river. Presumes no designation based on Lassen County opposition (dam may be built in future), but points out CA Dept of Water Resources does not think dam on Susan River is viable.

Response: BLM is retaining its determination that the Susan River is not suitable for WSR designation (see WSR Suitability evaluation in Appendix L), and will manage the eligible segments (8 miles) as part of an ACEC and a Special Recreation Management Area. Please refer to Chapters 2.9 (Recreation and Visitor Services) and 2.12 (ACECs) for specific management approaches that will be implemented.

17.6 Interim Protection

Comment Numbers: #17-7, #18-1

Comment: Disagrees with statement that interim protection lapses after three years and recommends longer period (until political situation becomes more positive for designation). See also addendum to this comment submitted as #18-1. Support relating to interim protection of recommended river identified and found suitable 5(d) study process (i.e., process used in RMPs does not lapse no matter how long Congress takes to act on a recommendation).

Response: We stand corrected on this process. Rivers recommended as suitable remain under interim protection until Congress acts to designate or release the suitable river segment from the provisions of the Wild and Scenic Rivers Act. The text has been changed accordingly.

17.7 Potential Factual Errors

Comment Number: #20-6

Comment: Error on page 3-96; there are stream flow data for Upper Smoke Creek (reference provided).

Response: Thank you for providing this reference to streamflow data on Upper Smoke Creek. The text in Chapter 3.16.3 has been revised to reflect this information.

Comment Number: #20-7

Comment: Statement on page 4-173 regarding water impounded in Smoke Creek Reservoir and BLM use of 5 cfs is incorrect, and (presumably) should be corrected. Documentation (permit and vested water right info) included as attachments.

Response: BLM has received clarification on this issue from the California Division of Water Rights, California Department of Water Resources (February 7, 2007) as follows:

> "Condition #12 in permit 021019 states that Permittee is not required to release previously stored water in order to provide water for satisfaction of BLM's right under Certicate 14970. What this means is, at times when there is no flow from Smoke Creek into the reservoir, Permittee does not have to release water from storage to satisfy the 5 CFS requirement.
>
> However, if there is flow from Smoke Creek into the reservoir, Permittee must bypass sufficient flow at the dam such that, in combination with accretions into Smoke Creek between the Dam and the BLM's place of use, there is 5 CFS flow at the BLM's place of use on Smoke Creek. During times of flow upstream of the reservoir, Permittee will have to bypass all of the flow into the reservoir until the 5 CFS requirement is met."

Statements regarding this issue have been modified in Chapter 4 and Appendix L to reflect this language.

18.0 SPECIAL DESIGNATIONS – WILDERNESS STUDY AREAS

This section is divided into the following subsections:

18.1 - General
18.2 - Opposes Preferred Alternative
18.3 - VRM Classes
18.4 - Inventory Process
18.5 - Alternatives
18.6 - Impacts

18.1 General

Comment Numbers: #6-1, #9-1, #10-2, #21-2, #21-5, #23-77, #23-85, #24-1, #30-2, #32-2, #32-5, #37-7, #42-11

Comment: Designate more acreage / all of WSAs as primitive zones. Support full protection of wilderness values in WSAs. Close roads and routes in WSAs. Restore and rehabilitate any illegal roads in WSAs.

Response: BLM believes the preferred alternative provides the optimal balance of motorized and non-motorized use in support of our multiple use objectives to accommodate the increasingly competitive recreational demands while ensuring the protection and long-term productivity of BLM-managed lands. Some routes are necessary within WSAs to allow BLM access to other areas to implement certain management activities. BLM also believes that the preferred alternative, under which 63% of the WSAs would be managed as primitive areas, offers a practical approach in terms of the Agency's ability to effectively manage the WSAs.

In accordance with BLM policy, only existing roads and ways (within WSAs) are allowed that were present at the time FLPMA was passed (1976) and later shown on, and/or described in, the 1979 Final Intensive Wilderness Inventory for Public Lands Administered by BLM-California outside the California Desert Conservation Area. BLM has not added any new routes to the WSAs. An inventory was conducted in 2002 to identify unauthorized routes; following the inventory actions were taken to close these routes. BLM rangers routinely monitor the WSAs for unauthorized routes to address route proliferation, and route closure is an ongoing process in terms of the need to physically place rocks, brush, and seed (in some instances) to close off access.

Comment Number: #15-36

Comment: Commenter contends that desired future condition listed in 2.15.1 is relative only to alternative 2 and preferred alternative but not the other alternatives.

Response: BLM believes that the stated desired future condition for WSAs, as slightly revised in this Proposed RMP / Final EIS, relevantly and appropriately seeks to comply with the legislative, regulatory, and policy direction that governs WSA management. For areas that may be ultimately released from WSA status, continued management as ROS primitive areas would continue to protect the wilderness values that led to their study under the wilderness review program.

Comment Number: #15-37

Comment: Does not believe the current land use plan (and therefore, the no action alternative) states that private lands within WSAs should be acquired. Further, if private land needs to be acquired to assure protection of wilderness values, then the lands should not have been designated as WSAs in the first place.

Response: Acquisition of private lands within WSAs is not required to protect wilderness characteristics of lands that were designated as WSAs through the 1979 inventory process. Although current land use plans do not specifically address acquisition of lands within WSAs, it is current BLM policy to respond to all acquisition opportunities through the Lands and Realty program, in support of all resources.

Comment Number: #21-2

Comment: Should not manage part of Buffalo Hills WSA as backcountry because this would allow motorized use not appropriate in a WSA.

Response: Motorized use within the Buffalo Hills WSA would be managed according to the Wilderness IMP. If the WSA designation is removed by Congress, these lands and motorized use of these lands, would be managed under the ROS category described in the ROS management actions.

Comment Number: #23-67

Comment: BLM should propose management of WSAs that complies with IMP and protects wilderness character by limiting potentially damaging activities, applying protective management prescriptions, and proactively restoring and protecting their naturalness.

Response: BLM's proposed management actions under the preferred alternative, as described in Section 2.15.5, are consistent with this recommendation.

Comment Number: #23-77

Comment: Inconsistency in mileage for road closures (page 2-113 says 45 miles and page 4-224 lists 58 miles).

Response: This inconsistency has been corrected in the Proposed RMP / Final EIS. The value of 45 miles is correct, and Chapter 4 has been corrected.

Comment Number: #23-82

Comment: Carry Appendix I forward to final and recognize at least some roadless areas described by CWC during scoping as areas with wilderness characteristics.

Response: BLM did evaluate the areas listed in the CWC scoping letter for qualities related to the "primitive" ROS class, as was described in the Draft RMP EIS under Alternative 2 in Chapter 2.10 Recreation Opportunity Spectrum, and shown on Map REC-4 in the Draft RMP EIS. However, upon further evaluation it was decided not to select these areas for the "primitive" ROS class. BLM believes the preferred alternative represents an optimal balance of motorized and non-motorized use. Appendix I has been carried forward in this document.

Comment Numbers: #23-83, #23-86

Comment: BLM should explain in detail why particular routes are left open to vehicles in WSAs and why they don't contribute to route proliferation, habitat fragmentation, and other problems. Also, to reduce confusion and user conflicts, BLM should close all routes within a "closed" OHV area. BLM should close all WSAs to OHV use.

Response: Routes shown on Map Travel-1 are existing routes. The routes that remain open within WSAs were identified by BLM through the wilderness inventory process in 1979. These routes continue to be managed for recreation access to primitive areas, and to allow access to private inholdings. BLM believes that the use of these particular routes within designated WSAs,

as specified under the preferred alternative, represents an optimal balance of motorized and non-motorized use.

Comment Number: #23-87

Comment: All WSAs are currently closed to mineral leasing and saleable mineral activities. Carry forward to Final the management prescriptions for energy and minerals described in preferred alternative.

Response: The management prescription to close WSAs to leasable and saleable mineral activities has been carried forward to the Proposed RMP / Final EIS, as in accordance with wilderness IMP.

Comment Number: #23-97

Comment: BLM should consider designating new WSAs including areas identified by CWC during scoping in light of recent ruling re Utah settlement as interpreted by commenter.

Response: We believe that we identified and evaluated an adequate range of management alternatives for protecting lands with wilderness characteristics in the Draft RMP EIS, and that our selection of the preferred alternative provides the best balance of public access and environmental protection. BLM did evaluate the areas listed in the CWC scoping letter for qualities related to the "primitive" ROS class, as was described in the Draft RMP EIS under Alternative 2 in Chapter 2.10 Recreation Opportunity Spectrum, and shown on Map REC-4 in the Draft RMP EIS. However, upon further evaluation it was decided not to select these areas for the "primitive" ROS class. BLM believes the preferred alternative represents an optimal balance of motorized and non-motorized use.

18.2 Opposes Preferred Alternative

Comment Number: #15-38

Comment: Opposes adoption of ecosystem restoration or preferred alternative (2.15.8 and 2.15.10) relative to closure of existing routes within certain WSAs (Could impair ability to maintain livestock within allotments) and relative to construction of non-motorized, non-mechanized travel routes within certain WSAs (would be adverse to existing opportunities for solitude, existing trails provide sufficient access, and could lead to impacts on wild horses and harassment of livestock).

Response: BLM believes the preferred alternative represents an optimal balance of motorized and non-motorized use. Access under exiting permits exercising valid existing rights will continue to be provided.

18.3 VRM Classes

Comment Numbers: #23-79, #23-84, #32-11, #42-5

Comment: Need to consider more protective VRM prescriptions in event any WSAs are released by Congress. All 7 WSAs and 1 ISA are managed as VRM I in preferred alternative. Carry this through to Final EIS/Proposed RMP. Do not subject WSA or ACEC to lowered VRM category

than it is currently managed. Concerned that Susan River category will drop; this should not occur. Do not lower VRM category in any WSA or proposed ACEC (e.g., Susan River).

Response: Management of WSAs under VRM Class I objectives has been carried through under the preferred alternative in accordance with the Wilderness IMP and BLM VRM policy. VRM classes have been assigned by BLM using the VRM inventory process described in Chapter 2.21. The only places within the ELFO jurisdiction that are designated as VRM Class I under BLM's VRM requirements are the WSAs that were established through the BLM wilderness inventory and designation process that was completed in 1991. Within the ELFO, the majority of special designations managed by BLM, such as ACECs, have been assigned VRM Class II. This is the highest level that can be applied outside of WSAs, and retains the character of the existing landscape. Within the Susan River, Eagle Lake Basin, and North Dry Valley ACECs, there are small areas of VRM Class III to allow for trailheads and other recreation facilities.

18.4 Inventory Process

Comment Numbers: #21-6, #23-80, #23-98

Comment: Commit to maintaining a continual and ongoing inventory of lands to determine wilderness qualification according to Sections 201 and 202 of FLPMA. BLM should consider other management alternatives for protecting lands with wilderness characteristics and analyze this issue thoroughly throughout planning process. BLM must inventory for lands with wilderness characteristics (including those proposed by others), consider alternatives for protecting such lands, and address wilderness as separate and unique issues in planning process in each section of the Proposed RMP / Final EIS.

Response: Information from the 1990 California Statewide Wilderness Study Report (U.S. Bureau of Land Management 1990) and the 1991 Nevada BLM Statewide Wilderness Report (U.S. Bureau of Land Management 1991) has been retained in the Proposed RMP / Final EIS. The Eagle Lake Field Office will continue to consider wilderness characteristics as part of the land use planning process consistent with guidance provided though BLM Washington Office direction.

Comment Number: #47-6

Comment: During the WSA process, 88% of the WSAs were recommended as not suitable for wilderness designation. The RMP does not address this issue but needs to.

Response: Both the Draft and Proposed RMPs (Chapters 2.15 and 3.15 in Proposed RMP) show the listing of WSAs that were not recommended as suitable for designation as Wilderness, as determined in the 1990 California Statewide Wilderness Study Report (U.S. Bureau of Land Management 1990) and the 1991 Nevada BLM Statewide Wilderness Report (U.S. Bureau of Land Management 1991).

18.5 Alternatives

Comment Number: #23-98

Comment: BLM should consider other management alternatives for protecting lands with wilderness characteristics and analyze this issue thoroughly throughout planning process. BLM

must inventory for lands with wilderness characteristics (including those proposed by others), consider alternatives for protecting such lands, and address wilderness as separate and unique issues in planning process in each section of RMP.

Response: We believe that we identified and evaluated an adequate range of management alternatives for protecting lands with wilderness characteristics in the Draft RMP EIS, and that our selection of the preferred alternative provides the best balance of public access and environmental protection. BLM did evaluate the areas listed in the CWC scoping letter for qualities related to the "primitive" ROS class, and many of these areas were included under Alternative 2 as was described in the Draft RMP EIS under Alternative 2 in Chapter 2.10 Recreation Opportunity Spectrum, and shown on Map REC-4 in the Draft RMP EIS. However, upon further evaluation it was decided not to select these areas for the "primitive" ROS class.

Comment Number: #23-101

Comment: Preferred alternative fails to recognize existence of roadless areas listed in comment and to propose to manage them to maintain their wild character. Request final version of RMP be changed to include primitive zones in core portions of at least some of the roadless areas identified by CWC during scoping, especially Shinn Mountain.

Response: We believe that we identified and evaluated an adequate range of management alternatives for protecting lands with wilderness characteristics in the Draft RMP EIS, and that our selection of the preferred alternative provides the best balance of public access and environmental protection. BLM did evaluate the areas listed in the CWC scoping letter for qualities related to the "primitive" ROS class and many of these areas were included under Alternative 2 in Chapter 2.10 Recreation Opportunity Spectrum, as was described in the Draft EMP EIS, and shown on Map REC-4 in the Draft RMP EIS. However, upon further evaluation it was decided not to select these areas for the "primitive" ROS class. Under the ROS Backcountry designation, all areas between the designated roads shown on Map Travel-2 will be managed as roadless because off road travel will not be authorized off of designated roads. Therefore, Shinn Mountain will be managed as a roadless area with the exception of the few primitive two track roads that extend from the boundary roads into a few areas of Shinn Mountain. A few exceptions would apply such as uses authorized under BLM special use permits for things such as occasional access for maintenance of livestock springs, fences etc if no other access methods are feasible.

Comment Number: #24-1

Comment: Requests selection of Alternative 2 as preferred alternative – strengthening it to manage all WSAs as primitive zones and manage still roadless portions of Observation Peak, Shinn Mountain, Snowstorm Mountain, Shaffer Mountain, and Skedaddle as primitive zones. Already have enough roads; less disturbance needed for vegetation and animals.

Response: We believe selection of preferred alternative provides best balance of public access and environmental protection with respect to managing wilderness characteristics. BLM did evaluate the areas listed in the CWC scoping letter for qualities related to the "primitive" ROS class, and many of these areas were considered for primitive designation as was described in the Draft RMP EIS under Alternative 2 in Chapter 2.10 Recreation Opportunity Spectrum, and shown on Map REC-4 in the Draft RMP EIS. However, upon further evaluation it was decided not to select these areas for the "primitive" ROS class.

18.6 Impacts

Comment Number: #23-78

Comment: Request wording change regarding impacts of dam on Willow Creek and WSA protection: change "moderately beneficial" to "extremely beneficial" (page 4-193 and 194).

Response: BLM has made a thorough analysis of impacts resulting from all resources uses and management actions, and believes the analysis to be correct as written.

19.0 TRAVEL MANAGEMENT

This section is divided into the following subsections:

19.1 - Travel Management in WSAs
19.2 - Big Game Retrieval
19.3 - General
19.4 - Modoc Line

19.1 Travel Management in WSAs

Comment Numbers: #5-2, #5-3, #23-83, #23-86, #32-6

Comment: Against designation of routes within WSAs, states this would be inconsistent with intent of Congress as declared by Wilderness Act, with FLPMA, and with BLM's own management guidelines as stated in IMP; offers recommendations to address concerns, including minimum of restricting OHV travel to existing routes and trails within all WSAs and that none of these routes be formally designated. Wants BLM to expand recommended closures to include all routes that were not in existence when the WSAs were designated. Requests proof in the form of maps (from date of designation or aerial photos from time of designation) to support BLM's decision. Concern about routes depicted within WSAs in RMP (references Map Travel-6): BLM should explain in detail why some routes left open to vehicles in WSAs and why they don't contribute to route proliferation, habitat fragmentation, and other problems. To reduce confusion and user conflicts, BLM should close all routes within a "closed" OHV area.

Response: These comments are addressed in the response to the first general comments in Section 18.1 of this appendix (comments on WSAs).

19.2 Big Game Retrieval

Comment Number: #35-5

Comment: Vehicle travel management provisions for off-road vehicle use is requested to be amended in all three RMPs to be consistent with the Alturas RMP to allow for motorized retrieval of harvested big game when authorized by state permitted tag as well as other permitted activities.

Response: After very careful consideration, we have decided not to change the preferred alternative regarding the use of motorized retrieval of harvested big game off of designated routes. Our reasons include the potential for adverse impacts to sensitive resources, such as cultural resources, soils, vegetation, and wildlife. In addition any off-road use contributes to the

proliferation of new routes. Although BLM regulations do allow for exceptions to off-road restrictions for specified uses with a valid permit (such as wood cutting or flat rock gathering), prior to issuing any exception permit, BLM identifies the specific activity and location to determine that adverse environmental impacts will not result. BLM is the only agency that can authorize such an exception. A state hunting license or tag that is issued by the state does not convey any authority to travel off of designated routes.

19.3 General

Comment Number: #10-5

Comment: Need to clearly distinguish motorized and non-motorized use areas (blurring of "semi-primitive motorized" with "semi-primitive non-motorized" designations as "back country") and ensure the latter will be enforced

Response: "Semi-primitive motorized", "semi-primitive non-motorized", and "backcountry" are recreation opportunity spectrum (ROS) terms which generally describe the type of recreational experience that BLM planners would manage for in a particular area. It is the O*ff-highway Vehicle (OHV) Use Designations* that clearly distinguish allowable uses as to motorized or non-motorized areas. OHV designations are defined as follows (see Glossary):

> **Open –** Designated areas and trails where OHVs may be operated subject to operating regulations and vehicle standards set forth in BLM Manuals 834l and 8343.
> **Limited –** Designated areas and trails where OHVs are subject to restrictions limiting the number or types of vehicles, date, and time of use; limited to existing or designated roads and trails.
> **Closed –** Areas and trails where OHV use is permanently or temporarily prohibited. Emergency use is allowed.

BLM rangers will monitor motorized uses within the ELFO to the maximum extent possible to ensure that use is restricted to designated areas.

Comment Number: #15-39

Comment: Opposes preferred alternative and others, as applicable, with respect to travel management, consistent with comments elsewhere in letter pertaining to recreation, WSA, ACECs, WSRs, and others.

Response: We believe that our preferred alternative provides the best balance between public and administrative access and resource protection. Please see responses to other comments from letter #15 on the referenced topics.

Comment Number: #23-77

Comment: Inconsistency in mileage for road closures (page 2-113 says 45 miles and page 4-224 lists 58 miles). Please clarify and expand primitive ROS to include additional WSA acreage.

Response: Regarding support for additional WSA acreage, please see response to first comments in Section 18.1 of this Appendix. The text in Chapters 4.15 and 4.16 has been revised to correctly say 45 miles.

Comment Number: #23-129

Comment: Number of miles of new non-motorized trails to be developed varies in RMP and needs to be made consistent (277 in Ch. 2 and 264 in Ch. 4).

Response: Chapter 2 has been revised to state the correct information, which is 264 miles; see Table 2.16-8.

Comment Number: #26-2

Comment: Recommend BLM include in preferred alternative closure of all OHV routes segments adjacent to waters either at risk of not meeting water quality standards, not meeting standards, or are impaired - to improve soil conditions, habitat and water quality; some routes appear to be adjacent to streams of concern.

Response: No specific roads have been identified in the ELFO management area that are directly contributing to the degradation of water quality standards. However, Chapter 2.16 Travel Management states that modification to the designated route network would occur if needed to protect resources. In addition, modifications to the designated route network will be made as appropriate during project-level NEPA analyses.

Comment Number: #37-4, #48-1

Comment: Commenters favor additional OHV trails and / or non-motorized trails.

Response: We believe that our preferred alternative provides the best balance between public and administrative access and resource protection.

Comment Number: #44-27

Comment: Make travel management section clearer on what practical differences are between designation of OHV routes as existing and designated (page 2-114).

Response: The discussion in the introduction to Section 2.16 has been expanded to clarify the meaning of the term “designated.”

Comment Number: #44-30

Comment: Recommend adding appropriate minimum depth of snow that must be on ground for over-the-snow vehicle travel (i.e., 6 “) (page 2-118)

Response: BLM appreciates the comment, and in general agrees with commenter. However, due to the limited amount of snowmobile use at the present time (and predicted in the near future), BLM does not believe these types of restrictions to be warranted.

Comment Number: #45-2

Comment: Encourage BLM to close and eliminate duplicate or parallel roads to greatest extent possible and restore closed roads to native habitat appropriate to site, to greatest extent possible.

Response: BLM agrees and believes that our preferred alternative is consistent with this approach.

Comment Number: #45-15

Comment: Given concerns of BLM's limited budget to monitor and enforce patrols over large area, recommend BLM consider closing additional portions of Eagle Lake land base to OHV travel (suggests specific categories of areas for closure, in general to protect wildlife resources).

Response: We appreciate commenter's concern regarding enforcement of OHV travel. However, we believe that by going to a designated route system, there will be a huge reduction in the amount of off-road use that occurs on BLM administered lands. As far as closing routes related to other important wildlife habitat: 1) While actions are being taken in this Proposed RMP / Final EIS to seasonally close one route due to bald eagle habit, no travel routes are known to interfere with the habitats for Carson wandering skipper or Lahontan cutthroat trout, which are the only other federally listed species in the ELFO management area. 2) No routes within designated ACECs have been identified as needing closure to protect wildlife; however this issue will be examined as the individual ACEC management plans are developed. 3) This Proposed RMP / Final EIS incorporates management actions from the Buffalo-Skedaddle Sage-Grouse Conservation Strategy which states: "*When monitoring data confirms that OHV use is a disturbance to lek activity, restrict OHV use as necessary*." 4) No other important wildlife habitat areas were identified as needing route closures to protect habitat, however Chapter 2.16 Travel Management has been revised to state "*Routes would be maintained, modified, created, or obliterated in order to meet land health standards, water quality standards, wildlife habitat needs, and changing public needs and desires.*" We believe that our preferred alternative provides the best balance between public and administrative access and resource protection.

19.4 Modoc Line

Comment Number: #29-10

Comment: Supports recreational uses of abandoned Modoc line rail corridor, but does not support any designation that would make it difficult to return to rail in future.

Response: Under BLM policy, use of the Modoc Line rail corridor as a historic trail would require that it be railbanked. As such it would remain active as a potential rail line.

Comment Number: #29-11

Comment: Need consistent language between Eagle Lake and Alturas DRMPs for Preferred Alternative relative to Modoc Line rail corridor. If both field offices are citing Modoc County as partners in acquisition effort, then both RMPs should be consistent.

Response: We agree that Eagle Lake and Alturas documents should be consistent and have revised them both accordingly.

20.0 VEGETATION

This section is divided into the following subsections:

20.1 - Seeding / Grass Banks
20.2 - Fire Use and Prescribed Fire
20.3 - Juniper
20.4 - Sagebrush
20.5 - Wheatgrass / Cheatgrass
20.6 - Livestock Grazing / Rest
20.7 - General Vegetation Comments
20.8 - Noxious Weeds
20.9 - Special Status Plants
20.10 - Riparian-Wetlands Associations

20.1 Seeding / Grass Banks

Comment Number: #10-9

Comment: Give preference to native species over non-native species.

Response: As stated in Section 2.17.6, proposed management actions under the preferred alternative include the use of locally gathered, native seed for all seeding or re-seeding projects whenever possible. However, if local native seed is not available, or cannot be gathered in time, non-local native seed may be used, with the approval of BLM's state director.

Comment Number: #29-6

Comment: Urges establishment of regional native seed bank for replanting of burned areas.

Response: We agree that regional native seed banks would be very useful for re-seeding efforts and are exploring this option through efforts to identify existing banks in the region and/or the steps necessary to establish such a bank.

Comment Number: #29-7

Comment: Encourage development of pre-fire agreements that allow for use of certain non-native seed (if the native seed supply is insufficient) rather than leave bare ground.

Response: As described in Section 2.17.6, natural regeneration for site-rehabilitation would be used following fire where this appears adequate and would not lead to proliferation of weeds. Where assessment shows a need, re-seeding with native vegetation would occur, to the extent possible. However, BLM acknowledges that in some instances where re-seeding with native seed is not possible, the use of non-native seed may be necessary, such as to re-establish vegetation and facilitate erosion control. The use of non-native seed would be determined on a case-by-case and site-specific basis in accordance with existing BLM policy.

Comment Number: #34-9

Comment: The necessity for using locally gathered seed should be checked before going to this expense. Grass species in general do not need locally gathered seed and are often available on market.

Response: We are committed to taking all necessary measures to improve land health conditions, including prioritizing the use of native seed to the extent that it is practical and appropriate. See also response to comment #10-9 above.

Comment Number: #34-13

Comment: There are many failures with attempts to seed native species in Great Basin.

Response: We agree that there have been some problems seeding native plants in the Great Basin, (primarily due to the occurrence of low precipitation); however, we are still committed to taking all necessary measures to improve land health conditions, including prioritizing the use of native seed to the extent that it is practical and appropriate. See also response to comment #10-9 above.

Comment Number: #34-14

Comment: Before seeding native species, should visit seedings of native species that are successful on a similar site and find out what species were used and how seeding was done.

Response: This comment is noted and well taken. We do evaluate and consider past successes in the development of re-seeding strategies to the extent possible in the ELFO.

20.2 Fire Use and Prescribed Fire

Comment Number: #31-45

Comment: Extreme care should be exercised when planning use of prescribed fire or other vegetation treatments in sagebrush communities in planning area. The EIS should disclose areas where the future use of prescribed fire is proposed, how noxious weeds, livestock grazing, soils, vegetation, wildlife, and other resources will be affected by such management. One study recommends that sagebrush within 1.9 miles of a lek not be burned in order to protect nesting habitat. Fire on the nesting grounds is not recommended in any season if nesting habitat is limited.

Response: In general, we agree with this comment and currently do, and will continue to, exercise extreme care in planning use of prescribed fire or other vegetation treatments in sagebrush communities. Our management strategy is consistent with the protection of lek nesting habitat, as identified in the Buffalo-Skedaddle Conservation Strategy for Sage-Grouse, 2006. Potential impacts from prescribed fire and other vegetation treatments on environmental resources in the planning area are addressed in Chapter 4 of the Proposed RMP / Final EIS.

Comment Number: #36-15

Comment: Fire (natural and prescribed) should be reintroduced only after livestock have been removed from area for sufficient period of time to allow for recovery of native vegetation and regeneration of soils.

Response: Most of the areas proposed for treatment with prescribed fire are within the sagebrush steppe ecosystem encroached by western juniper. Where additional fine fuels are needed to carry a prescribed fire, additional rest from livestock grazing would be implemented before use of fire management. As stated in Chapter 2.8.5, the preferred alternative requires that any burned area (natural or prescribed) be rested from livestock grazing for a minimum of two growing seasons to allow recovery of plants and soil. Decisions to re-open burned areas to grazing would be based on monitoring and assessment.

Comment Number: #36-16

Comment: Fire – both natural and prescribed – should be used to control western juniper once landscape is demonstrated to be capable of handling the disturbance. Where inadequate ground cover exists to carry fire sufficient to ignite the larger trees, those trees should be individually ignited. Prescribed fires should be small to avoid negative effects to greater sage-grouse.

Response: The preferred alternative proposes to utilize both prescribed fire and appropriate management response of wildfire to control western juniper encroachment into sagebrush ecosystems. Specific treatments for each planned area to be burned are designed carefully, considering an array of site specific factors, including the ability of the fire to carry between vegetation types. See also response to comment #31-45 regarding use of prescribed burning in sage-grouse habitat.

Comment Number: #36-17

Comment: Use of mechanical methods to treat western juniper are less effective over large tracts and fail to provide many ecological benefits of fire. Fire is preferable method.

Response: We acknowledge the important role of fire in juniper management, and are using this method currently in areas we believe are most appropriate. Our final selection of treatment methodology will depend upon a number of site-specific factors, including the vegetation type, and associated risks to sensitive resources or high-risk communities.

Comment Number: #36-21

Comment: Burning is preferable to mechanical treatments to restore quaking aspen.

Response: We appreciate the commenter's preference but would continue to implement cutting and burning, as appropriate, in aspen stands with conifer encroachment – separately or in combination – to create early succession conditions. Both methods, as described in Section 2.17.7.2, are beneficial because they promote "suckering" and create diverse, multi-aged stands.

20.3 Juniper

Comment Number: #10-14, #36-20, #49-3

Comment: Juniper reduction should leave old growth juniper stands and also leave patches for wildlife use. Juniper trees are wonderful tree for the desert and should be planted and not destroyed. Support designation of ACECs to protect old growth juniper.

Response: We intend to leave some old growth juniper stands and patches for wildlife use, as described in revised Section 2.17.7.1. Native or true juniper woodlands are characteristic of several soil types found in the ELFO planning area. Western juniper would be preserved on these sites and managed for major stages of woodland development. In addition, small amounts of juniper would be retained in sagebrush-steppe areas where juniper has encroached to preserve biodiversity and wildlife habitat. See response to comment #36-20 in ACECs subsection (Section 15.2) of this appendix.

Comment Number: #36-13

Comment: Before western juniper treatments occur on public lands, need to determine if goal is ecosystem restoration or production of forage for domestic livestock – only the former is ecologically sustainable.

Response: BLM's vegetation goal, as described in Section 2.17, is that vegetation would achieve and maintain its capacity to support natural function and biotic integrity within the context of normal variability. Under 43 CFR 4180, BLM is required to apply our standards for land health and to ensure that vegetation meets, or makes significant progress toward meeting, the standards for land health – including biotic integrity and associated standards – while simultaneously supporting "appropriate uses" of the land. Appropriate uses, as determined under NEPA, would include those that do not adversely affect conservation of terrestrial vegetation or would not compromise healthy lands, restoration of lands that are healthy but lacking key attributes, or protection of at-risk or restoration of unhealthy lands. While grazing by livestock and wild horses would continue under the preferred alternative, they would be controlled through a variety of site-specific measures to improve land health; see proposed management actions in Section 2.17.7.

Comment Number: #34-15

Comment: Juniper woodland, page 2-146. Add: use manual removal of small juniper on Wyoming big sagebrush sites that are used by sage-grouse. Using fire to control juniper on the Wyoming big sagebrush will often convert site to cheatgrass. Wyoming big sagebrush is generally very slow to reoccupy a site after it is burned. Fire is a much more acceptable tool on mountain big sagebrush site. DRMP may allow for manual control of small juniper, but commenter thinks this approach should be stressed more than it is.

Response: We agree that manual removal of small juniper on Wyoming big sage is the preferred method; we typically do not burn for the specific purpose of removing juniper in this case.

Comment Numbers: #35-16 and #41-6

Comment: The RMP includes inconsistencies in how much juniper is present on resource area or is intended for treatment (page 2-146 says there are 31,062 acres of juniper woodlands managed

by ELFO, while Table 3.20-7 acres add up to over 100,000). Should be reconciled if quantitative targets are needed in RMP.

Response: Chapter 2.17 Vegetation has been significantly revised in the Proposed RMP / Final EIS to resolve inconsistencies and provide more clarity of management actions for maintaining native western juniper woodlands, as opposed to those actions for removing juniper where it has encroached into sagebrush ecosystems (see Table 2.17-1). While it may not have been clear in the Draft RMP EIS, the 31,062 acres referred to on page 2-146 are native juniper woodlands managed by ELFO. Table 3.24-6 (which was Table 3.20-7 in the Draft EMP EIS) is a wildlife table depicting habitat conditions for sage-grouse, and does not apply to western juniper. The >100,000 acres in this table applies to sage-grouse habitat classes (R Values), as defined in the Northern California Sage-Grouse Working Group 2005). This table includes all sagebrush complexes within the Buffalo Skedaddle PMU according to their ability to respond positively to management, and does not reflect western juniper in the planning area.

Comment Numbers: #35-17 and #41-7

Comment: In several places (4-207, 4-346, 4-348), the RMP targets 15,000 to 20,000 acres of land where juniper will be reduced. Commenter prefers term "removed" and indicates this figures might be far too low. Commenter supports simple straight-forward policy that clearly demonstrates an active and aggressive approach to controlling juniper invasion and does not include unnecessary limits on juniper removal needs to be articulated. Aggressive, proactive treatment of small trees that comprise new juniper infestations would be the most cost-effective to treat and could be removed prior to major impact to native vegetation.

Response: We believe that our strategy in the revised Chapter 2.17 Vegetation preferred alternative to control western juniper on approximately 64,000 acres (see Table 2.17-2) where it has encroached into sagebrush communities is adequate and appropriate. Many of the areas targeted for juniper removal are those which still contain many smaller trees that are easily removed by prescribed fire.

Comment Number: #35-18, #35-19, #36-14, #36-18, #41-8

Comment: Arbitrary acreage limits should not be placed on means of juniper removal whether it is fire, mechanical or chemical; BLM should use most cost effective means of juniper control to maximize acres treated. New invasions where trees are still small and shrub and herbaceous plant community is still intact should be high priority for treatment. Juniper should be actively removed on rangeland sites and properly thinned and managed on woodland sites. Time for thinning is prior to loss of understory (less than 20% cover), not after it reaches 35% threshold that BLM defines as "unhealthy" (Table 2.17-4). Even on soils listed as suitable for juniper woodlands, there are negative impacts from juniper dominance still occur and while it may not be desirable to remove all juniper from these areas, active management and thinning should still be implemented. The solution to western juniper encroachment is reintroduction of fire and elimination of livestock grazing on sagebrush steppe. Any western juniper treatment and subsequent management must consider potential to exacerbate and take measures to minimize spread of invasive, non-native species. In some cases, treatment of individual juniper trees is preferable to large ground fire to prevent weed invasion onto treatment site (e.g., cheatgrass).

Response: Section 2.17, Vegetation, has been significantly revised from the version in the Draft RMP EIS. The revised discussion provides additional detail on the proposed management actions/restoration treatments for sagebrush-steppe communities, specifically addressing

encroachment of these communities by western juniper as well as impacts from grazing. Section 2.17.7 identifies a variety of treatment options and the conditions under which each method would be considered and selected. It also identifies the areas and acreages that would be targeted under the preferred alternative. We believe that our revisions to this section address the concerns identified in the four comments summarized above. Many of the areas targeted for juniper removal are those which still contain many smaller trees that are easily removed by prescribed fire. All restoration treatments would include measures to minimize the introduction or spread of noxious or invasive species.

Comment Number: #36-12

Comment: Sagebrush Sea Campaign has produced a position paper presenting an ecologically based program for removing expansion western juniper from sagebrush steppe (enclosed copy); offers several points of comparison between it and RMP (also considering Braun's "Blueprint"). First point is that historic and current livestock grazing (not just "overgrazing") contribute to conditions that favor juniper encroachment.

Response: Thank you for your comment. BLM realizes that there is much research regarding contributing factors to the encroachment of western juniper into sagebrush ecosystems.

Comment Number: #36-19

Comment: Commercial use of western juniper should not be allowed without assurance it will not exceed supply of encroachment juniper that is targeted for removal from landscape.

Response: BLM will manage native juniper woodlands in a manner designed to maintain them in a healthy condition (see Chapter 2.17 Vegetation). Treatments to remove western juniper that has encroached into sagebrush steppe ecosystems will occur, also outlined in Chapter 2.17. The main objective of these treatments is to restore sagebrush ecosystems to a healthy condition. The harvested trees or biomass may be used for commercial purposes, depending on the site-specific plan and environmental analysis of the site to be treated.

Comment Number: #36-23

Comment: Recommends that BLM develop a programmatic juniper management plan and EIS to help guide development of plans (in multiple western states), identify best management practices, and avoid duplication of effort.

Response: BLM believes that management of invasive juniper is best accomplished through decisions made at the field-office level, in consideration of all local factors. However, management would be accomplished in accordance with the requirements of appropriate programmatic documents and policies, including EIS for Vegetation Treatment in 13 Western States and the Draft Sagebrush Steppe Ecosystem Restoration EIS.

20.4 Sagebrush

Comment Number: #31-38

Comment: Does risk of insect infestation refer to sagebrush? How will sagebrush communities be manipulated?

Response: Risk of insect infestation refers to forestry, not sagebrush. Section 2.17 has been completely rewritten; see revised Section 2.17.7.3 for a detailed discussion on how sagebrush-steppe communities will be managed under the proposed action.

Comment Number: #31-35

Comment: Big sagebrush habitat types are dominant vegetation communities on majority of public lands in planning area but DEIS fails to disclose whether or not sagebrush habitats throughout ELFO have been manipulated to increase forage for domestic livestock; fails to disclose, in comparison to other places outside planning area, whether or not few large extensive stands of sagebrush remain, and status of production and vigor of these habitats field office-wide. Due to regional losses of sagebrush communities and wildlife that depend on them, maintenance and improvement of existing sagebrush habitat is important.

Response: The management and restoration of sagebrush ecosystems is an important part of this land use plan. Chapter 2.17 Vegetation has been completely rewritten for a detailed discussion on how sagebrush-steppe communities will be managed under the proposed action. Table 2.17-1 lists the main types of sagebrush communities, by acreage, along with their land health assessment rankings. Table 2.17-2 lists the types and amounts of treatments proposed to maintain or improve sagebrush communities throughout the ELFO management area.

Comment Number: #31-36

Comment: DEIS claims livestock grazing is major influence on sagebrush and riparian habitat and discusses how livestock grazing impacts to wildlife will be minimized. However, it does not discuss expected impacts to sagebrush communities or the species that rely on them from these management activities, nor does it provide scale on which they will occur. DEIS just states beneficial effects on sagebrush steppe and shrub communities are expected as a result of this management approach because it would prevent fragmentation of communities.

Response: Impacts from livestock grazing on sagebrush and riparian communities, as well as those associated with wildlife habitats, are discussed in the revised Chapters 4.17 Vegetation, and 4.23, Wildlife and Fisheries.

Comment Number: #31-39

Comment: What are expected impacts from treatment (fuels management, insect control) of these sagebrush communities?

Response: Impacts from vegetation treatments on sagebrush communities are discussed in the revised Chapter 4.17 Vegetation.

Comment Number: #31-40

Comment: BLM has failed to disclose manipulation of activities and impacts that will occur to sagebrush communities. DEIS fails to disclose any of the threats that domestic livestock pose to these threatened communities. Big sagebrush canopy cover values on undisturbed relicts and kipukas does not support assertion by BLM that big sagebrush canopy cover increases due to livestock grazing. Studies indicate opposite. BLM should analyze impacts of long-term active management and its impacts on sagebrush communities to recover naturally.

Response: Impacts from livestock grazing on sagebrush and riparian communities, as well as those associated with wildlife habitats are discussed in the revised Chapters 4.17, Vegetation, and 4.23 Wildlife and Fisheries. BLM is not aware that any kipukas exist within the ELFO management area.

20.5 Wheatgrass / Cheatgrass

Comment Number: #34-10

Comment: It is important to seed area subject to invasion by cheatgrass in the fall following a fire or in spring following a fire. If seedling is delayed cheatgrass can invade site and exclude establishment of other species. Waiting a year or two to collect local native seed closes the window for successful seeding.

Response: BLM agrees that seeding must occur as quickly as possible and avoid delays to the best of our ability, pending the availability of seed.

Comment Number: #34-11, #34-12

Comment: Better to seed crested wheatgrass than let site be taken over by cheatgrass. Crested wheatgrass is superior to cheatgrass. Sagebrush has much greater chance to return to site seeded to crested wheatgrass than site controlled by cheatgrass or medusahead.

Response: BLM would consider the use of crested wheatgrass, where appropriate, under the proposed management actions in the Proposed RMP / Final EIS. By preference, native perennials would be used for seeding. However, crested wheatgrass (and other non-native plants) would be considered for rehabilitation of sites where non-native plants were used in the past.

Comment Number: #36-6

Comment: Why is cheatgrass not included on list and map of noxious weeds?

Response: Noxious weeds are so designated by State or Federal regulation, with attendant restrictions on movement and control requirements. Cheatgrass is an invasive plant species, but is not listed as a noxious weed by either the State or Federal government.

Comment Number: #36-7

Comment: There is a misleading statement in the RMP that persistence of exotic annual grasses (primarily medusa-head and cheatgrass) is expected to continue, regardless of whether livestock grazing occurs. Scientific literature is clear that livestock grazing exacerbates the spread of weeds, so it follows that exotic annual grasses will never be controlled as long as grazing continues.

Response: As stated in Section 3.18.2.3, this persistence is attributable primarily to the ability of annual plants to produce seed every year, store many years of seed in surface litter and soil, and germinate earlier than the remaining perennial plants. The statement only indicates that the problem will persist, even if grazing were to be discontinued.

Comment Number: #49-2

Comment: Cheatgrass is a native grass and a good one. Commenter will do all he can to preserve cheat grass.

Response: Thank you for your comment and we acknowledge your position. However, we consider it an invasive grass and our proposed management actions for vegetation include potential treatment of cheatgrass, particularly as better technology and more effective treatments become more readily available. Reduction and control of cheatgrass will be conducted using Integrated Weed Management procedures.

20.6 Livestock Grazing / Rest

Comment Number: #1-6

Comment: States that Appendix C of BLM Handbook p. 4-230 requires that, in a grazing decision, BLM must designate priority species. Recommends development of a decision that identifies species listed in comment letter as priority species, and recommends management actions for them.

Response: Chapter 2.17 outlines vegetation alliances that are a priority for management and treatment, and lists treatments proposed for each alliance, according to land health assessment ratings. Within these treatment areas, site-specific objectives will be determined, including priority species for management.

Comment Number: #15-24

Comment: There is no scientific basis for resting allotments for 2 years out of 3 (Alt 2, Livestock Grazing).

Response: Alternative 2 in the Draft RMP EIS, which calls for resting grazing allotments every 2 out of 3 years, has not been selected as part of the preferred alternative.

Comment Number: #16-15

Comment: Rejects provision that burned lands would be rested from livestock grazing for a minimum of 2 growing seasons; should rely on assessment process to determine suitable resting period.

Response: Our local information and data show that two growing seasons is the minimum resting period necessary for recovery of plants following fire, in order to meet land health conditions. In addition, plants must meet the ability to withstand grazing; this would be determined based on a site-specific assessment at the end of the two-year growing cycle.

Comment Number: #31-21

Comment: Reduced quality of streams and wetlands in planning area (Table 3.16-4, page 3-125) likely due to domestic livestock grazing, which BLM fails to disclose. Commenter cites many studies showing that negative impacts of livestock grazing, including impacts on water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone, soils, instream and streambank vegetation, and aquatic and riparian wildlife. DEIS fails to disclose what management

activities are responsible for such widespread failure to meet standards of rangeland health and other legal requirements.

Response: Impacts from livestock grazing on riparian communities, as well as those associated with wildlife habitats are discussed in the revised Chapters 4.17 ,Vegetation, and 4.23, Wildlife and Fisheries.

Comment Number: #31-22

Comment: Grazing affects species composition of plant communities in two ways: active selection by herbivores for or against specific plant taxon; and different vulnerability of plant taxa to grazing. Decreases of density of native plant species and diversity of native plant communities as a result of livestock grazing activity has been observed in variety of western ecosystems.

Response: Thank you for your comment. The impacts of grazing are addressed in Chapter 4.17 Vegetation of the Proposed RMP / Final EIS.

Comment Number: #31-31

Comment: The DEIS fails to disclose any impacts that have resulted from already existing range improvements and impacts that will result from constructing even more (cites examples of impacts to vegetation and soils).

Response: Impacts from existing range improvement projects, whether beneficial, or adverse, are reflected in the current land health assessment ratings, as shown in Table 2.17-1. Site-specific impacts from improvements are examined on an allotment basis, and are not included specifically in this Proposed RMP / Final EIS. However, all improvements are monitored to ensure that they are improving resource conditions, as intended. Chapter 4 examines impacts from range improvements in general on vegetation, soils, and other resources. Chapter 4 states that livestock exclosures would have beneficial effects on riparian areas and temporary adverse effects on vegetation communities during construction, and that water developments would have minor and short-term effects during construction and cattle use. All range improvement projects must go through a site-specific environmental analysis prior to implementation.

Comment Number: #31-32

Comment: Stating that stricter standards will improve range in declining conditions is a failure to disclose impacts and ignores real problem (may need to remove the cause). Restoration of degraded riparian areas is often ignored goal in land use plans and should have been considered in RMP. GAO study showed that restoring riparian areas was best accomplished by removal of livestock. Rest (in rest rotation strategies) may not compensate for the increased use during grazing until sufficient recovery is achieved.

Response: Restoration of degraded riparian areas is an important goal of this RMP, as stated in Chapter 2.19.1 Riparian – Wetland Associations. This chapter has been corrected to emphasize greater improvement of riparian and wetland areas. Riparian assessments within the ELFO are done on a site-specific basis, which allows BLM to carefully examine the causes of any degraded areas, and also work towards restoring those areas. The ELFO has several local examples of improved riparian areas using changes to grazing season of use, or other improved grazing strategies.

Comment Number: #31-36

Comment: DEIS claims livestock grazing is a major influence on sagebrush and riparian habitat and discusses how livestock grazing impacts to wildlife will be minimized. However, it does not discuss expected impacts to sagebrush communities nor or the species that rely on them from these management activities, nor does it provide scale on which they will occur. DEIS just states beneficial effects on sagebrush steppe and shrub communities are expected as a result of this management approach because it would prevent fragmentation of communities.

Response: Impacts from livestock grazing on sagebrush and riparian communities, as well as those associated with wildlife habitats, are discussed in the revised Chapters 4.17, Vegetation, and 4.23, Wildlife and Fisheries.

Comment Number: #32-10

Comment: Close Eagle Lake Basin to grazing (like Pine Dunes and Susan River) to protect vegetation.

Response: Management actions currently being implemented in the Eagle Lake Basin have provided adequate protection for vegetation and are taking us in the right direction in terms of overall land health objectives. We do not believe that making the Eagle Lake Basin completely unavailable for grazing is a necessary management action under the preferred alternative. Please also note that 85% of the BLM-administered Eagle Lake shoreline is unavailable to grazing to protect sensitive resources, and other grazing within the area is tightly controlled.

Comment Numbers: #35-11, #41-1

Comment: Pages ES-7 and 2-146 (4th bullet from top) include wording regarding grazing [grazing (or no-grazing) of “unhealthy”, “at-risk” and “sites found healthy but lacking a key attribute”] that is confusing and open to misinterpretation with respect to the acreage of rangeland that would be closed to grazing. The grazing closures on the previously referenced range health classification need to be clarified and re-written such that it is clear in scope and intent and cannot be misapplied over vast areas of rangeland.

Response: See revised Section 2.17 for additional information and clarification regarding grazing, vegetation treatments, and land health ratings.

Comment Numbers: #35-12, #41-2

Comment: Rest from browsing for shrub species to promote viable seed production. Pages ES-7, 2-146 (7th bullet), and 2-226 (in table) include inconsistent wording as to the frequency of the desired rest and need to be clarified.

Response: Thank you for your comment. Section 2 .17 has been significantly revised and all inconsistencies have been addressed.

Comment Numbers: #35-14, #41-4

Comment: It should be determined at a site specific scale whether a perceived lack of seed production is having any impact on shrub recruitment or cover and if so, whether livestock browsing is the cause of such a loss in production.

Response: Site-specific factors, including livestock browsing, will be considered in identifying management approaches, within the proposed actions as described in the Proposed RMP / Final EIS. See also details of proposed action in the revised Section 2.17.

Comment Numbers: #35-15, #41-5

Comment: Are grazing strategies such as deferment, rotation, season of use, etc. considered to be sources of "rest" under this policy? Some may interpret "rest" as no livestock grazing on site at all. Language needs to be consistent throughout document and clarified under what conditions shrubs would be rested from grazing.

Response: These terms have been added to the glossary to clarify their meaning. Rest is defined in this Proposed RMP / Final EIS as "The absence of livestock grazing to benefit plants for regrowth between grazing periods, for critical periods of plant growth, and development, or for critical periods of plant establishment (is synonymous with deferred grazing) (NRCS 1997).".

Comment Number: #36-8

Comment: What are intensive grazing management techniques that can slow or reduce spread of annuals?

Response: Section 2.17 has been rewritten and includes clarification regarding the treatment options for slowing or reducing the spread of annuals: Tightly controlled livestock grazing, prescribed fire, and seeding of native plants—coupled with full suppression of high-intensity wildfires—can slow, and in some cases reverse, type-conversion to exotic annual grasslands.

Comment Number: #36-22

Comment: Livestock grazing should be excluded from treated areas for up to ten years following juniper treatment to ensure recovery of native vegetation and avoid rapid introduction of invasive weeds onto the site.

Response: Where livestock rest is necessary after juniper treatment, the appropriate amount of time for rest will be determined on site-specific basis.

20.7 General Vegetation Comments

Comment Number: #1-7

Comment: Delay reopening of grazing to livestock and wild horses and burros after prescribed fire or wildland fire until resource interdisciplinary team can make recommendation based on scientific monitoring (often need more than 2 years).

Response: Revised language in Section 2.8.5 (Livestock Grazing) of this Proposed RMP / Final EIS states that areas burned by wildland or prescribed fire would be rested from livestock grazing for a minimum of two growing seasons, and decisions to re-open burned areas to grazing would be based on monitoring and assessment.

Comment Number: #15-40

Comment: Does not believe vegetation section (2.17) entirely conforms to BLM's Land Health Standards (reported as criteria in 2.17.4); seems to aim toward "potential natural community" or "late seral condition" rather than a variety of seral stages (to better support biodiversity). Does not discuss what key attributes are missing.

Response: Section 2.17 on vegetation has been significantly revised, and we believe that the preferred alternative fully conforms to the criteria to meet the objectives.

Comment Number: #15-41

Comment: Commenter contends that objectives relative to number of acres in each category listed in 2.17.3 don't reflect existing environmental conditions of affected environment. Because BLM policy requires that rangeland health assessments of allotments be prioritized to first assess allotments where it is known or suspected that standards are not being met, it is reasonable to assume that the percents and acreages listed in the objectives are biased toward inclusion of areas designated as other than "healthy." These errors are repeated in the description of the preferred alternative, and this comment also pertains to vegetation information in Tables 3.16-2 and Table 3.20-3.

Response: Land heath assessment data and information, as currently known in the ELFO, are listed correctly in the current Table 2.17-1, Table 3.18-2, and Table 3.24-3, for the respective vegetation alliances. Land health assessments have been completed by an interdisciplinary team of BLM resource staff members, following BLM guidelines and procedures. There is no bias towards inclusion of areas designated as other than "healthy".

Comment Number: #15-42

Comment: To the extent that the no action alternative is not consistent with currently effective land use plan, commenter contends that the current land use plan defines this alternative (as opposed to the description in the Draft RMP EIS).

Response: In developing the Draft RMP EIS, the ELFO developed the No Action Alternative to reflect current policy and management direction as closely as possible.

Comment Number: #15-43, #15-44

Comment: Shortfalls of preferred alternative (2.17.11) include (1) not specific relative to structure and function, and (2) unreasonable in call for preservation of biological crusts and their use as indicator or natural ecological sites.

Response: Chapter 2.17 has been significantly revised, and states that biological crusts would be considered indicators of particular alliances and associations endemic to a site, but no longer calls for their preservation.

Comment Number: #29-12

Comment: Supports preferred alternative for vegetation, which they understand is crafted to allow for implementation of "Restoration of the Sagebrush Steppe and Associated Ecosystems in Northeast California and Northwest Nevada through Improved Management of Western Juniper

and Other Natural Resources" EIS currently being developed. RMP should include statement supporting implementation of that document.

Response: Thank you for your comment. We appreciate your support of the preferred alternative, which will incorporate management guidelines from the "Restoration of the Sagebrush Steppe and Associated Ecosystems in Northeast California and Northwest Nevada through Improved Management of Western Juniper and Other Natural Resources, once it is completed.

Comment Number: #35-13 and #41-3

Comment: Use of term "selected" shrub sites (Eagle Lake p. 2-226 and ES-7) seems very wide open.

Response: Chapter 2.17 Vegetation and the Alternatives Summary table have been revised, and no longer contain this language.

20.8 Noxious Weeds

Comment Number: #10-25

Comment: Reduce herbicide/toxic chemical use to zero over time, avoid specific herbicides, avoid aerial and boom application near water. In general, prioritize prevention of invasive plants. Don't use toxic pesticides, lethal gas, napalm equivalents, strychnine bait. Stop using federal animal damage control (APHIS). Make sure any biocontrols have been fully tested against representative native plants.

Response: BLM is committed to implementing an integrated weed management (IWM) approach that includes chemical use, as well as prevention, along with mechanical, manual, and biological controls. All control actions, including herbicide application, would be conducted under the guidelines specified in the legislative, regulatory, and policy direction documents listed in Section 2.18.4. At this time we have no scheduled reduction of herbicides. The ELFO does evaluate all weed infestations each year to determine if IWM elements are providing expected results. All projects integrate the Eagle Lake Field Office Prevention Schedule in Appendix F of Volume 2. This document will provide information which addresses the prevention program.

Of the chemicals addressed by your letter: Herbicides that are included in the CA Vegetation Management *Environmental Impact Statement (EIS)* August 1988 and the Integrated Weed Management Program *Environmental Assessment* (EA) Number CA350-04-01, Bureau of Land Management, Alturas, Eagle Lake and Surprise Field Offices include 2, 4-D, dicamba, chlorsulfuron, sulfometuron methyl, and triclopyr. Herbicides that are registered in CA but not included in the ELFO EA at this time are imazapyr and diuron. Herbicides that are not registered in CA are picloram and metsulfuron methyl.

There would be no reason to use any of the following chemicals, nor are they addressed in any of our environmental documents: lethal gas, napalm equivalents or strychnine bate.

Three Federal statutes, the Plant Quarantine Act of 1912, the Federal Plant Pest Act (FPPA) of 1957, and the Federal Noxious Weed Act (FNWA) of 1994, provide authority for the Animal and Plant Health Inspection Service (APHIS) to regulate the movement of live plant pests into and through the United States. The U.S. Department of Agriculture (USDA) and the California Department of Food and Agriculture are also required to comply with the regulations of other

federal agencies. APHIS carefully weighs risk against expected benefits before making decisions to issue permits. All permits for biocontrol agents are held by our cooperator the California Department of Food and Agriculture, Plant Health and Pest Prevention Services, Integrated Pest Control Branch, Biological Control Branch, Biological Control Program.

Comment Number: #15-2

Comment: The DRMP fails to specify where (such as what watersheds, range sites, grazing allotments) the actions and impacts are expected to occur.

Response: Detailed descriptions of site-specific actions and impacts are not appropriately addressed at the level of this RMP EIS. Rather, they are more appropriately addressed in site-specific environmental reviews that BLM would conduct on a given management action – with the intent to evaluate and minimize any potential adverse impact – prior to implementation of that proposed management action. Also, note that BLM policy requires notification of potentially affected public / adjacent landowners at the beginning of the season (January) about planned noxious weed control actions.

Comment Number: #15-56

Comment: Concept of noxious weeds and invasive weeds should be separated since they are distinct from management and legal perspective.

Response: We agree that there is a distinction between these two types of weed species and included a definition of each term (invasive species and noxious plant or weed) in the glossary of the Proposed RMP / Final EIS. Chapter 2.18 addresses both weeds that are legally defined as "noxious" and other invasive plants, since the management of both categories of weeds requires the same actions.

Comment Number: #15-57

Comment: Need to explain how overgrazing by livestock has caused juniper invasion of sagebrush stands (3.16.7).

Response: There is a variety of research on the subject of western juniper expansion across the western United States. Researchers do not always agree; however, most research is directed at a combination of factors as contributing to the degradation of the sagebrush ecosystem, including reduction of fire in the ecosystem, climate change, anthropogenic causes, and livestock grazing. Research that points to livestock grazing as a cause for alteration, states the reasons to be a reduction of herbaceous vegetation, reduction of fine ground fuels, a subsequent alteration of the fire regime, and introduction of non-native invasive species. Some research supports the contention that grazing over time weakens herbaceous plants so that they cannot out-compete juniper, while vigorous grasslands can exclude juniper seedlings.

Comment Number: #40-1

Comment: 2.17, page 2-146, 4th point (also in ES-7). Many of these areas [at risk] are classified as such because of invasive weeds. Elimination of grazing will have minimal, if any at all, impact on their restoration. Many of these areas will never recover which would preclude grazing forever. There is no scientific basis for this requirement and it should be taken out.

Response: Section 2.17 has been significantly revised in the Proposed RMP / Final EIS. This statement no longer appears in the document.

Comment Number: #44-31

Comment: Recommend ELFO survey noxious weeds in Washoe County as part of Integrated Weed Management Plan.

Response: As identified in Section 2.18.5, proposed management actions under the preferred alternative include pre-treatment and post-treatment surveys to determine need, locate problem areas, and assess treatment effectiveness; these include surveys in Washoe County.

Comment Number: #44-33

Comment: Recommend management common to all alternatives include "Emphasize restoration of infested noxious weed sites to native vegetation."

Response: The preferred alternative has been revised to clearly state, under proposed management actions, that treatments will focus on restoration of sites to native plant communities.

20.9 Special Status Plants

Comment Number: #10-8

Comment: Fully protect all rare, federally listed, and state-listed T&E species.

Response: This is one of BLM's responsibilities by law and is included as a goal and objective of the Proposed RMP / Final EIS. It is also consistent with the proposed management actions under our preferred alternative.

Comment Number: #15-47

Comment: Supports modified preferred alternative that eliminates reference to "special interest plants" and gives state authority to determine what plants receive special management on BLM lands.

Response: The protection of special interest plants and their management with the same degree of attention bestowed on special status plants to prevent their eventual decline from special interest to special status species, as stated in Section 2.20.5 of the Proposed RMP / Final EIS, is required under BLM state policy. BLM is committed to implementing this policy and has retained this proposed management actions under the preferred alternative in the Proposed RMP / Final EIS.

Comment Number: #44-34

Comment: Recommend acquiring data or performing field surveys within Washoe County portion of ELFO on special status plant species so can comply with stated management objectives.

Response: Conducting field surveys to identify suspected and unknown populations / occurrences of special-status plants is a proposed management action under the preferred alternative. Such field survey work is already underway in Washoe County within the ELFO project area.

Comment Number: #45-28

Comment: Is the Webbers ivesia, a federal candidate species, known to occur on lands administered by ELFO? If so, a short paragraph should be included with details.

Response: Webbers ivesia is not known to occur on BLM lands; therefore, no special inventory has been performed or additional information added to the Proposed RMP / Final EIS regarding this species. However, because it is known to occur on lands adjacent to BLM, survey work will be performed for this plant under the preferred alternative to identify any unknown populations or occurrences on ELFO administered land.

20.10 Riparian-Wetlands Associations

Comment Number: #10-6

Comment: Prioritize protection of streams and riparian areas to protect biodiversity (chemical use, livestock, allotments, roads).

Response: BLM riparian assessments show that 63% of riparian sites and 65% of wetland sites are currently in properly functioning condition. BLM has a priority process that focuses management efforts on riparian sites, with an emphasis on recovering those sites assessed as "functioning at risk" with either a static or downward trend (see Section 2.19). These sites are the highest management priority because, without management, these riparian resources are expected to decline. The preferred alternative emphasizes inventory, recovery, and establishing desired future condition and proper functioning condition on most riparian sites by using the measures listed in Section 2.19.3, including controlled livestock grazing. The preferred alternative allows for integrated weed management (see Section 2.18.5) under which, if herbicide use is indicated, protection measures include buffers and adherence to strict guidelines within riparian/wetland sites. In addition, roads adjacent to these sites will be re-routing, eliminated, or rehabilitated, if found to be causing adverse impacts to a riparian/wetland site.

Comment Number: #15-2

Comment: The DRMP fails to specify where (such as what watersheds, range sites, grazing allotments) the actions and impacts are expected to occur.

Response: Chapter 4 has been revised to better address impacts from implementation of proposed management actions relative to the above resource areas. However, detailed descriptions of site-specific actions and impacts are not appropriately addressed at the level of this RMP EIS. Rather, they are more appropriately addressed in site-specific environmental reviews that BLM would conduct on a given management action – with the intent to evaluate and minimize any potential adverse impact – prior to implementation of that proposed management action. Decisions regarding adjustments to existing levels of use, forage allocation, allotment boundaries, and changes to management level categories would be made at the activity plan level. Changes to class of livestock authorized and future suitability of existing allotments for grazing would also

be made at the activity plan level. This would be done when plan assessments reveal changes are necessary and compatible with RMP and activity plan goals and objectives.

Comment Number: #15-45

Comment: Section 2.19.4 does not accurately reflect no action alternative; it does not emphasize maintenance of existing riparian exclosures over construction of new exclosures.

Response: It is current BLM policy to focus management efforts on emphasizing maintenance of existing riparian exclosures over construction of new exclosures.

Comment Number: #15-46

Comment: Section 2.19.4 does not accurately reflect no action alternative; it doesn't prioritize areas functioning at risk-static and -downward over other areas.

Response: As BLM completed riparian/wetland assessments between 1995 and 2002, the priority of riparian management shifted (and has remained) to those areas rated "functioning at risk" with a static or downward trend. These sites are the highest management priority because without management we can expect a decline in the riparian resource. Photo studies and other documentation (site reassessments) have shown the ability of these sites to improve through changes in management including protective fencing, where needed.

Comment Number: #45-16

Comment: Tables 2.19-2 (no action) and 2.19-6 (preferred alt) are identical. Are they supposed to be? Need to clarify difference between no action and preferred alternative in this instance relative to text that states Preferred Alternative will improve existing conditions.

Response: Thank you for pointing out this error. The projected classes should have been listed as being the same as those in Table 2.19-4 of the Draft RMP EIS since these are the same as under Alternative 2 (Ecosystem Alternative). Section 2.19 and Figure 2.19-3 in this Proposed RMP / Final EIS provide the correct information.

Comment Number: #45-17

Comment: There is no assessment of the impacts of alternatives on riparian-wetland associations in Chapter 4, yet projected effects are included in Chapter 2 that fit better in Chapter 4.

Response: BLM has revised Chapter 4.17 Vegetation to include a discussion of impacts on riparian-wetland associations (see Chapter 4.17.7).

21.0 VISUAL RESOURCE MANAGEMENT

Comment Number: #15-48

Comment: Comments to this section are similar to those on WSAs, recreation, ACECs, WSRs, etc. See also Section 6.3 (WSAs)

Response: Please see responses specific to the comments made on the referenced sections.

Comment Number: #20-11

Comment: Concerned that designation of Class I areas will impair or jeopardize pipelines, access roads, utility lines, and power lines and infrastructure, including those in neighboring and fringe areas as a result of visual resources impacts.

Response: BLM has authority or responsibility for visual resource management only on BLM-administered lands. VRM Class I objectives apply only for WSAs in the ELFO management area. Wilderness designation is a Congressional decision, and is not discretionary to the local field office. WSAs do not create restrictions and/or buffers to adjacent private lands, or the right (directly or indirectly) to manage or otherwise influence uses of private property adjacent to the WSA. Areas with a VRM Class I rating are intended to preserve the existing character of the landscape. Until such time as Congress acts to release these areas from WSA status, or to designate them as wilderness, BLM is obligated to manage them according to policy under the Wilderness Interim Management Policy.

Comment Number: #21-12, #32-11

Comment: VRM categories in all WSAs and ACECs should be kept at least as high as present level and should NOT be lowered. Concerned that Susan River category will drop from II to II/III; this should not occur.

Response: Under the preferred alternative, WSAs are managed under VRM Class I objectives and ACECs are managed (mostly) under VRM Class II objectives. These categories would not be lowered unless a WSA is released by Congress from further management under the provisions of BLM's Wilderness Interim Management Policy. Also, should a WSA not be designated (as wilderness) by Congress and subsequently released for multiple-use management; it would assume the (underlying) VRM class(es) assigned to the surrounding area(s), as adopted in this Proposed RMP / Final EIS. If a special designation (such as an ACEC, a recommended wild and scenic river segment, or historic trail) is contained within a WSA released by Congress from interim management, the VRM class suitable for that designation would apply (generally Class II). Within the Susan River, there are small areas of VRM Class III to allow for trailheads and other recreation facilities.

Comment: #23-84

Comment: All 7 WSAs and 1 ISA are managed as VRM I in preferred alternative. Carry this through to Final EIS/Proposed RMP.

Response: This aspect of the preferred alternative has not changed.

Comment Numbers: #23-100, #23-103

Comment: Manage all Primitive areas as VRM Class I and all SPNM zones as VRM Class II. Strongly oppose managing portions of Shinn Mountain, Skedaddle West, and Snowstorm Mountain Roadless Areas as VRM III zones. Reasons for including such visually prominent areas in VRM III zones are not included, nor are ecological, social, or cultural impacts of allowing large-scale development in these areas considered. Should be managed as VRM II zones.

Response: All ROS "primitive" areas as listed in the preferred alternative and shown on Map REC-2 occur within wilderness study areas (WSAs). VRM Class I objectives apply for all WSAs

in the ELFO management area (380,319 acres, or 37% of the total ELFO management area). Class I objectives supersede other, underlying, class objectives. However, if a WSA is removed from wilderness study by Congress and returned to multiple-use management, the area will revert to its underlying VRM class (predominantly Class II). Because of uncertainty regarding wilderness designation, the preferred alternative lists management of BLM lands according to the following VRM Classes:

Class II - 507,843 acres (50% of the total ELFO management area)
Class III - 442,028 acres (43% of the total ELFO management area)
Class IV - 72,896 acres (7% of the total ELFO management area)

BLM believes that the preferred alternative includes the most appropriate mix of management measures to adequately visual protect resources, while also considering the relative significance of the public land products, services, and use to local economies. The prominent peaks of Shinn Mountain are rated as VRM Class II, in which the objective is to retain the character of the existing landscape. A small portion of Shinn Mountain (on the lower southwest slopes) are VRM Class III, in which objectives are to partially retain the character of the landscape, and emphasis is to make any approved projects blend into the landscape, as feasible. Skedaddle West and Snowstorm Mountain are also VRM Class III. Any large scale approved project that would potentially cause the VRM class to change to Class IV would involve a site-specific environmental analysis to evaluate potential impacts to cultural, social, or ecological resources.

22.0 WATER QUALITY AND HYDROLOGIC FUNCTION

Comment Number: #26-4

Comment: Final EIS should also discuss how stream survey, monitoring, and rangeland health data will be used to determine specific management activities for individual allotments that are renewed over life of RMP.

Response: As stated in this Proposed RMP / Final EIS, BLM will take action where and when indicated in response to assessments. Detailed prescriptions for responding to findings of future surveys and assessments of water resources in the field office area (including those in individual allotments) would be a level of detail not appropriate to include at the RMP level of review. Determinations BLM is making now for adherence to land health standards will be used to help direct focus of future management.

Comment Numbers: #35-22, #41-11

Comment: Request to delete second and third bullets on page 2-178 re public uses and activities (under preferred alternative) and offers possible replacement sentence. Commenter believes that first bullet in preferred alternative and management actions common to all alternatives adequately covers necessary management actions to maintain water resources and state compliance.

Response: The text in Chapter 2.22 Water Quality has been revised to state: “Various uses and activities will be allowed within streams, riparian areas, and contributing uplands as long as they do not impede progress toward attaining water quality standards or the goals and objectives for riparian habitats. For streams with quality-impaired segments, or lakes not meeting water quality standards (see Map WATER-1), allowed uses must not interfere with restoring water quality to standards set by the State.”

Comment Number: #39-2

Comment: Upper and lower reaches of Smoke Creek should be closed to mineral development, grazing, off-road vehicles, and settlements to protect water quality.

Response: Portions of both Upper and Lower Smoke Creek are within WSAs; hence management direction is governed by BLM's Interim Management Policy for Lands under Wilderness Review (IMP) until Congress makes a decision regarding wilderness designation. The IMP regulates that all WSAs are closed to leasable and saleable minerals, and development of locatable mineral resources are limited to those not requiring reclamation (except under valid, pre-existing rights obtained prior to October 21, 1976). For those reaches outside of WSAs, or if WSA status is removed by Congress, authorized management actions will be designed or regulated to comply with applicable water quality criteria for the protection of identified beneficial uses. Current conditions and certain measures already in place offer ongoing protection of water quality. These include fencing along the majority of the reaches (Upper Smoke Creek is essentially 100% excluded except for two water gaps), carefully managed grazing activities, restrictions of OHV use to designated routes only, and an existing low potential condition for mineral development in this area. BLM does not issue, and therefore has no control over, settlements. In the unlikely event that mineral development is proposed in the future, the proposed development would first be evaluated for potential impacts in a separate environmental review with the intent to minimize any adverse impacts. Mining activities on BLM-administered lands must comply with surface management regulations, State water quality criteria, and BMPs to protect beneficial uses.

Comment Number: #51-1

Comment: No plans are outlined for BMP implementation or other corrective actions for 303(d)-listed waters, endangered species, or sensitive areas–wetland and riparian areas. For example, if a water body is 303(d)-listed for pathogens or nutrients, what is the formal process to verify the impairment and/or correct the problem?

Response: BMPs are discussed in general terms in Section 2.22.5 of the final document. BMPs will be prescribed and implemented based upon site-specific conditions and requirements; this would include BMPs for corrective actions for Section 303(d)-listed waters, endangered species and other sensitive-wetland and riparian areas. BMPs will be monitored and evaluated and modified as necessary through an iterative process to meet water quality criteria and other resource management objectives. The iterative process relating to water quality, for example, would likely include design of BMPs based on site-specific conditions, technical, economic, and institutional feasibility, and the water quality standards of those water potentially impaired; monitoring to ensure practices are correctly designed and applied; monitoring to determine effectiveness and appropriateness; and adjustment of BMPs if the water quality is not improved to the desired level.

Comment Number: #51-2

Comment: Monitoring has shown that livestock, especially cattle, must be excluded from surface waters if fecal coliform standards are to be met. Suggests that exclusion fencing be utilized extensively around surface waters, and that off-stream watering facilities be developed, rather than allowing direct access.

Response: We agree with the importance of excluding livestock from surface waters for the protection of water quality and note that a significant number of areas within the ELFO include fenced exclosures (for example, approximately 85% of the BLM-administered shoreline of north Eagle Lake is currently excluded from livestock and the remaining 15% is intensively managed). In addition, we also use riparian pastures that have a reduced season of use. Additional fencing will continue to be installed if water quality assessments indicate a need to do so. Additional off-stream watering facilities are a useful protective measure, and may be developed as needed. In addition, Section 2.8.5 (Livestock Grazing) of the Proposed RMP / Final EIS states that "BLM would consider expanding the size of currently protected riparian areas and would protect additional areas where this is advisable (i.e., where unfenced seeps, springs, creeks, and other riparian/wetland habitats are not meeting land health standards). New or modified fencing (built to BLM wildlife specifications), and intensive (time-controlled) management of grazing, would be used to accelerate recovery. Decisions would be based on site-specific environmental assessments and identified needs."

Comment Number: #51-3

Comment: Sheep require different management—location of the base camp is more important. Sensitive areas should be excluded from grazing by locating the base camps at least ¼ mile from these areas, and herding to avoid. Watering of sheep directly in surface waters is not as much of a problem as with cattle.

Response: BLM regulates trailing areas and there are permit provisions for no camping on watering holes. Currently, there are only two sheep allotments within the ELFO. We will continue to monitor water quality and consider the implementation of additional measures, as needed and appropriate, should problems arise in the future or the numbers of sheep or allotments increase.

Comment Number: #51-5

Comment: What sort of monitoring program will be used to verify compliance with State water quality standards? No monitoring program, protocol, or concrete process for developing monitoring plans is given.

Response: The water quality monitoring program will be addressed in the Water Quality Management Plan and Management Agency Agreement (MAA) that is currently being developed by the BLM California State Office and the California State Resources Control Board.

Comment Number: #51-6

Comment: A number of waters are listed as being in violation of State standards, yet no formal process in place to notify the Regional Board when monitoring results show that standards have been violated. BLM relies primarily on the Water Quality Control Board to identify impaired waters or high probability of impaired water. However, if BLM is sampling these waters and Lahontan staff does not receive the data, how is Lahontan staff to determine if waters are impaired or not? There clearly needs to be a formal process for sharing of monitoring data. Perhaps could be addressed in Statewide MAA being developed by BLM and State Water Resources Control Board. Need to set up meeting and coordinate further on data collection and sharing.

Response: The issue of a formal process to verify the impairment and/or correct the problem will be addressed in the Management Agency Agreement (MAA) that is currently being developed by the BLM California State Office and the California State Resources Control Board.

Comment Number: #51-7

Comment: Essential fecal coliform data from the AMS was not included in the report, but should be. For example, data of fecal coliform for the Susan River at Hobo Camp suggests that it is an impaired waterbody for pathogens.

Response: This information has been added to Chapter 3 of the final document, Chapter 3.22, Water Resources.

23.0 WATER SUPPLY

Comment Number: #10-24

Comment: Prioritize wildlife needs and natural hydrologic functioning over reservoirs, livestock ponds, and other water diversions.

Response: We agree and believe that this prioritization has occurred in the ELFO and will continue to occur under the preferred alternative.

Comment Number: #16-34

Comment: Estill rejects and opposes the application by USDI or BLM for any water rights that are not consistent with law or that intend to subordinate the water rights of Estill.

Response: BLM cannot apply for water rights that are not consistent with law, and does not intend to apply for water rights that would subordinate the water rights of any private landowner.

Comment Number: #35-6

Comment: Requested revision to 2.23.5: projects that involve inter-basin transfer of water would be coordinated and consistent with the local water resource policies and plans of local and regional governments.

Response: After careful consideration, we have decided not to change the language regarding interbasin transfer of water.

Comment Number: #39-3

Comment: Dam construction and water diversion should not be allowed in Lower Smoke Creek under preferred alternative as they will impact water resources of Smoke Creek basin within the reservation. Commenter supports of Alternative 2 proposals here.

Response: BLM ELFO has conducted additional evaluation and has determined once again to not recommend Lower Smoke Creek for Wild and Scenic River (WSR) designation. We recognize and acknowledge the outstandingly remarkable values of this area, and propose to implement various protection measures relating to visual resource management, livestock grazing, OHV use, rights-of-way, energy and mineral development, and timber harvesting. This area will be

managed as an area of critical environmental concern. While the preferred alternative leaves the possibility open for a dam and reservoir on Lower Smoke Creek, a new dam and reservoir is not likely to occur because there is little if any surplus water that is not already appropriated by upstream use for irrigation of meadows below Smoke Creek Reservoir. See Chapter 2.14 of this Proposed RMP / Final EIS, and WSR Suitability Determinations in Appendix L.

Comment Number: #39-4

Comment: BLM should not accommodate inter-basin and transbasin transfers of water from Smoke Creek Basins. Transfers will impact water resources of reservation.

Response: BLM currently has no plans to propose interbasin transfer of water on BLM administered lands. Any projects for water transfer that are proposed by a private entity would have to undergo a thorough environmental analysis, and the Pyramid Lake Paiute Tribe, as well as any member of the public, would have an opportunity to comment on such a project during this process.

Comment Number: #39-5

Comment: BLM should assert riparian rights in California portion and instream flow rights in Nevada portion of Smoke Creek for maintenance of fish habitat.

Response: BLM has asserted riparian rights and is managing riparian areas on Smoke Creek. Proposed management actions under the preferred alternative include the assertion of instream flow rights in Nevada and riparian rights in California on all perennial and important intermittent streams.

Comment Number: #44-35

Comment: Recommend including explanation of instream and riparian rights here or at another appropriate place in document.

Response: These concepts are defined in the Glossary.

24.0 WILD HORSES AND BURROS

Comment Number: #1-5

Comment: Include decision to develop implementation plans using science to test viability of current AMLs and reestablish AMLs where science supports change.

Response: AMLs are established based on monitoring of vegetation conditions and the ability of the available forage and water to support a specific number of animals. In addition, monitoring of range conditions is meant to identify areas where existing AMLs may need adjustment. As monitoring data is available and analyzed, AMLs will be revisited and adjusted as necessary on a case-by-case basis. Future research to improve resource management activities (such as setting more precise AML goals) is supported by BLM, but is outside the scope of this planning process.

Comment Number: #10-18

Comment: Maintain 50 minimum wild horse head to keep genetic diversity and no fertility control other than adoption.

Response: There are various opinions about the minimum number of animals necessary to maintain genetic diversity within a herd. In northeastern California and northwestern Nevada, separate herds may have AMLs lower than 50 head, but in reality, the HMAs are located adjacent to one another and horses from any of the HMAs intermingle/drift between adjacent HMAs, with natural mixing of genetic. Currently, horses from HMAs in this area are not exhibiting signs of in-breeding, the typical concern with decreased genetic diversity.

Comment Number: #10-19

Comment: Monitor adoption procedures to make sure followed in accordance with Wild Horses and Burro Protection Act.

Response: Thank you for your comment. Adoption procedures are clearly defined. BLM employees, friends and family follow the same adoption procedures and requirements as all adopters.

Comment Number: #34-7

Comment: On page ES-9, change to "manage wild horses and burros on one established herd management area (HMA) and wild horses on two established (HMAs) on 828,596 acres covering 81% of Eagle Lake RMP area."

Response: We agree with the commenter and have changed the text in the Executive Summary accordingly.

Comment Number: #34-17

Comment: Suggested text change to Section 2.24.1 desired future condition (first sentence), regarding wild horses and burros. Also, commenter notes it is not possible to achieve a thriving natural ecological balance since not enough predators to achieve this.

Response: We have reviewed the suggested text change; however, we are leaving the text as is. "Thriving Natural Ecological Balance" is the current BLM terminology referring to self-sustaining populations and balance with other resource uses.

Comment Number: #34-19

Comment: Commenter hopes that fertility control will not be used after herds nationwide reach AML. This is a way to manage zoo animals but not wild free-roaming horses and burros.

Response: Thank you for your comment; however, BLM will consider fertility control research in some or all HMAs to maintain a sustainable ecological balance between animal numbers and the habitat's capacity to support them.

Comment Number: #34-20, #34-22

Comment: Gathering at 3 year intervals will make it possible to place horses into adoption program at a young age and achieve almost 100% adoption rate. Change "horses will be periodically gathered" to "Horses will be gathered as soon as the upper range of AML is reached." Unless fertility control is used or there is unusual death loss, this will generally occur within 3 years for herds with a management program removing and adopting young animals from herd with AML spread as indicated. Where foals, yearlings, and two-year horses are removed from the herd the annual rate of increase is higher than for a herd that has not been gathered for some time.

Response: The text has been revised to state that horses will be regularly gathered on a three-year basis to maintain populations within the established AMLs.

Comment Numbers: #35-21, #41-10

Comment: When horse and burro gathers are organized, we urge BLM to bring populations down to the low end of the AML range so that when population builds in succeeding years, it will still hopefully fall within AML range and not exceed it.

Response: All gathers will be conducted with the intent of bringing populations to the low- or mid- range of the AML, to maximize the time interval between necessary gathers. All HMAs are listed on a 5-year schedule nationally, that estimates when numbers will exceed AML based on known population growth rates for each HMA. HMAs are scheduled for gather within each state, then scheduled to fit into the national schedule annually based on funding and space in holding facilities. Schedules are adjusted when unexpected needs arise (such as wildfires or drought) that require emergency gathers of unscheduled HMAs. Events such as these will affect the interval between gathers on scheduled HMAs.

Comment Number: #40-3

Comment: While AMLs are set at recommended levels, the reality is that AMLs are at a minimum level and usually within 2-3 years numbers are well in excess. Population grows exponentially until funding for another gather.

Response: This comment may refer to the last gather on the Ravendale HMA that affects part of Five Dot grazing permits and some private land. Numbers were not lowered as low as was hoped. However, the future intent is to gather at sufficient intervals to keep numbers down for a longer interval before another gather is necessary. See also response to comment #35-21 above.

25.0 WILDLIFE AND FISHERIES

This section is divided into the following subsections:

25.1 - Federally Listed Species
25.2 - State-Listed and BLM Sensitive Species
25.3 - Ungulates
    25.3.1 - Domestic Sheep / Bighorn Sheep
    25.3.2 - Pronghorn / Mule Deer
25.4 - Sagebrush Ecosystems and Sagebrush-Obligate Species
    25.4.1 – Sage-Grouse
    25.4.2 - Pygmy Rabbit
    25.4.3 - Other Sagebrush-Obligate Species
25.5 - Other Native Wildlife Species
25.6 - General

25.1 Federally Listed Species

Comment Numbers: #1-3, #1-4, #45-24

Comment: Corrections of fact and suggested sentence revision in Ch. 2 relating to hatchery stocks of Lahontan cutthroat trout. Eliminate reference to possible project between owner and FWS (third sentence under LCT header, p. 2-190) since owner sold water rights.

Response: Section 2.25.2 has been revised in response to these comments.

Comment Number: #10-21

Comment: Why was Oregon Spotted Frog deleted from consideration?

Response: This species was originally considered but has been removed from the ELFO's federally listed species list by the U.S. Fish and Wildlife Service. The ELFO is technically outside of the range for this species.

Comment Number: #45-22

Comment: Reconcile number discrepancy for potential Carson wandering skipper habitat (pages 2-190 and 3-156).

Response: Additional information has been added to Chapter 2.25.2 on potentially suitable habitat for the Carson wandering skipper. This information includes correct acreage of potential habitat, based on soil and vegetation data, of 35,000 acres.

Comment Number: #45-23

Comment: Need to provide basis for statement that no known populations of Carson wandering skipper occur on BLM lands.

Response: Section 2.25 has been revised to clarify that no known populations of the species have been identified on BLM ELFO land to date but that surveys are ongoing and not all potential habitat has been inventoried.

25.2 State-Listed and BLM Sensitive Species

Comment Number: #45-31

Comment: Update text in Ch. 3 regarding May 2006 USFWS finding for California spotted owl.

Response: Thank you for your comment. We have updated the text in Chapter 3.24.4 accordingly.

25.3 Ungulates

25.3.1 Domestic Sheep / Bighorn Sheep

Comment Number: #15-51, #23-109, #31-26

Comment: The first of these comments states that (1) scientific evidence does not support the conclusion that domestic sheep have been shown to transmit disease to bighorn sheep in open range conditions and no reason exists to presume a removal of domestic sheep permits is either a condition precedent or a likely event in foreseeable future, and (2) the goal should be revised to state that bighorn sheep are not proposed for introduction under this RMP. The second and third comments state that (1) successful reintroduction of bighorn sheep should be one of highest priorities, and at least one of alternatives should propose to retire sheep allotments in strategic locations to facilitate reintroduction of bighorn sheep more quickly; and (2) the RMP fails to take action that would eliminate domestic sheep in areas used by bighorn sheep (except to state that re-introductions would not occur until domestic sheep grazing is phased out).

Response: As the risk for disease transmission between domestic and bighorn sheep continues to be studied and new data are developed and evaluated, the ELFO remains open to considering the reintroduction of bighorn sheep. Although we have no intention of unilaterally removing the two existing domestic sheep permits, voluntary changes or conversions of both permits from domestic sheep to cattle grazing permits would provide ELFO the opportunity to coordinate with state wildlife agencies and other cooperators in developing a reintroduction plan for California bighorn sheep prior to reintroduction efforts. We are aware that CDFG may consider reintroductions of bighorn sheep in the future, but there is no specific plan to do so at this time. We have further clarified the management action relating to bighorn sheep (Goal 3) in Chapter 2.25.4; please refer to that section of the Proposed RMP / Final EIS.

Comment Number: #31-23

Comment: Grazing can also adversely impact animal populations, usually due to indirect effects on habitat structure and prey availability. Bighorn sheep are highly susceptible to diseases which are spread by domestic sheep.

Response: Thank you for your comment. We agree that indirect effects of grazing can adversely affect animal populations and have addressed these impacts in Chapter 4.23 of this Proposed RMP / Final EIS. We have also included management actions under the preferred alternative to help control grazing and limit its impacts on wildlife, including using the biodiversity standard for wildlife habitat in land health assessments. The scientific evidence regarding the susceptibility of bighorn sheep to disease transmitted by domestic sheep is still open for debate. We will continue to

monitor developments and adapt our actions accordingly, in consultation and cooperation with state wildlife agencies (CDFG and NDOW), as needed in the future. The currently proposed management actions for bighorn sheep are addressed in Chapter 2.25.4.4.

Comment Number: #31-25

Comment: DEIS does not indicate a reason for decline of bighorn sheep, sage-grouse, and other species populations in planning area.

Response: The reason for the decline of bighorn sheep is a complex matter, beginning with human encroachment and settlements. Such a discussion is beyond the scope of this environmental analysis which does include a required baseline analysis of existing conditions. Therefore, no changes have been made to document in response to this comment. Information from the Buffalo Skedaddle Sage-Grouse Conservation Strategy (2006) shows that sage-grouse have not recently declined in the ELFO management area: "Since 1987, the estimated breeding sage-grouse population within the Buffalo-Skedaddle Population Management Unit (PMU) has been between about 1,500 and 4,500 sage-grouse, depending on the year. These estimates are based on expansions of peak males counted on California leks using methods in the published literature. The number of active leks in the California portion of the PMU was 32 in 2004. The last check of active leks in the Nevada portion showed 17 active leks in 1992 with 5 of these active in 1998. Populations fluctuate depending largely on habitat quality and precipitation. Population trend since 1987 has not markedly increased or declined but does cycle considerably."

25.3.2 Pronghorn / Mule Deer

Comment Number: #15-50

Comment: The DRMP does not identify areas of rangeland relative to specific grazing allotments where pronghorn habitat management would take priority over mule deer habitat management; rather, it depicts all habitat as priority habitat for both species. Biological requirements for both differ but ranges overlap (refers to Maps WL-4 and 5). Apparent contradiction here.

Response: We appreciate your comment and do fully recognize that there are differences between the two species; however, our approach and emphasis under the proposed action is to manage habitat, not the individual species. Therefore, no additional changes have been made in response to this comment.

25.4 Sagebrush Ecosystems and Sagebrush-Obligate Species

25.4.1 Sage-Grouse

Comment Number: #10-10

Comment: Protect sage-grouse habitat from fragmentation and disturbance.

Response: Protection of sage-grouse habitat is one of our major goals for wildlife under the proposed action in the Proposed RMP / Final EIS. In accordance with Criteria to Meet Standards for Rangeland Health Standard 5: Biodiversity, BLM will ensure that habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar

habitat areas. See Section 2.25.5.4 for detailed discussions of our objectives and proposed management actions relating to sage-grouse and sagebrush ecosystem protection. See also Appendix H *RMP Alternatives Necessary to Ensure Compliance with the Conservation Strategy for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit*.

Comment Numbers: #21-13, #23-111, #23-114, #23-116, #32-12

Comment: Urge highest level of sage-grouse populations based on available science – certainly more than 0.25 to 0.6 miles of NSO restrictions around sage-grouse. Management prescriptions do not reflect "best available science" or provide sufficient protections for sage-grouse habitat. Appendix H does not offer adequate provisions to protect the populations; it does not address oil and gas development at all even though it is proven to be one of most damaging activities to sage-grouse habitat and is permitted in majority of planning area. Preferred alternative mentions need to conduct oil and gas activities in manner "consistent" with conservation strategy for Buffalo Skedaddle sage-grouse population management areas, but does not mention Appendix H or provide any other details.

Response: Oil and gas development in the ELFO is expected to be minimal and is not considered to be a major concern in the protection of sage-grouse populations; therefore, it was not specifically mentioned in Appendix H. The proposed action does include provisions for oil and gas development relating to the protection of sage-grouse populations and their habitat. These include the management of oil and gas development activities in accordance with the *Conservation Strategy for Sage-grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit;* the application of permanent NSO restrictions between 0.25 and 0.6 mile from sage-grouse leks and potential application for permanent NSO restrictions to other sensitive wildlife habitats, where needed; and the exclusion of structures that could serve as raptor perches within two miles of active sage-grouse leks (see Section 2.3.3). Implementation of the Conservation Strategy, as described in Section 2.25.5, is a major component of our management approach for the protection of sage-grouse and sagebrush ecosystems under the proposed action. Essential components of the Conservation Strategy include protection, restoration, monitoring, research, and ongoing adaptive management for sage-grouse and sagebrush ecosystems within the management unit. We are also involved in ongoing telemetry work to obtain further information on habitat usage areas, and a multi-year intensive study is being undertaken regarding sage-grouse in the ELFO area. We are confident that our management approach under the proposed action for sage-grouse and sagebrush ecosystems will provide an effective level of protection for sage-grouse and sagebrush ecosystems in the ELFO planning area.

Comment Number: #23-56

Comment: Establish one or more ACECs to protect sage-grouse and sagebrush ecosystems, with specific recommendations provided by field office; specifically establish Chalk Bluff/Smoke Creek/Mud Flat Complex ACEC using criteria specified in comment.

Response: Please see detailed response to this comment in Section 15.2 of this appendix, which provides BLM's rationale for not establishing a sage-grouse-sagebrush ACEC in the ELFO planning area.

Comment Numbers: #23-58, #23-111, #31-43

Comment: RMPs should incorporate management measures discussed in *A Blueprint for Sage-Grouse Conservation and Recovery* (Dr. Clait Braun).

Response: We appreciate the opportunity to review and consider additional guidelines in the development of management actions for sagebrush ecosystems and sage-grouse populations in the ELFO planning area. BLM staff members make every effort to stay current with the various management strategies and prescriptions being implemented today, especially the more successful ones. We will consider adopting in the future some of the actions identified in the Blueprint that are appropriate for the ELFO planning area. However, because we already have a Conservation Strategy for Sage-Grouse that is specific to our planning area, and therefore directly applicable to the existing sage-grouse population and sagebrush ecosystem conditions and concerns facing us, we are adopting guidelines from BLM's own Conservation Strategy for Sage-Grouse as our management protection measures under the proposed action (see Section 2.25.5 of the Proposed RMP / Final EIS). We will continue to consider additional guidance, as appropriate and available, as we implement measures to bring us closer to full restoration, protection, and enhancement of this important species and its habitat.

Comment Number: #23-115

Comment: Need to strengthen standards and clarify commitments to both monitoring and enacting/enforcing restrictions to protect sage-grouse from OHV activities.

Response: The sage-grouse conservation strategy we will be implementing (see Section 2.25.5) and on which our proposed management actions are based has taken OHV activities into account in the development of management protection measures. We do not believe that additional OHV restrictions are necessary at this time.

Comment Numbers: #23-117, #42-9

Comment: Oil and gas management in Alternative 2 has conflicting and unclear restrictions on closure near sage-grouse leks—if truly closed, then NSO stipulation for oil and gas activities is not needed. Conditions regarding "suitable buffers" lack clarity. RMP should clearly identify and incorporate more stringent protective measures, including for oil and gas development and OHVs, as identified in *A Blueprint for Sage-Grouse Conservation and Recovery*.

Response: Please see response to comment #21-13 (with others) in this subsection, above, which applies to the proposed management actions within Alternative 2 as well.

Comment Number: #31-27, #31-28

Comment: RMP fails to disclose possible impacts of livestock grazing on sage-grouse. This results in failure to meet standard for maintaining viable and diverse populations of wildlife and violates NEPA's requirements to address potential cumulative impacts.

Response: Chapter 4 has been revised to more fully address potential impacts from livestock grazing on sage-grouse; see Chapter 4.23.5.4.

Comment Number: #31-42

Comment: One of greatest threats to sage-grouse populations is destruction and loss of habitat from a variety of management activities including livestock grazing. Due to their reliance on sagebrush, sage-grouse are great indicators of health of the sagebrush steppe ecosystem on which they depend. Literature indicates sage-grouse need higher levels of sagebrush canopy cover than RMP indicates and livestock reduce that cover.

Response: Descriptions of sagebrush steppe communities and conditions of their overall health within the ELFO planning area are included in Section 2.17 (see also Table 2.17-2). In general, more than half of this vegetation group is rated as healthy (64%), and for those rated at risk or unhealthy, we are working toward providing increased rest and/or deferment of grazing to allow time for forage plants and communities to recover from grazing stresses.

Comment Numbers: #31-43, #36-9

Comment: There is an apparent conflict in some areas of the ELFO: how will agencies and the management plan provide the higher level of sagebrush canopy that sage-grouse need when livestock grazing reduce that cover? How will sage-grouse, leks, brood rearing cover, and other resources be affected by proposed management direction? BLM should adopt new and stricter management prescriptions for livestock grazing, and implement the "Blueprint" strategy for protecting and restoring sage-grouse populations.

Response: We appreciate these comments and note that we have considered many studies in development of our proposed management actions. Impacts on sage-grouse from the various aspects of the management plan are discussed in Chapter 4.23.5.4. As stated above, we are proposing to adopt guidelines based on "Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit" (Northern California Sage-Grouse Working Group, 2006), and BLM's *National Sage-Grouse Habitat Conservation Strategy* (2004).

Comment Numbers: #31-44, #36-10

Comment: Draft RMP must also heed recommendations contained in BLM's Greater Sage-Grouse and Sagebrush Steppe Ecosystems Management Guidelines. FEIS should discuss whether or not proposed action complies with BLM National Sage-Grouse Habitat Conservation Strategy, USDI, November 2004.

Response: As stated in Section 2.25.1 of the Proposed RMP / Final EIS, our proposed management actions for sage-grouse are in compliance with both the "Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit" (Northern California Sage-Grouse Working Group, 2006), and BLM's *National Sage-Grouse Habitat Conservation Strategy* (2004).

Comment Number: #36-11

Comment: Could not find in document where BLM has mandated seasonal protective buffers around greater sage-grouse leks and key nesting habitat, as is usually prescribed in other BLM RMPs. Management buffers are key to protection during critical parts of the year.

Response: One of the proposed management actions includes implementation of "seasonal protection measures and buffer zones, as suitable, for permitted activities when identified." Specific buffers have not yet been designed as we are still gathering information and believe they are more appropriately determined and implemented on a site-specific basis. However, we are taking steps now and will be building on the foundation set in the Conservation Strategy for Sage-Grouse (see Section 2.25.5).

Comment Number: #45-21

Comment: Instead of having one generic bullet, include specific plans/guidelines for managing sage-grouse and their habitat.

Response: Proposed management actions for managing sage-grouse and their habitat are described throughout the Proposed RMP / Final EIS, and specifically in Chapters 2.8 Livestock Grazing, 2.17 Vegetation, and 2.25 Wildlife and Fisheries. Specific guidelines to be implemented are also outlined in the "Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit" (Northern California Sage-Grouse Working Group, 2006), and BLM's National *Sage-Grouse Habitat Conservation Strategy* (2004).

25.4.2 Pygmy Rabbit

Comment Number: #45-25

Comment: Pygmy rabbit habitat needs are not necessarily same as those for sage-grouse and hence management for two species is not likely to be same in many cases. This should be recognized in RMP and sufficient flexibility built into RMP to allow for different management needs.

Response: Chapter 2.25 has been revised to contain more proper wording regarding pygmy rabbit management. Survey results to assess the presence of pygmy rabbit on BLM lands identified no known populations of pygmy rabbits or evidence of their presence within the ELFO. We agree that, should they be identified, they would not be managed the same as sage-grouse.

Comment Number: #45-34

Comment: Request insertion of new sentence after first sentence on pygmy rabbit in Section 3.20.6 clarifying 2005 FWS finding on status.

Response: The requested sentence has been inserted.

Comment Number: #45-35

Comment: Was the study regarding pygmy rabbit that is referenced in the first sentence of 2nd paragraph on top of page 3-164 conducted only in ELFO or on a broader area?

Response: The referenced study was conducted in the ELFO. This has been clarified in the document.

Comment Number: #45-36

Comment: In the 2nd sentence of the 2nd paragraph on p. 3-164, does "region" refer to Eagle Lake Field Office Area only?

Response: Region refers to the Eagle Lake Field Office. This has been clarified in the document.

25.4.3 Other Sagebrush-Obligate Species

Comment Number: #31-34

Comment: There are numerous studies that show sagebrush obligates prefer living in big sagebrush canopy cover above the levels identified to exist in the RMP DEIS.

Response: In developing the *Conservation Strategy for Sage-Grouse (Centrocercus Urophasianus) And Sagebrush Ecosystems within the Buffalo – Skedaddle Population Management Unit*, approximately 100 technical references were consulted to develop the guidelines contained in this document, of which canopy cover plays an important role. The preferred alternative contains many actions to enhance canopy cover where it is lacking for sagebrush associated species.

Comment Number: #45-26

Comment: Burrowing owl is not a sagebrush-obligate species (as stated on page 2-197) and this distinction should be made somewhere in text of RMP/EIS.

Response: We recognize that the burrowing owl is not a sagebrush obligate species, and the referenced text has been revised in response to this comment.

25.5 Other Native Wildlife Species

Comment Numbers: #25-8, #35-7

Comment: RMP does not adequately address migration corridor locations or protective measures. Need extensive coordination and information sharing among four area offices (including Carson City, CA Dept of Fish and Game, and the Nevada Dept of Wildlife) regarding migration and corridor protection that should be included in RMPs. How is this document coordinated with other RMPs, particularly the Carson City Field Office? Specifically, how are critical wildlife migration corridors that exist in CA and NV to be protected (e.g., from proposed development in Reno and Sparks) and where is planning discussion concerning coordinated management actions by Eagle Lake and Carson City Field offices? How about water exportation projects and pipeline corridors and their effect on wildlife migration?

Response: BLM has consulted, coordinated, and/or collaborated with a number of Federal (including BLM's Carson City Field Office), State, and county/local agencies in the ongoing management of lands in the ELFO and in development of the Proposed RMP / Final EIS, as discussed in general terms (in Chapters 1 and 5 of the Proposed RMP / Final EIS) and in more specific terms in various resource sections throughout the document. We recognize that further consultation and coordination – through formal (agreements, MOUs) and informal arrangements – will be required in many instances to successfully implement specific management actions proposed/identified in the Proposed RMP / Final EIS, and we will continue to coordinate with the

appropriate agencies / entities in this regard. This includes continued consultation with Native American Tribes to identify areas in need of special management or protection and continued implementation of agreements to protect tribal special interest areas from adverse impacts; forming partnerships with local communities and interest groups to market the heritage tourism opportunities of the field office area's historic trails; and continued coordination with State wildlife agencies in conducting environmental reviews and possible implementation of site-specific projects with potential wildlife impacts.

Comment Number: #31-24

Comment: Studies show negative effect of grazing on abundances of neotropical migratory landbird species (1993 study cited), but impacts to these species are lacking in DEIS.

Response: BLM acknowledges that livestock grazing may affect habitats of various birds; however, no recent studies have shown this to be a significant problem in the ELFO management area. BLM has utilized information resulting from local studies completed by the Point Reyes Bird Observatory (PRBO).

Comment Number: #45-37

Comment: Section 3.20.8 Native Wildlife and Special Habitats: there are many other species of wildlife that are not discussed in this section. BLM should consider including additional text to cover these species. To reduce volume, could be grouped into categories like waterfowl, songbirds, small mammals, reptiles, amphibians, etc.).

Response: Species information on native wildlife is found in the appropriate habitat discussions (the habitats in which they would be found) in Section 3.24.2.

25.6 General

Comment Number: #10-8

Comment: Fully protect all rare, federally and state listed T&E species.

Response: Protection of protected species is one of our major goals for fish and wildlife under the proposed action in the Proposed RMP / Final EIS.

Comment Number: #13-1

Comment: Supports Preferred Alternative with respect to management of wildlife and fisheries.

Response: Thank you for your support of the proposed management actions.

Comment Number: #15-2

Comment: The DRMP fails to specify where (such as what watersheds, range sites, grazing allotments) the actions and impacts are expected to occur.

Response: Chapter 4 has been revised to better address impacts from implementation of proposed management actions relative to the above resource areas. However, detailed descriptions of site-specific actions and impacts are not appropriately addressed at the level of this RMP EIS. Rather,

they are more appropriately addressed in site-specific environmental reviews that BLM would conduct on a given management action – with the intent to evaluate and minimize any potential adverse impact – prior to implementation of that proposed management action. Decisions regarding adjustments to existing levels of use, forage allocation, allotment boundaries, and changes to management level categories would be made at the activity plan level. Changes to class of livestock authorized and future suitability of existing allotments for grazing would also be made at the activity plan level. This would be done when plan assessments reveal changes are necessary and compatible with RMP and activity plan goals and objectives.

Comment Number: #15-49

Comment: Commenter contends that DFCs, goals and objectives within various subsections may be contradictory because management "for" one species may be managing "against" another.

Response: We appreciate your comment, and acknowledge the complexities of managing habitat for more than one species. Habitat management is a continual balancing act. Selection of the management actions proposed in this Proposed RMP / Final EIS required careful consideration of a variety of factors, including potential adverse impacts to a second species. We believe the preferred alternative provides a balance of actions to best meet habitat requirements for a variety of wildlife species.

Comment Number: #31-33

Comment: Analysis of grazing impacts needs to include discussion of effect the practice has had on predators (i.e., eradication and management of wolves, bears and other predators of livestock is one of main reasons the species are now listed).

Response: A detailed account of the previous / historical indirect effects of livestock grazing on the population of natural predators is considered beyond the scope of this Proposed RMP / Final EIS; however, effects of grazing on all wildlife species from the action proposed in this document are included in Section 4.23.

Comment Number: #35-16

Comment: The RMP includes inconsistencies in how much juniper is present on resource area or is intended for treatment (page 2-146 says there are 31,062 acres of juniper woodlands managed by ELFO, while Table 3.20-7 acres add up to over 100,000). Should be reconciled if quantitative targets are needed in RMP.

Response: Chapter 2.17 Vegetation has been significantly revised in the Proposed RMP / Final EIS to resolve inconsistencies and provide more clarity of management actions for maintaining native western juniper woodlands, as opposed to those actions for removing juniper where it has encroached into sagebrush ecosystems (see Table 2.17-1). While it may not have been clear in the Draft RMP EIS, the 31,062 acres referred to on page 2-146 are native juniper woodlands managed by ELFO. Table 3.24-6 (which was Table 3.20-7 in the Draft EMP EIS) is a wildlife table depicting habitat conditions for sage-grouse, and does not apply to western juniper. The >100,000 acres in this table applies to sage-grouse habitat classes (R Values), as defined in the Northern California Sage-Grouse Working Group 2005). This table includes all sagebrush complexes within the Buffalo Skedaddle PMU according to their ability to respond positively to management, and does not reflect western juniper in the planning area.

Comment Numbers: #35-17, #41-7

Comment: In several places (4-207, 4-346, 4-348), the RMP targets 15,000 to 20,000 acres of land where juniper will be reduced. Commenter prefers term "removed" and indicates this figures might be far too low. Commenter supports simple straight-forward policy that clearly demonstrates an active and aggressive approach to controlling juniper invasion and does not include unnecessary limits on juniper removal needs to be articulated. Aggressive, proactive treatment of small trees that comprise new juniper infestations would be the most cost-effective to treat and could be removed prior to major impact to native vegetation.

Response: We believe that our strategy in the revised Chapter 2.17 Vegetation preferred alternative to control western juniper on approximately 64,000 acres (see Table 2.17-2) where it has encroached into sagebrush communities is adequate and appropriate. Many of the areas targeted for juniper removal are those which still contain many smaller trees that are easily removed by prescribed fire. All vegetation treatments designed to remove invasive juniper will include measures to protect native juniper woodlands, and other juniper habitats to provide habitat, shelter and cover for birds and other wildlife species.

Comment Numbers: #45-4 and #45-5

Comment: RMP needs to reference Nevada Comprehensive Wildlife Conservation Strategy (CWCS) and California Comprehensive Wildlife Conservation Strategy; agree to support them at some level. Recommend BLM document the level of support that will be provided towards implementation of these strategies and include this in RMP EIS.

Response: These references have been added to the list of legislative, regulatory, and policy direction in Section 2.25.1.

Comment Number: #45-18

Comment: Clarify what MOU is being referred to in 4th bullet on page 2-189.

Response: This has been clarified in Section 2.25.1.

Comment Number: #45-19

Comment: Suggest adding list of conservation plans to the list (2-189), as noted in comment.

Response: Additional conservation plans have been added to Section 2.25.1, as appropriate.

Comment Numbers: #45-20, #45-32

Comment: Need to update citation to Nevada Bat Conservation Plan (2006 version now available) in Section 2.25.1 and as cited on pages 3-162 and 3-163.

Response: The 2006 Plan has been added to Sections 2.25.1 and 3.24.4 of the Proposed RMP / Final EIS.

Comment Number: #45-43

Comment: Recommend BLM develop and include an appendix that summarizes by program the best management practices or conservation measures BLM intends to apply to wildlife and fish species to minimize the effects of all development actions that will be allowed under Preferred Alternative. Summarizing this info in one place would allow reviewers better understanding of how actions can be implemented while also minimizing associated impacts of development.

Response: We considered inclusion of such an appendix but decided it would not add measurable value to the document, given that it would not necessarily include the specific BMPs needed for a given site. BMPs are discussed in general terms, relative to water quality, in Section 2.22.5; however, specific BMPs would be prescribed and implemented based upon site-specific conditions and requirements; this would include BMPs for corrective actions for Section 303(d)-listed waters, endangered species, and other sensitive-wetland and riparian areas. BMPs will be monitored, evaluated, and modified as necessary through an iterative process to meet water quality criteria and other resource management objectives. The iterative process relating to water quality, for example, would likely include design of BMPs based on site-specific conditions, technical, economic, and institutional feasibility, and the water quality standards of those water potentially impaired; monitoring to ensure practices are correctly designed and applied; monitoring to determine effectiveness and appropriateness; and adjustment of BMPs if level or protection is not at desired level.

Comment Numbers: #45-38, #45-39, #45-40

Comment: Chapter 4, page 4-317-4-352. Impact discussion is very general. Little data presented to support conclusions even when conclusions seem reasonable. Should consider incorporating additional existing supporting documentation into RMP EIS. Identifies potential data sources. Document also lacks predicted outcomes for species, species groups, or guilds. Nothing is presented to indicate if BLM thinks implementing Preferred Alternative, as presented, will cause wildlife and fish populations to increase, decrease, or stay the same over lifespan of the RMP/EIS. At minimum, this should be done for federally listed species and perhaps BLM special status species as these are among the wildlife populations at greatest risk. BLM should also reconsider manner in which RMP/EIS currently presents outcomes for all various programs, such as livestock grazing, mining, transportation, etc. As currently organized, expected outcomes for wildlife and fisheries are not presented distinctly by program area.

Response: Chapter 4 has been revised to provide a more thorough and clearer evaluation of impacts on fish and wildlife resources from proposed management actions identified under the various program areas (such as grazing, mining, transportation, OHV use, etc.). In response to comment #45-39, because the majority of management actions emphasize protection of species habitat as a means of addressing population concerns/improving existing population levels (including protected or special status species), the discussion of results likewise focuses on impacts relative to habitat conditions. However, it can generally be inferred that improved habitat conditions would lead to increased population, as levels rise to the biological potential of their habitat.

Comment Number: #45-41

Comment: Discussion of effects on wildlife and fisheries seems somewhat biased towards positive effects resulting from restoration and vegetation management activities versus negative impacts that could result from grazing, oil and gas development, mining, and OHV use.

Response: Chapter 4.23 has been revised to more clearly address potential adverse impacts to wildlife habitat from grazing, energy and minerals development, and OHV use to wildlife habitat.

Comment Number: #45-42

Comment: Document does not present complete analysis of worst case scenario for wildlife and fisheries populations given preferred alternative and what it presently allows (e.g., cumulative effects). What if worst case scenario - heavy development in several areas all in same approximate time frame? Or best case scenario? Need discussion of combined effects of all the possible actions BLM may undertake or authorize over lifespan of RMP on biological resources.

Response: BLM does not evaluate the "worst-case" scenario in its NEPA documents. It is no longer required, consistent with the Council on Environmental Quality's regulations for implementing NEPA at 40 CFR 1500-1508. Cumulative effects on wildlife are addressed in Chapter 4.23.6.

26.0 PUBLIC INVOLVEMENT

Comment Number: #3-1

Comment: Concerns listed under Issue 8 are also concerns for all archaeological sites, not just traditional cultural properties.

Response: The referenced text in Chapter 1 is a statement of the issues as they were raised during scoping. Issue 8 has been revised in order to be more comprehensive, to read "*How should public lands be managed to sustain cultural resources and traditional cultural properties?* Please note that the alternatives and analysis do address these concerns for all archaeological sites.

Comment Numbers: #5-4, #11-2, #20-12

Comment: Some commenters offered direct support to BLM (for wilderness restoration) or requested a consultation meeting (for example, to resolve concerns on the Draft RMP or with BLM staff archaeologist and SIR cultural committee to develop stronger working relationships).

Response: BLM welcomes all support in implementing its proposed management actions under the Proposed RMP / Final EIS and is happy to discuss opportunities for improved coordination or consultation needs with all interested or potentially affected parties. Please contact the ELFO directly to arrange a meeting or to talk with specific staff members about a given area of support, interest, or need. The Eagle Lake Field Manager and the BLM staff archaeologist are committed to building stronger working relationships with the SIR, and have scheduled meetings in early 2007 to do so.

Comment Number: #17-11 (and others not specifically identified)

Comment: Please keep Friends of the River on mailing list.

Response: All commenters on the Draft EIS have been added to the mailing list.

Comment Number: #31-2

Comment: There was insufficient time to review the extensive errata sheet released in June 2006. Request that BLM re-issue the DEIS, including errata sheet, to give the public adequate opportunity to review data in errata sheet and effects associated with changes.

Response: We realize that review of the errata sheet required some additional effort from reviewers. However, we believe that the 90-day public comment period, which did not close until July 27, 2006, allowed a sufficient amount of time for review of this material.

Comment Number: #47-1

Comment: The Lassen Motorcycle Club was told by ELFO that the Dry Valley area would remain open during the RMP process and determined at a later date how to be managed. Now roads and trails are being designated in the RMP without user input. Recommend final determination of open trails and management of Dry Valley be made in separate forum – or at least make map accurate. Lassen MC wants to be involved in designation of which trails will be open and closed with adequately detailed maps and field review (maps from scoping and in the document are too poor in detail to tell which roads will be open or closed).

Response: We appreciate Lassen MC's interest and involvement in the process to date and considered their comments on the Draft very carefully. After careful consideration of all comments from a variety of interested public and user groups, including Lassen MC, and in light of existing environmental resource conditions within the ELFO planning area, we have modified the preferred alternative to include the following language regarding route designation within South Dry Valley: "Within the South Dry Valley SRMA (exact boundaries not yet identified), the designated route network will be identified as an interim route network (IRN). Within the next 5 years, a planning team made up of motorized and non-motorized users of the Dry Valley riding area and other affected users of the Dry Valley Area would assist BLM resource specialists in the development of a management plan for the South Dry Valley SRMA. The Dry Valley SRMA planning team would establish the detailed South Dry Valley SRMA boundaries, identify and resolve the issues, and—through collaboration—analyze the IRN and identify a final designated route network." We believe that these actions relating to routes within Dry Valley provide an opportunity for all interested parties to develop the best balance between public access – for a variety of recreational uses – and resource protection. We would be happy to meet with the Lassen MC in person, or share detailed trail maps as needed, to ensure clear understanding of all proposed trail road openings and closings.

27.0 COORDINATION WITH OTHER AGENCIES

Comment Numbers: #3-2, #3-4, #25-8, #25-9, #35-1, #35-3, #35-7

Comment: Commenters asked whether BLM had consulted or coordinated with other agencies or entities, such as tribes to integrate tribal needs for traditional plants with restoration activities: organizations such as OCTA and Trails West regarding management of historic trails: and the CA Dept. of Fish and Game, NV Dept. of Wildlife, and the Carson City Field Office on issues such as impacts on wildlife migration corridors from land disposal, water exportation projects, and pipeline corridors.

Response: BLM has consulted, coordinated, and/or collaborated with a number of Federal, State, and county/local agencies in the ongoing management of lands in the ELFO and in development

of the Proposed RMP / Final EIS, as discussed in general terms (in Chapters 1 and 5 of the Proposed RMP / Final EIS) and in more specific terms in various resource sections throughout the document. We recognize that further consultation and coordination – through formal (agreements, MOUs) and informal arrangements – will be required in many instances to successfully implement specific management actions proposed/identified in the Proposed RMP / Final EIS, and we will continue to coordinate with the appropriate agencies / entities in this regard. This includes continued consultation with Native American Tribes to identify areas in need of special management or protection and continued implementation of agreements to protect tribal special interest areas from adverse impacts; forming partnerships with local communities and interest groups to market the heritage tourism opportunities of the field office area's historic trails; and continued coordination with State wildlife agencies in conducting environmental reviews and possible implementation of site-specific projects with potential wildlife impacts.

Comment Number: #7-1

Comment: Offers language regarding consultation with military and joint analysis of impacts to military missions from any BLM land use decisions.

Response: As an interested party and user of the airspace over ELFO-administered lands, the Navy would be appropriately notified and given an opportunity to provide input on proposed actions, along with members of the interested public and other Federal, State, and local agencies. The following text has been added to Chapter 1 of the Proposed RMP / Final EIS: "BLM would consult with the military and jointly analyze any impacts to the military mission including Military Operating Areas (MOAs), Military Training Routes (MTRs), air space, coastal, and ground access, when making any land use decisions on BLM property. This would be done at the earliest possible time to minimize impacts to current and future military mission uses. Examples of land uses that could impact the military mission include, but are not limited to: habitat improvement projects, environmental restoration projects, public utility development (e.g., erection of cell phone towers, electrical transmission lines, wind energy towers and solar array towers), large mining developments, recreational development (e.g., campgrounds, visitor centers), and land exchanges for the purpose of facilitating the preceding land uses."

Comment Number: #35-1

Comment: RMPs do not provide justification for decisions recommended that appear to be incompatible with the County.

Response: BLM believes that the choice of management actions, including those that appear to be incompatible with the County, provides the best balance of public access and resource protection. BLM has addressed the County's specific comments in the preceding sections of this appendix.

Comment Number: #44-16

Comment: Include text about coordinating prescribed fire projects with adjacent BLM field offices due to potential "down-wind" impacts on special events on public lands.

Response: As stated in the response to this comment under the Air Quality section (Section 4.0) of this appendix, BLM would coordinate with all potentially affected parties; this would include adjacent BLM field offices.

Comment Number: #51-6

Comment: A number of waters are listed as being in violation of State standards, yet no formal process is in place to notify the Regional Board when monitoring results show that standards have been violated. BLM relies primarily on the Water Quality Control Board to identify impaired waters or high probability of impaired water. However, if BLM is sampling these waters and Lahontan staff does not receive the data, how is Lahontan staff to determine if waters are impaired or not? There clearly needs to be a formal process for sharing of monitoring data. Perhaps could be addressed in Statewide MAA being developed by BLM and State Water Resources Control Board. Need to set up meeting and coordinate further on data collection and sharing.

Response: The issue of a formal process to verify the impairment and/or correct the problem will be addressed in the Management Agency Agreement (MAA) that is currently being developed by the BLM California State Office and the California State Water Resources Control Board.