Proposed Resource Management Plan
and
Final Environmental Impact Statement

Volume 1

BLM

Alturas Field Office

May 2007

Public Lands USA: Use, Share, Appreciate

The Bureau of Land Management Today

Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Our Values

To serve with honesty, integrity, accountability, respect, courage, and commitment to make a difference.

Our Priorities

To improve the health and productivity of the land to support the BLM multiple-use mission.

To cultivate community-based conservation, citizen-centered stewardship, and partnership through consultation, cooperation, and communication.

To respect, value, and support our employees, giving them resources and opportunities to succeed.

To pursue excellence in business practices, improve accountability to our stakeholders, and deliver better service to our customers.

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FES 07-14

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Alturas Field Office
708 West 12th Street
Alturas, CA 96101
Phone: (530) 233-4666
Fax: (530) 233-5696
www.ca.blm.gov/alturas

Dear Reader:

Enclosed for your review and comment is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Bureau of Land Management's (BLM's) Alturas Field Office. This document was prepared by BLM in concert with eight cooperating agencies, as well as from public comments received during the scoping phase and public comment period of this planning effort. The document contains both land use planning decisions and implementation decisions to provide planning structure to facilitate management of the Alturas Field Office. The PRMP is open for a 30-day review and protest period beginning on the date the Environmental Protection Agency publishes the Notice of Availability of the FEIS in the *Federal Register*.

The geographic planning area includes BLM managed public lands within the counties of Lassen, Modoc, Shasta, and Siskiyou, California. The overall intent of this PRMP is to develop a comprehensive management strategy that will guide the management of public lands administered by the Alturas Field Office into the future. This PRMP replaces ten former land use plans with a single, unified Alturas Field Office PRMP.

This PRMP and FEIS has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA), and the Federal Land Policy and Management Act of 1976. The PRMP is largely based on the Preferred Alternative in the Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS), which was released on April 28, 2006. This document contains the proposed plan, summary of changes made between the Draft RMP/EIS and PRMP/FEIS, predictable impacts of the proposed plan, summary of the written and verbal comments received during the public review period of the Draft RMP/EIS, and responses to the comments received. Public comments resulted in the addition of clarifying text, but did not significantly change proposed management decisions. A Reader's Guide is included to help you navigate through the chapters of this document, and is located directly after the Abstract.

Any person who participated in the planning process for this PRMP, and has an interest which is or may be adversely affected, may protest approval of this PRMP and land use planning decisions contained within it (see 43 Code of Federal Regulations (CFR) 1610.5-2) during this 30-day period. Only those persons or organizations who participated in the planning process leading to the PRMP may protest. The protesting party may raise only those issues submitted for the record during the planning process leading up to the publication of this PRMP. These issues may have been raised by the protesting party or others. New issues may not be brought into the record at the protest stage.

Protests must be filed with the BLM Director in writing. Regular mail protests should be sent to: Director (210), Attention – Brenda Williams, PO Box 66538, Washington DC 20035. Overnight mail should be sent to: Director (210), Attention – Brenda Williams, 1620 L Street, NW, Suite 1075, Washington DC 20036. Email and fax protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, BLM will consider the email or fax protest as an advance copy and it will receive full consideration. If you wish to provide BLM with such advance notification, please direct emails to *Brenda_Hudgens-Williams@blm.gov* and faxes to (202) 452-5112 (Attn: BLM Protest Coordinator).

IMPORTANT: In accordance with 43 CFR 1610.5-2, the protest must contain the information described in the following critical elements check list:

- The name, mailing address, and telephone number of the person filing the protest.
- The "interest" of the person filing the protest. (How will you be adversely affected by the approval or amendment of the resource management plan?)
- A statement of the part(s) of the PRMP, and the issue(s) being protested. (To the extent possible, this should reference specific pages, paragraphs, sections, tables, maps, or other items that are believed to be incorrect or incomplete.)
- A copy of all documents addressing the issue(s) that the protesting party submitted during the planning process OR a statement of the date they were discussed for the record.
- A concise statement explaining why the protestor believes the BLM State Director's proposed decision is incorrect.

All of these elements are critical parts of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents, or available planning records (such as meeting minutes or summaries, correspondence).

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

BLM's practice is to make comments, including names and home addresses of respondents, available for public review. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment–including your personal identifying information–may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

Unlike land use planning decisions, implementation decisions are not subject to protest under planning regulations but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (Interior Board of Land Appeals). Implementation decisions generally constitute BLM's final approval allowing on-the ground actions to proceed. Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations after BLM resolves the protests to land use planning decisions and makes a decision to adopt or amend the RMP.

These administrative remedies for final implementation decisions usually take the form of appeals to the Office of Hearings and Appeals, though for certain proposed or non-final implementation decisions, such as proposed grazing decisions, the regulations provide for an internal agency review (usually a protest to the Authorized Officer), which must be completed before the final implementation decision can be appealed to the Office of Hearing and Appeals. This type of protest to the Authorized Officer should not be confused with the protest of land use planning decisions to the BLM Director.

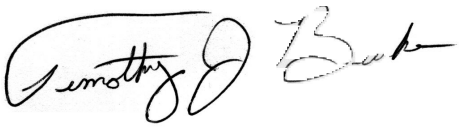
Upon resolution of any protests, an Approved Plan and Record of Decision (ROD) will be issued. The Approved Plan will be available to all parties through the "Planning" page of the BLM national website (*http://www.blm.gov*) or by mail upon request. The Approved RMP and ROD will include the appeals process for implementing decisions that may be appealed to the Office of Hearing and Appeals following its publication.

FOR FURTHER INFORMATION: For further information or to have your name added to the project mailing list, contact Jeff Fontana, Public Affairs Officer, Bureau of Land Management, 2950 Riverside Dr., Susanville, CA 96130, or email your request to necarmp@ca.blm.gov.

SUPPLEMENTARY INFORMATION: Copies of the PRMP/FEIS documents for the BLM Alturas Field Office have been sent to affected federal, state, and local government agencies and to interested parties. Copies of the PRMP/FEIS documents are available for public inspection at the BLM Alturas Field Office, 2950 Riverside Dr., Susanville, Calif. Interested persons may also review the PRMP/FEIS on the Internet at http://www.blm.gov/ca/st/en/prog/planning.1.html .

BLM would like to thank our cooperating agency partners that have worked so hard to help us complete this document. They have provided support and expertise to facilitate focusing the issues and developing alternatives to help resolve the many compelling resource concerns that face the Alturas Field Office. We would like to particularly recognize Lassen, Modoc, Shasta, and Siskiyou Counties, the Pit River Tribe, the Klamath Tribes, the U.S. Fish and Wildlife Service, California Department of Fish and Game, and California State Historic Preservation Offices as cooperating agencies on this document. Their experience and dedication has made this a better process and BLM looks forward to continuing to work with them to complete this planning effort. We also extend thanks to those individuals and organizations that have provided extensive information and many excellent ideas that have been considered during this process.

Sincerely,



Tim Burke
Field Manager
Alturas Field Office

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

PROPOSED

RESOURCE MANAGEMENT PLAN

AND

FINAL ENVIRONMENTAL IMPACT STATEMENT

ALTURAS FIELD OFFICE

ALTURAS, CALIFORNIA

Prepared by the
Alturas Field Office
May 2007

Mike Pool
State Director, California

ALTURAS FIELD OFFICE
PROPOSED RESOURCE MANAGEMENT PLAN / FINAL ENVIRONMENTAL IMPACT STATEMENT

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

Department of the Interior, Bureau of Land Management

Type of Action: [X] Administrative [ ] Legislative

Abstract:

This Proposed Resource Management Plan/ Final Environmental Impact Statement describes and analyzes the Preferred Alternative for managing the public lands administered by the Alturas Field Office in northeast California. The Preferred Alternative provides management recommendations to guide the multiple use management of all resources. Proposed areas of critical environmental concern, suitable wild and scenic river segments, and cultural resource management areas are also recommended.

Protest:

Bureau of Land Management (BLM) planning regulations (43 CFR 1610.5-2) state that any person who participated in the planning process and has an interest which is or may be adversely affected may protest BLM's approval or amendment of a Resource Management Plan. You must file a protest with 30 days of the date that the Environmental Protection Agency publishes its Notice of Availability in the Federal Register.

For further information contact:

Planning Coordinator
Bureau of Land Management
Eagle Lake Field Office
2950 Riverside Drive
Susanville, California 96130
(530) 257-0456
FAX (530) 257-4831

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Readers' Guide

Introduction

The Alturas Proposed Resource Management Plan (PRMP)/Final Environmental Impact Statement (FEIS) is divided into five chapters, and includes maps (of the planning area and the Preferred Alternative), an executive summary, appendices, an abbreviations list and glossary, and a list of references.

Executive Summary

The Executive Summary addresses the entire document and highlights the key issues brought forth in the Preferred Alternative.

Chapter 1

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

Chapter 2

Chapter 2 incorporates the Preferred Alternative from the Draft RMP into the PRMP/FEIS. The PRMP includes a detailed description of the management goals, objectives, allocations and allowable uses, and guidelines for the Preferred Alternative. The actions in this PRMP/FEIS are designed to provide general management guidance in most cases. Specific projects for a given area or resource will be detailed in future activity plans or site-specific proposals developed as part of interdisciplinary project planning or other means. These plans and processes address more precisely how a particular area or resource is to be managed and additional National Environmental Policy Act analysis and documentation would be conducted as needed.

An *Alternatives Summary Table* is included in this chapter. This table provides the reader a general summary of the key management actions for each of five alternatives, as developed for the Draft RMP.

An *Impacts Summary Table* is also included at the end of Chapter 2. This table provides the reader a comparison summary of the main adverse and beneficial impacts that would result from implementing each of five alternatives, as developed for the Draft RMP.

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

Chapter 3

Chapter 3 (Affected Environment) provides an overview of the planning area and describes the existing situation for each of the resource programs. It describes both the biological and physical components that may be affected by the alternatives. Other components of the environment that will not be affected by the proposed actions such as climate are also described. Current management direction is briefly summarized for each program.

Chapter 4

Chapter 4 (Environmental Consequences) analyzes the beneficial and adverse effects of the Preferred Alternative. There are assumptions at the beginning of each specific resource programs to help guide the reader through the thought process. At the end of the analysis of each resource subject, a discussion of the cumulative effects is provided.

Chapter 5

Chapter 5 summarizes key events in the consultation and coordination process prior to and during preparation of the PRMP/FEIS. It also lists those agencies, organizations, and individuals who were contacted or provided input into the planning process. Also listed are the technical specialists and editors who prepared this plan.

Appendices

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

BLM Response to Public Comments

Copies of the public comment letters received can be viewed from the CD located in the back pocket of Volume 2. The BLM response to each comment (or groups of comments) is located in *Appendix R,Public Comment Responses.* Each comment is summarized as to content by resource subject, and the corresponding BLM response is given. Any changes that have been made to the document resulting from a public comment are also referenced in the appendix.

Changes between the Draft and Final

The Draft Alturas RMP and Draft EIS (DEIS) was published in April 2006. The public had 90 days, until July 27, 2006, to submit comments on the DEIS. All comments received were seriously considered, and many were used to assist in making changes or clarifications to the Draft RMP. Changes made to the Draft RMP / DEIS include the following:

- Changes to the DEIS Preferred Alternative.
- Clarifications, corrections, supplemental analysis, and additional information added to various chapters of the PRMP/FEIS.
- One new map was created and is included with this document. These changes are listed in Chapter 1 under changes to the Preferred Alternative.

A complete list of substantial changes made to PRMP from the Draft RMP is included in Chapter 1.

EXECUTIVE SUMMARY

Introduction

The Bureau of Land Management (BLM) has prepared this Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) to provide direction for managing public lands within the Alturas Field Office (AFO) planning area and to analyze the environmental effects resulting from implementing the alternatives addressed in this PRMP.

The AFO planning area includes approximately 503,045 acres of BLM-managed surface acres in northeastern California. The geographic area includes public lands within the counties of Lassen, Modoc, Shasta, and Siskiyou, California. BLM's mission is to sustain the health, diversity, and productivity of the public lands it manages for the use and enjoyment of present and future generations. The AFO PRMP was developed in coordination with the Eagle Lake and Surprise Field Office Resource Management Plans (RMPs) to provide a consistent framework for managing public lands and resource uses in northeast California and northwest Nevada.

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

Purpose and Need

The purpose of the Alturas PRMP is to provide guidance in the management of the lands and resources administered by the AFO of BLM that will address major resource issues identified during scoping, and through internal and cooperating agency meetings. The Alturas PRMP is meant to be comprehensive in nature, providing guidance for management of all uses and resources administered by BLM in the planning area.

Current management direction for the AFO is contained in ten land use plans or amendments that were developed from 1973-2002. New information, changed circumstances and resource conditions since these plans were prepared require the revision of these existing plans into a single updated RMP.

Population growth in the vicinity of Fall River Valley in Lassen and Shasta Counties, California and the metropolitan areas of Klamath Falls, Oregon; Reno, Nevada; and Redding, California has caused an increased demand for use of public lands to support community needs and low impact recreation. The AFO has experienced a substantial increase in requests for land tenure decisions or adjustments and for land use permits and authorizations, including those for renewable energy development.

Vegetation communities continue to be threatened by both the encroachment of western juniper into sagebrush-grasslands and from the invasion of annual exotic grasses and noxious weeds. The number of plant and animal species recognized by California as special status species has increased. In addition, the decline of sage-grouse populations in the western United States has triggered BLM national, state, and local strategies with new guidance to address habitat requirements of the species.

New protocol agreements between BLM and the State Historic Preservation Office guide the protection, inventory, and conservation of cultural resources as they relate to other resources and land uses. Emphasis is being placed on finding and managing traditional cultural properties in accord with local tribes.

Planning and Scoping Process

BLM officially initiated the planning process for the Alturas RMP with publication of a Notice of Intent in the *Federal Register* on July 22, 2003 (Volume 68, Number 140). Issues related to resource management in the Alturas planning area were assembled during the scoping process consisting of public scoping meetings, field tours, socioeconomic workshops, and interactions with federal, state, tribal, and county collaborators.

BLM hosted six public scoping meetings in August and September 2003. A total of 205 people attended these meetings. Four meetings were held within the planning area. Other meetings were held in Redding, California, and Reno, Nevada, to ensure that BLM heard the concerns of user groups residing outside the planning area. BLM also conducted a scoping meeting in the field in August 2003. A community workshop was conducted to discuss economics and social values in December 2003.

The scoping process generated 15 key issues to be addressed in the RMP. These issues, listed below, and summarized in Chapter 1, were used to develop alternatives and are addressed in other sections of the resource management plan (e.g., effects on local economies).

1. How should upland ecosystems be managed?
2. How should forest resources be utilized and forestry issues resolved?
3. How and where should water be utilized and managed?
4. How will visual resources be managed and preserved?
5. How should riparian areas and wetlands be managed?
6. How should wildland and prescribed fire be managed and utilized?
7. How should motorized access and vehicular recreation be managed on public lands?
8. How should public lands be managed to support traditional practices and preserve traditional cultural properties of Native Americans?
9. How should public lands be managed to support the needs of local communities?
10. How should rangelands and livestock grazing be managed?
11. What lands should be made available for energy and mineral development?
12. What lands should be identified for retention, exchange, disposal and acquisition?
13. How should recreation opportunities be managed?
14. How should fish, wildlife, and special status species be managed?
15. How should special resource values and special management areas be designated and managed?
16. How will air quality be managed?
17. How will paleontological resources be protected and managed?
18. How will the RMP planning process be organized?

The Draft Alturas RMP and Draft Environmental Impact Statement (DEIS) was published in April 2006. The public had 90 days, until July 27, 2006, to submit comments on the DEIS. During this period, BLM held seven public comment meetings.

The public comment period generated approximately 4,997 submissions of 1 form letter and 33 additional unique comment submissions from individuals and groups. The approximate number of comments that BLM analyzed and responded to was 402. These are summarized in Appendix Q of this document.

All comments received were seriously considered, and many were used to assist in making changes or clarifications to the Proposed RMP. Changes made to the DEIS include the following:

- Changes to the Draft EIS Preferred Alternative.
- Clarifications, corrections, supplemental analysis, and additional information added to various chapters of the FEIS/PRMP.
- Creation of one new map that is included with this document.

A complete list of substantial changes made to PRMP from the Draft RMP is included in Chapter 1.

Collaboration

BLM approaches planning with community-based collaboration, in which interested groups and people–often with varied or opposing interests–work together to devise solutions with broad public support for managing BLM-administered lands. Cooperating local, state, tribal, and federal agencies have been part of the planning team for the RMPs to the fullest extent possible. During plan implementation, BLM will continue partnerships with these public and local, state, and tribal governments and agencies to select high priority projects and to resolve emerging issues.

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

- Modoc County;
- Lassen County;
- Shasta County;
- U.S. Fish and Wildlife Service;
- California Department of Fish and Game;
- California State Historic Preservation Offices; and
- Pit River Tribe.

The Northeast California Resource Advisory Council contributed issues and reviewed goals, objectives, and management alternatives. Other groups that participated in the planning process include the Klamath Tribes, Alturas Rancheria, Siskiyou County, and the Modoc-Washoe Experimental Stewardship Group.

Management Alternatives

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

Alternatives are developed to establish a framework to evaluate the potential impacts on the planning area that might occur as a result of implemented management decisions. The five management alternatives developed for the Alturas Draft RMP are detailed in this section, including:

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

Alternative 1. Resource / Economic Development: Emphasizes commodity production from BLM resources in accordance with local economies and land use plans from local communities and counties.

Alternative 2. Ecosystem Restoration or Protection: Maximizes efforts to maintain, restore, or improve components of the ecosystem using natural ecosystem processes.

Alternative 3. Traditional or Historical Uses: Emphasizes traditional community uses of resources and/or emphasizes historical uses and values.

Preferred Alternative: The Preferred Alternative was "crafted" from all of the other alternatives and combines management actions from all four of the above-listed alternatives. This alternative has been designed and selected to best meet the purpose and need of the plan as described in Chapter 1; and to meet desired future conditions, goals, and objectives of individual and combined resources and resource uses.

Each alternative listed above has a somewhat different concept and emphasis on how natural resources and resource uses would be managed. The Alturas Draft RMP provided a detailed description of alternative management actions for 21 resource subjects. The desired future condition, goals, objectives, and management actions for each major resource area are discussed in detail in Chapter 2. The highlights of management actions under the Preferred Alternative for each resource subject are listed below.

Preferred Alternative Management Actions

Air Quality

- Manage prescribed fire on 75 to 10,000 acres/year and wildland fire use to reduce impacts on air quality.

Cultural and Paleontological Resources

- CRMPs will be developed for Rocky Prairie/South Graves, Tule Mountain, Likely Tablelands/Yankee Jim Ranch, and Beaver Creek, and the three interpretive sites.
- Designate one archaeological area of critical environmental concern (ACEC): Likely Tablelands/ Yankee Jim/Fitzhugh Creek (1,400 acres).
- Nominate Yankee Jim Ranch to the NRHP.

- Develop 3 cultural resource interpretive sites: Descent into Goose Lake, Bayley Reservoir, and Coyote Ridge.
- Exclosure fences (2,750 total acres) would be used (in consultation with permittees and tribes) to protect important cultural sites from damage by off-highway vehicles (OHVs) and livestock.

Energy & Minerals

- Manage 445,997 acres as 'Open' to mineral leasing under standard terms and conditions.
- Manage 470,052 acres as 'Open' to locatable mineral development.
- Manage 435,385 acres as 'Open' to saleable mineral development (i.e., mineral material pit establishment & decorative rock collecting).
- Manage 435,385 acres as 'Open' to renewable energy development.

Fire Management

- The NorCal Fire Management Plan identifies aggressive, full suppression as the appropriate management response (AMR) under conditions of severe fire intensity, especially in the wildland urban interface. However, exceptions may be made where resource objectives could be safely achieved.
- Under conditions of low fire intensity, a less aggressive AMR (typically containment) would be implemented, according to resource management objectives for the area.
- Manage wildland fires using AMR according to the following guidelines:
    - Full range of AMR options on 486,047 acres
    - Wildland fire use on 16,998 acres

Forestry Resources

- Manage 13,800 acres of commercial and low-site forests for multiple-use objectives using appropriate methods of silviculture.
- Manage 40% of commercial timberlands as late-succession forests and maintain a substantial area of late-succession forests on low-site forestlands.
- Timber harvesting would not be allowed on Mount Dome to preserve a bald eagle roosting area.
- Implement fuel reduction and stand improvement using prescribed fire on 13,800 acres.
- Implement timber production and mechanical harvest of commercial and low-site forestlands on 12,000 acres.
- Implement reforestation of 8,000 acres.
- Authorize 10 miles of new permanent roads and 50 miles of temporary roads for timber management and harvesting activities.

Fuels Management

- Implement fuels treatments using prescribed fire--as well as mechanical, chemical and biological methods--to reduce hazardous fuel accumulation, provide fuel breaks, and create defensible space around at-risk communities according to the following schedule:
    - Prescribed fire: 75–10,000 acres/year
    - Mechanical treatment: 75–10,000 acres/year
    - Biological treatment: 0–1,250 acres/year
    - Chemical treatment: 50–2,000 acres/year

- Create fuel breaks and defensible space around the wildland urban interface and communities. Fuels treatments would be prioritized on degraded forest and rangeland (especially where encroached by western juniper), important wildlife habitats, and important archaeological or historic sites.

Lands and Realty

- The 2002 Alturas Land Tenure Adjustment Plan (LTAP) would be the basis for future land tenure adjustments (but modified to include conservation easement projects and the Madeline retention/acquisition area).
- A priority list of land tenure adjustments would be developed from the LTAP and this RMP.
- Public access would be secured to BLM-administered lands, resources, and facilities—including road construction around private lands where access is desirable and easement acquisition isn't feasible.
- All ACECs, research natural areas (RNAs), and wild and scenic river (WSR) corridors (a total of 32,993 acres) would be recommended for withdrawal from mineral entry.

Rights-of-Way

- Continue authorization of current rights-of-way (ROWs) and communication sites. Any new development would be restricted to existing corridors and sites wherever feasible.
- Identify lands potentially available for telecommunications sites and utility ROWs on 435,385 acres.
- New utility corridors, pipelines or electrical transmission lines, or communication sites would not be permitted in any designated ACEC, in wilderness study areas (WSAs), or in the (proposed) Lower Pit River WSR corridor (excluded areas total 67,660 acres).
- Utility corridors would not exceed 500 feet in width.
- Additional utility corridors may be designated as future needs dictate, subject to on-site environmental reviews and clearances, in accordance with The West-wide Energy Corridor Programmatic EIS, 2005.

Livestock Grazing

- Maintain 145 grazing allotments for livestock use with 454,649 acres available to grazing.
- Initial active animal unit month (AUM) levels would be set at 54,881 AUMs. This level could be adjusted based on land health considerations. Additional AUMs may be available in the future as vegetation treatments are accelerated under the *Sagebrush Steppe Restoration Strategy*.
- Grazing practices will be modified to achieve compliance on allotments failing to meet land health standards.
- Decisions to resume livestock grazing on areas that have been mechanically treated or burned by wild or prescribed fire would be based on assessment of monitoring data. Generally, grazing would not resume for a minimum of two growing seasons. However, mechanically treated areas may be assessed for potential resumption of livestock grazing following one growing season of rest.
- Maintain the long-term health and productivity of rangelands when dealing with drought through implementation of the BLM Drought Management Policy for the Alturas and Surprise Field Offices.
- Establish forage reserves in cooperation with other federal, state, and private agencies.
- Implement rangeland improvements to benefit wildlife and watersheds, in addition to livestock.
- Livestock salting would not be allowed within ¼ mile of springs, meadows, NRHP-quality archaeological sites, streams, and aspen areas. Location of salting stations would be determined by BLM in consultation with livestock permittees.

Recreation and Visitor Services

- Manage lands not designated as SRMAs, WSAs, or ACECs as extensive recreation areas.
- Designate the Infernal Caverns/Rocky Prairie SRMA and the Pit River SRMA to improve visitor services.
- Limit camping to 14 consecutive days at a single location and 28 days annually, and prohibit camping within 200 feet of creeks, springs, rivers, lakes, and reservoirs unless posted otherwise.
- Issue special recreation permits to meet demand while ensuring protection of natural and cultural resources and operating within reasonable public safety parameters.
- Acquire from Pacific Gas and Electric Company (PG&E) segments of the Pit River (13 total miles) that support significant coldwater and warmwater fisheries. Also acquire a 5-mile stretch of Hat Creek (also from PG&E) to preserve world-class trout fishing.
- Designate Pit River (i.e. a 16-mile stretch in the Pit River SRMA) for non-motorized boating. Designate Delta Lake, Moon Lake, Nelson Corral and Bayley Reservoirs in the Infernal Caverns/Rocky Prairie SRMA for limited motorized boating.
- Develop 7 to 9 improved parking areas in recreational sites for improved visitor services.
- Apply recreation opportunity spectrum classes to all lands in order to provide a diversity of recreational experiences:
    - ‘Primitive’ 55,594 acres
    - ‘Semi-Primitive, Non-Motorized’ 63,472 acres
    - ‘Semi-Primitive Motorized’ 273,539 acres
    - ‘Roaded Natural’ 110,440 acres

Soils

- Implement measures to achieve recovery of 10,154 acres of degraded upland soils.
- Ensure that management activities do not result in a net loss of soil productivity or productive potential.
- Minimize management activities within perennial and intermittent drainages where watershed function would be adversely affected.
- Employ bio-engineering projects to improve soil condition and achieve ‘Proper Functioning Condition’ on 200 acres of degraded soils.
- Apply sediment intrusion buffer zones of 50 feet around sensitive resources, as indicated.
- Prevent damage to high shrink-swell soils by limiting compacting activities (livestock grazing and OHVs) to periods when soils are sufficiently dried to resist compaction.
- Treat invasive plants and noxious weeds (or modify management) on sites where soil function and integrity are compromised.

Special Designations:

Areas of Critical Environmental Concern

- Maintain the Ash Valley ACEC (1,322 acres); and manage the Baker Cypress Natural Area (1,448 acres) as part of the new Timbered Crater ACEC.
- Designate six new ACECs (29,171 total acres):
    - Timbered Crater—17,896 acres
    - Emigrant Trails—1,750 acres
    - Mountain Peaks—3,500 acres
    - Old-Growth Juniper—3,115 acres
    - Mount Dome—1,510 acres
    - Likely Tablelands/Yankee Jim/Fitzhugh Creek—1,400 acres
- Livestock grazing would be managed according to permit stipulations, allotment management plans, and ACEC management plans.
- Noxious weeds would be aggressively controlled in ACECs.
- ACECs would be 'Closed' or restricted to no surface occupancy restrictions for leasable energy development; ACECs would be 'Closed' to locatable and salable mineral development. Where ACECs overlap WSAs, further constraints on mineral activities apply under the Wilderness Interim Management Policy.
- All ACECs would be ROW exclusion zones.
- ACECs would be managed under visual resource management (VRM) Class II criteria, or Class I criteria where subject to the Wilderness Interim Management Policy.

National Historic Trails

- Protect and maintain approximately 29 miles of national historic emigrant trails.
- Develop a "Historic Sites Scenic Byway" with off-site interpretive locations.
- Develop recreation development packages for 7 or 8 sites of historic significance.
- Designate an Emigrant Trails ACEC to protect and intensively manage 1,750 acres of historic trail remnants and associated historical artifacts.

Scenic Byways

- Designate and manage the following proposed scenic byways:

U.S. Highway 395 - Alturas to Reno	190 miles
State Highway 139 - Canby to Susanville	90 miles
State Highway 299 - Adin to Redding	110 miles
State Highway 139/Canby to U.S. Highway 395/Nevada state line	170 miles
Total	560 miles

- Continue work to add additional segments and interpretive locations to the Emigrant Trails Scenic Byway (U.S. Highway 395 and State Highways 299 and 139).
- Cooperate with the Northern California Resource Center for interpretive planning and development on the Applegate and Lassen National Historic Emigrant Trails, and at the Descent to Goose Lake. Develop a 0.25-mile interpretive walking trail and a 1-mile hiking trail..
- Designate the Clark's Valley Road Driving Route for 21 miles.

Wild and Scenic Rivers

- Recommend 13 miles of Upper Pit River as suitable for WSR designation, with a '*wild'* classification.
- Recommend 3 miles of Lower Horse Creek Canyon as suitable for WSR designation, with a '*wild'* classification.
- Recommend 2.5 miles of Lower Pit River Canyon as suitable for WSR designation, with a '*scenic'* classification.

Wilderness Study Areas

- Four WSAs and one instant study area (ISA) would continue to be governed by the Wilderness IMP until such time as Congress makes a determination regarding wilderness designation. These include:
    - Pit River Canyon WSA (10,984 acres)
    - Lava WSA (10,770 acres)
    - Timbered Crater WSA and Baker Cypress ISA (17,896 acres)
    - Tule Mountain WSA (16,998 acres)

Travel Management

- OHV travel would be 'Limited to Existing Roads and Trails' year-round, except where further restrictions are specifically assigned (e.g., 'Open,' 'Closed,' 'Seasonally Closed,' or 'Limited to Designated Routes').
- Where travel on an existing road is creating sufficient adverse impacts, the road may be closed (on a temporary or permanent basis) through plan maintenance.
- Travel restrictions on the Nelson Corral Reservoir Road would be a *year-round* 'Limited to Existing Roads and Trails' designation.
- The Cinder Cone OHV Management Area (80 acres) would be 'Open' to year-round OHV travel. However, organized off-highway vehicle events would only be permitted in this location or on designated routes in other specially approved locations.
- Assign off-highway vehicle use area designations:
    - 'Open' 80 acres
    - 'Limited to Existing or Designated Routes' 498,140 acres
    - 'Closed' 4,825 acres
- Manage three areas, and certain routes, specifically for recreational driving:
    - Cinder Cone OHV Management Area (near Cassel),
    - Fall River Trail (near Fall River Mills), and
    - Barnes Grade/Crowder Flat OHV Management Area (near Alturas).
- Construct approximately 66 miles of new motorized and non-motorized trails, including the 40-mile stretch of the abandoned Modoc Line railbed.
- Motorized boating would be unrestricted on West Valley Reservoir.
- On Delta Lake and the Nelson Corral Reservoir (in the Infernal Caverns/Rocky Prairie SRMA), only electric trolling motors and non-motorized use would be allowed.
- Propulsion on Bayley Reservoir would be limited to small outboards (i.e., 4-cycle engines [phased in by 2012], electric trolling motors, or non-motorized craft).
- A special recreation permit would be required for commercial sport-fishing and whitewater rafting in the lower Pit River Canyon.

- There would be no restrictions on motorized snow travel to the Nelson Corral high-country or the Dead Horse Loop area.
- Implement annual road maintenance, using a priority system, on 28 miles of routes.

Vegetation

- Employ natural disturbance processes—particularly prescribed fire and wildland fire use—as the preferred method of restoring shrub communities, along with thinning (using mechanical and manual methods) to stimulate seeding and sprouting.
- Designate Timbered Crater, Mount Dome, Mountain Peaks, and Old-Growth Juniper ACECs (26,021 total acres) also as research natural areas to protect unique plant species and communities.
- Incorporate recommendations developed in the *Sagebrush Steppe Restoration Strategy* to manage juniper encroachment.
- Prioritize restoration treatment methods for removal of invasive juniper in shrub–steppe communities:
    - Prescribed fire/ Wildland fire use 75–10,000
    - Manual 50–5,000
    - Biological 75–2,000
    - Chemical 50–2,000
    - Mechanical 75–10,000
    - Seeding 50–10,000
- Construct 10 miles of permanent roads and 50 miles of temporary roads to facilitate juniper reduction and forestry treatments.
- Protect 38,000 acres of old-growth western juniper from timber harvesting and firewood cutting.
- Incorporate guidelines from the *Sage-Grouse Conservation Strategy* to restore sage- grouse habitat in Wyoming and mountain big sagebrush ecosystems.
- Implement management actions to create healthy, multi-aged stands of bitterbrush, on up to 500 acres per year.
- Exclude livestock from aspen stands using:
    - Permanent fencing - 200 acres
    - Temporary fencing - 300 acres
- Rejuvenate or maintain stands of curlleaf mountain mahogany through selected treatments on up to 1,000 acres per year.
- Rejuvenate or maintain oak woodlands with abundant saplings and in mixed age classes through selected treatments on up to 5,000 acres per year.

Riparian/Wetland Associations

- Assess riparian areas for 'Proper Functioning Condition', existing—or potential—natural community, and ecological site description.
- Implement measures to make progress toward 'Proper Functioning Condition' on 15 miles of streams, 22 acres of springs, and 46 acres of wetlands.
- Protect riparian areas from grazing using exclosure fencing (up to 500 acres) and alternative water sources.
- Use bio-engineering projects, such as planting riparian vegetation for vegetation manipulation and streambank stabilization.
- Locate livestock salting sites ¼ mile from riparian areas to discourage damage by livestock.

- Re-route roads through Little Buck Meadows and Big Buck Meadows; rehabilitate existing roads with native herbaceous vegetation.

Noxious Weeds & Invasive Species

- Implement integrated weed management (IWM) procedures on BLM lands. Review project proposals determine necessary IWM actions and coordinate treatment with local agencies.
- Conduct periodic inventory of noxious weeds to detect new infestations and monitor the condition of existing infestations. The highest priority for noxious weed inventory would be critical wildlife habitat, at-risk plant communities, high-use areas, and recreation sites.
- Monitor treated sites to determine treatment effectiveness and impacts on non-target vegetation.
- Educate the public regarding noxious weed infestation and introduce practical measures to minimize infestations through public awareness and cooperation.
- Hay, straw, and mulch used for any purpose must be certified noxious weed free.

Special Status Plants

- Manage habitats for special status plants so that BLM actions do not contribute to the need to 'list' these species (as threatened or endangered) under federal law.
- Reduce or eliminate adverse impacts on special status plants (and their habitats) during ground-disturbing activities.
- Acquire lands (from willing sellers) that support unprotected populations of special status plants.
- Protect 'special interest' plants (and their habitats) to prevent them from becoming special status plants.
- OHVs would be 'Limited to Designated Routes' in the Ash Valley ACEC/RNA and the Westside Grazing Allotment to protect special status plants.

Visual Resources

- Manage wilderness study areas as VRM Class I.
- Assign VRM Class designations to BLM-administered lands and manage according to class requirements in order to protect scenic quality:
    - VRM Class I 56,648 acres
    - VRM Class II 157,177 acres
    - VRM Class III 104,006 acres
    - VRM Class IV 185,214 acres
- Areas of critical environmental concern (ACECs), Wild and Scenic Rivers (WSRs), Historic Trails, or other Special Designations would be managed as VRM Class II, unless the area is managed as Class I under other resource prescriptions.
- All developments, land alterations, and vegetation manipulations would be designed to minimize visual impacts. All projects would be designed to maximize scenic quality while minimizing scenic intrusions.

Water Resources

- Establish 'Proper Functioning Condition' on 15 miles of streams, 22 acres of springs, and 46 acres of wetlands. Achieve state water quality standards and the needs of beneficial users on 17 miles of streams.
- Implement bioengineering practices on 25 miles of perennial, intermittent, and ephemeral streams to improve streambank stabilization.

- Implement restorative measures to improve water quality and make significant progress toward achieving state standards. Emphasize natural recovery processes, livestock exclosures, planting of woody riparian vegetation, and construction of in-stream structures.
- Maintain existing and develop 75 new water sources to improve livestock distribution and extend seasonal availability for wildlife.
- Consider withdrawal of state-appropriated water rights on waters that are not "waters of the state".
- Assert riparian rights on all perennial and important intermittent streams.
- Coordinate projects that involve inter-basin transfer of water with local and regional governments.

Wild Horses

- Continue to protect and manage wild horses within the Red Rock Lakes herd management area (HMA) at the established appropriate management level (AML) of 16 to 25 horses. Horses would be periodically removed to maintain the appropriate management level.
- Cooperate with the U.S. Department of Agriculture Forest Service in periodic removal, adoption, and holding of animals from the Devil's Garden Wild Horse Territory to keep horse numbers within AML for the Emigrant Herd Management Area.

Wildlife and Fisheries

Federally Listed Species

Bald Eagle

- Conduct nesting and population surveys and implement seasonal protective measures and buffer zones for permitted activities.
- Develop habitat management plans for the Conrad Ranch and Timbered Crater nesting areas, as well as the Juniper Creek roosting site.
- Manage suitable forest habitat to retain potential nest trees.

Northern Spotted Owl

- Northern spotted owl and its habitat (where and when found) will be managed per existing terms and conditions contained in plan and program-level biological opinions.

Modoc, Shortnose, and Lost River Suckers, and Shasta Crayfish

- These species and their habitats (where and when found) will be managed according to existing recovery plans and the terms and conditions of plan and program-level biological opinion.

Yellow-Billed Cuckoo and Oregon Spotted Frog

- These species have not been found in the management area. However, the AFO will contribute to appropriate survey efforts and – if a population of either species is discovered – would develop conservation and action plans.

State- and BLM-Listed Sensitive Species

- Cooperate with partners to obtain information on occurrence, abundance and distribution. Develop a geographic information system database to document and track information.
- Use seasonal protective measures and buffer zones for permitted activities in critical habitats for these species.
- Restore critical habitats of state-listed and BLM sensitive species in degraded sagebrush associations.

Ungulates

- Focus management on priority habitat areas for mule deer and black-tailed deer on 128,000 acres to maintain and improve ecological conditions.
- Prioritize management areas for improvements to pronghorn habitats by maintaining healthy low sagebrush habitat. Focus management on priority habitat areas (60,145 acres), and identified high quality habitat (130,000 acres).
- Construct exclosures and fences to protect important ungulate habitats: aspen, bitterbrush, oaks, mahogany, riparian areas, and springs, on up to 1,000 acres.
- Control invasive juniper and noxious weeds to improve or reestablish native habitats.
- Use seeding, planting, and other vegetation treatments to improve terrestrial and aquatic habitats.
- Assign OHV designations to protect wintering ungulates. Assign seasonal road closures to protect wintering ungulates on the following areas:
    - Likely Tablelands
    - Barnes Grade
    - Day Bench
- If Rocky Mountain elk become established in the management area, coordinate with state wildlife agencies and other stakeholders—including livestock owners—to develop and implement a management plan.
- Coordinate with California Department of Fish and Game in the development of a management plan prior to reintroduction of California bighorn sheep.
- Provide artificial water sources (e.g., guzzlers) in areas with high wildlife potential, especially were natural sources are depleted or limited.

Sagebrush Ecosystems and Sagebrush-Obligate Species

- Implement juniper reduction to enhance sagebrush ecosystems; focus on providing diversity in shrub age class and composition and healthy understory vegetation.
- Restore natural disturbance processes (such as fire) by implementing fuels treatments, including prescribed fire and thinning projects, in accordance with conservation strategies for Sage-Grouse.
- Avoid practices that convert sagebrush habitats to non-native grassland or agricultural land.

Sage-Grouse:

- Implement locally developed strategies found in *Conservation Strategies for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle, Likely Tablelands/Rocky Prairie and Devil's Garden/Clear Lake Population Management Units*. Utilize translocation to augment low populations in conjunction with habitat management projects.

Burrowing Owl:

- Inventory and map suitable habitat. Develop a conservation strategy to protect identified nesting burrows and other seasonal habitats.

Pygmy Rabbit:

- Inventory and map suitable habitat and determined species abundance. Develop a conservation strategy to protect occupied habitat.

Other Sagebrush-Obligate and Associated Species:

Survey to determine use of sagebrush habitats by sagebrush-obligate and associated species. Determine demographic trends and habitat utilization for these species for utilization in medium and large-scale area, regional, and national strategies for managing sagebrush-obligate species.

Other Native Wildlife Species

- Coordinate reintroductions, augmentations, and translocations of native species with state wildlife agencies.
- Create brush piles and water sources for upland game birds and small mammals in important habitats where cover or water is depleted or unreliable.
- Maintain waterfowl nesting islands on 12 reservoirs and create additional islands on 26 reservoirs. Construct island or reservoir fences on 31 reservoirs.
- Current meadow and riparian habitat enhancement projects will continue, and an additional 500 acres of riparian habitats will be fenced. Permanent fencing will protect 200 acres of high-risk aspen and 300 additional acres will be protected with temporary fencing.

Native and Non-Native Fish and Other Aquatic Species

- Restore proper functioning condition to springs and streams by installing and maintaining riparian fencing, maintaining or improving minimum pool depths, augmenting clean spawning gravels, and stabilizing stream banks.
- Coordinate with state agencies when implementing management actions—especially proposed stocking of fish.
- Implement habitat improvements for warm-water fish at the following reservoirs: Iverson, Lower Roberts, Coyote, Romero, Little Juniper, Knox Gulch, Popcorn #1, Antelope, West Valley and Moon Reservoirs.

Non-Native Terrestrial Species

- Manage to reduce or eliminate populations of non-native or invasive species that are impacting native species and/or habitats in a manner consistent with state and federal policies, procedures, and regulations.

Environmental Consequences

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

The Preferred Alternative would enhance the ability of BLM to achieve the purpose and need of this document, as outlined in Chapter 1, as well as meet desired future conditions, goals and objectives of specific resources as outlined in Chapter 2. Alternatives 1, 3 and No Action lack the degree of management emphasis required to restore degraded sagebrush steppe communities and habitats, in relation to the encroachment of juniper.

The Preferred Alternative would result in overall minor to moderate adverse impacts to resources, and these impacts would continue to be mitigated. Management actions under the Preferred Alternative would result in moderate to major beneficial impacts to native vegetation communities from restoration efforts, and the use of prescribed fire to remove invasive juniper. Improvements to riparian areas, water bodies, and other special habitats would improve soil and water resources, and wildlife habitat. The designation of six areas of critical environmental concern, three wild and scenic river segments, and an increased emphasis on cultural resource protection and management would have beneficial impacts to these important and unique resources.

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CHAPTER 1:
PURPOSE AND NEED

Chapter 1. Purpose and Need

1.1 Purpose and Need for the Plan

The purpose of this planning effort is to develop a Proposed Resource Management Plan (PRMP) that will provide overall management and long-term direction for the public lands and resources administered by the Alturas Field Office (AFO) of the Bureau of Land Management (BLM). This PRMP is being developed in accord with the Federal Land Policy and Management Act (FLPMA) of 1976, as amended. FLPMA requires BLM to "develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands" (43 U.S. Code 1712 [a]). Typically, BLM uses a period of 15-20 years as a basis for impact analysis. A PRMP may be amended or revised at any time to reflect changed circumstances or new information.

The AFO PRMP was developed in coordination with the Eagle Lake and Surprise Field Office PRMPs to provide a consistent framework for managing public lands and resource uses in northeast California and northwest Nevada. A PRMP documents broad-scale land use plan decisions for all resources and resource uses. The PRMP determines which lands are open or available for certain uses, including any restrictions, and lands that are closed or unavailable, to certain uses. The decisions derived from the plan will guide later site-specific implementing of management actions. This PRMP establishes the following:

- goals and objectives for resource management,
- measures needed to achieve goals and objectives, and
- parameters for using BLM-administered lands.

Current management direction for the AFO is contained in ten land use plans or amendments that were developed from 1973-2002. New information, changed circumstances, and resource conditions since these plans were prepared require a single updated PRMP.

Approval of a PRMP is considered a major federal action with the potential to significantly affect the quality of the human environment (43 Code of Federal Regulations [CFR] Section 1601.0-6). BLM has prepared this PRMP and Final Environmental Impact Statement (FEIS) in accordance with the Council on Environmental Quality regulations and BLM's own procedures for implementing the National Environmental Policy Act (NEPA). The FEIS portion of the document analyzes the effects of implementing the Preferred Alternative for the AFO. The PRMP and FEIS are integrated into this document and are not separate reports.

1.2 Changed Circumstances

Population growth in the vicinity of Fall River Valley in Lassen County, California and the metropolitan areas of Klamath Falls, Oregon; Reno, Nevada; and Redding, California has caused an increased demand for use of public lands to support community needs and low impact recreation. The AFO has experienced a substantial increase in requests for land tenure decisions or adjustments and for land use permits and authorizations, including those for renewable energy development.

In addition to traditional consumptive uses, public interest has expanded in uses that emphasize aesthetic values such as open space and low-impact recreational opportunities. Changes in the type of recreation uses and the demand for diversified recreational opportunities can result in conflicts between uses and resource concerns that the old land use plans did not address. Concerns include how these uses affect ecosystem health, local communities, and state, regional, and tribal interests.

Vegetation communities continue to be threatened by both the encroachment of western juniper into sagebrush grasslands and from the invasion of annual exotic grasses and noxious weeds. These ecological resource concerns are best addressed at a landscape level to improve vegetation communities toward desired future conditions. The number of plant and animal species recognized by California as special status species has increased. In addition, the decline of sage-grouse populations in the western U.S. has triggered BLM national, state, and local strategies with new guidance to address habitat requirements of the species.

New protocol agreements between BLM and the State Historic Preservation Offices (SHPOs) of California guide the protection, inventory, and conservation of cultural resources as they relate to other resources and land uses. Emphasis is being placed on finding and managing traditional cultural properties in coordination with local tribes.

1.3 Planning Area

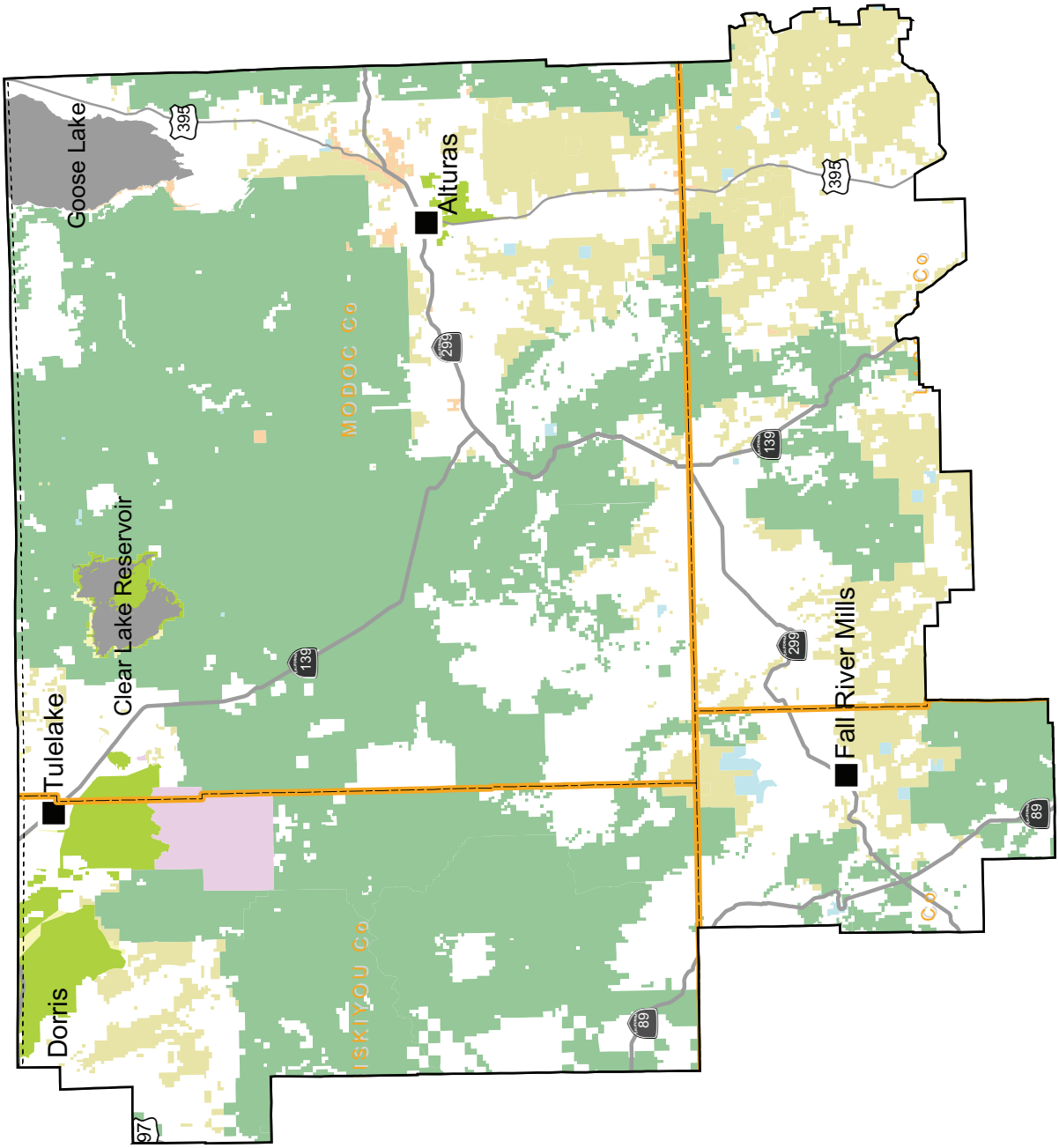
This PRMP discusses two distinct geographic areas: 1) the AFO area boundary, and 2) BLM-administered lands within this boundary that are the basis for planning decisions within this PRMP.

The AFO area encompasses 4,117,341 acres, not all of which is under BLM's management (Table 1.3-1, Figure 1.3-2). The planning and decision area for resources and resource uses within this PRMP refers to the 503,045 surface acres of public lands within the field office boundary, which are under BLM jurisdiction. These lands vary from small, scattered parcels to large, contiguous blocks. Management decisions in this PRMP will apply only to these lands. BLM-administered lands in the planning area are located in four counties: Lassen, Modoc, Shasta, and Siskiyou Counties (Table 1.3-3).

Table 1.3-1 Land Ownership within the AFO Boundary

Ownership	Acres
BLM	503,045
Bureau of Reclamation	8,223
Indian land	12,493
National Park Service	46,566
Private	1,513,876
State	14,919
U.S. Fish and Wildlife Service (USFWS)	103,416
U.S. Department of Agriculture Forest Service	1,914,803
Total	4,117,341

Fig. 1.3-2 Land Status



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

ALTURAS FIELD OFFICE
Proposed Resource Management Plan / Final EIS
Fall 2006

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Table 1.3-3 BLM-Administered Lands in the Four-County Alturas Planning Area

County	Acres by County[a]
Siskiyou, CA	39,736
Lassen, CA	268,214
Modoc, CA	141,975
Shasta, CA	53,120
Total	503,045

[a] All acreages are approximate.

1.4 Planning and Scoping Processes

Issues related to resource management in the Alturas planning area were determined during the scoping process through public scoping meetings, field tours, socioeconomic workshops, and interactions with federal, state, tribal, and county collaborators. These issues, summarized below, were used to develop alternatives and are addressed in other sections of the resource management plan (e.g., effects on local economies).

BLM hosted six public scoping meetings in August and September 2003. A total of 205 people attended these meetings. Table 1.4-1 lists the dates and locations of these meetings. Four meetings were held within the planning areas. Other meetings were held in Redding, California, and Reno, Nevada, to ensure that BLM heard the concerns of user groups residing outside the planning area. BLM also conducted a scoping meeting in the field in August 2003.

Table 1.4-1 Public Scoping Meetings for the Alturas, Surprise, and Eagle Lake Planning Process

Date	Location
Scoping Meetings	
August 6, 2003	Cedarville, CA
August 13, 2003	Susanville, CA
August 20, 2003	Alturas, CA
August 27, 2003	Redding, CA
August 28, 2003	Reno, NV
September 10, 2003	Fall River Mills, CA
Field Tours	
August 9, 2003	Surprise Field Office
August 16, 2003	Eagle Lake Field Office
August 23, 2003	AFO
Social and Economic Outreach Workshops	
November 20, 2003	Susanville, CA
December 2, 2003	Alturas, CA
December 3, 2003	Cedarville, CA

A community workshop was conducted to discuss economics and social values in November 2003. The workshop focused on presenting economic data and working with residents to arrive at a common understanding of the following:

- economic drivers of communities,
- local social values related to places and natural resources,
- community goals and visions, and
- BLM's role in the community.

1.5 Issues Raised During the Scoping Process

Summarized here are the comments and issues submitted to date and the issues identified by BLM that will be addressed in the planning process.

Issue Area 1: ***How should upland ecosystems be managed?***

Vegetation has numerous values, both consumptive and non-consumptive, including wildlife habitat, wild horses, livestock grazing, forest products, and watershed protection. There is concern that resource use may be affecting the natural function and health of upland plant communities, soil productivity, and cultural resource site stability. The Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management adopted by the Secretary of the Interior in July 2000 will help frame decisions in the PRMPs. Management objectives are needed for upland vegetation, which will help determine allowable uses, treatment methods, and other activities.

Specific concerns that BLM is considering:

- Current health, ecological status, and trends of the various ecosystems and plant communities, including those lands subject to juniper encroachment and other invasive species and noxious weeds (cheatgrass, yellow starthistle, medusahead).
- Current status and condition of habitat needed to support guilds or suites of species, including threatened and endangered and special status species, neo-tropical birds, and species disjoint from their population center or at the edge of their range.
- Options to restore and maintain healthy native plant communities.
- A mix of consumptive and non-consumptive uses.
- Options to improve and maintain water quantity and quality and to promote hydrologic recovery.
- Options to maintain or improve soil productivity and site stability.
- Potential vegetative treatments, including seeding, grazing, mechanical, herbicides, biomass harvesting, fuel wood harvesting, and prescribed burning.
- Appropriate management of livestock grazing; ensure compliance with water quality control board objectives.
- Appropriate management of wild horses and burros.
- Policies regarding use of toxic substances, including pesticides.
- Management of species with cultural significance.

Issue Area 2: ***How will forestry issues be managed, and how will forest resources be utilized?***

Forests have numerous values, both consumptive and non-consumptive. There is concern that resource use may be affecting the natural function and health of forest ecosystems and ecosystem components.

Management objectives, which will help determine allowable uses, treatment methods, and other activities, are needed for forests.

Specific concerns that BLM is considering:

- Managing the resources to furnish a supply of forest products.
- Supporting traditional forestry uses.
- Maintaining healthy forests.
- Maintaining/enhancing habitat value/function of forests.
- Invasive and native juniper management.

Issue Area 3: ***How will water resources be managed and utilized?***

Water quality and quantity in a region have far-reaching impacts on watershed health, ecosystem health, and the pursuit of various land or resource uses. There is concern that resource use, both within and outside of BLM's jurisdiction, may be affecting the quality and quantity of water in the area.

Specific concerns that BLM is considering:

- Protecting water quality and quantity.
- Making adequate water supplies available for domestic and commercial uses.
- Protecting existing water rights.
- Acquiring additional water rights.
- Downstream water commitments.
- Consider possible impacts of drought conditions.
- Use of water for power plant usage.

Issue Area 4: ***How will visual resources be managed and preserved?***

Visual resources have a large impact on people utilizing land for recreation. There is concern that resource use may be affecting the quality of visual resources in the area.

Specific concerns that BLM is considering:

- Preserve visual nature of area while providing protection for the objects within the area and their identified uses.
- Reconcile uses (such as mining) with their potential visual impacts.
- Visual impact of the removal of junipers.
- Visual impact of man-made intrusions, including energy projects.

Issue Area 5: ***How should riparian areas and wetlands be managed?***

Riparian and wetland vegetation provides the foundation for many resource uses on public lands, including habitat for wildlife and forage for domestic animals. Healthy riparian areas stabilize the soil, store water during spring and release it throughout the year, prevent erosion, and improve water quality. There is a concern that resource uses may be affecting the natural function and health of riparian areas and wetlands. Management objectives are needed for riparian and wetland areas, which will help determine grazing use, treatment methods, and other activities needed to sustain the resources and uses that depend on them.

Specific concerns that BLM is considering:

- Current health, ecologic status and trend of riparian/wetland plant communities.
- Current status of riparian and aquatic systems relative to habitat quality for and population status of fish, wildlife, plants, and invertebrates.
- Options to maintain or improve soil productivity, and soil and cultural resource site stability.
- Whether current management practices are working in achieving desired water quality.
- Current condition of water quality and quantity.
- Opportunities to manage watersheds/basins with other agencies.
- Restoration and rehabilitation of riparian areas to proper functioning condition.
- Options to meet BLM standards and to promote hydrologic recovery including:
    - Meeting state numeric, narrative, and non-degradation standards.
    - Meeting needs of aquatic assemblage of native species.
    - Meeting needs of other beneficial uses.

Issue Area 6: ***How will wildland fire and prescribed fire be managed and utilized?***

Wildland fire is recognized as having a vital role in the health of ecosystems in the planning area. It can also have significant impacts on the communities, economies, and infrastructures.

Specific concerns that BLM is considering:

- Fire history in the area, and its effect and anticipated fire trends.
- The role of fire in upland and riparian ecosystems.
- Prescribed fire.
- Appropriate fire management response.
- Effect of road extensions on fire hazard levels.
- Fuels management:
    - Mechanical treatment
    - Chemical treatment
    - Biological treatment
- Wildland-urban interface considerations and the National Fire Plan.
- Using fire to restore natural ecological systems to their proper functioning conditions.
- Management of areas after fires (restoration):
    - Public access.
    - Re-seeding.
    - Priorities.

Issue Area 7: ***How should vehicular access be managed on public lands?***

Currently, public lands in the area are generally accessible by motorized vehicles to agency personnel for resource management, to commercial enterprise for permitted use or extraction of public resources, and to the general public for recreation and enjoyment of public lands. There is a need to balance access to public lands with resource management and protection.

Specific concerns that BLM is considering:

- Areas where off-highway vehicle (OHV) use or season of use or the existing transportation system is in conflict with other goals and objectives.
- Appropriate area designations of open, closed, or limited OHV use and selection of routes of travel to meet goals and objectives.
- Existing roads and ways or other travel routes and their condition, including an analysis of road and trail expansion, both sanctioned and unsanctioned, in the recent past.
- Expansion, restriction, or reclamation of existing roads and trails.
- Implementation of road density standards.
- Implementation of a "closed unless posted open" policy for OHV access.
- Assessment of safety and stability of existing roads and trails.
- Acquisition of legal access to promote resource management and public use.
- Clear delineation of adopted roads and trails network and limitations or restriction on use.
- Water quality control board objectives for sediment runoff from roads.
- Delineation between roads to be used for recreation versus roads for commercial uses.
- Possibility of an OHV trail rotation to minimize long-term impacts on habitat.
- Impacts from OHV activity on other resources:
    - Sensitive resources (e.g., water, cultural resources, sensitive plants, or habitats), rather than just water resources.
    - Property.
    - Maintenance costs.
    - Health and safety.

Issue Area 8: ***How should the public lands be managed to sustain the traditional practices and traditional cultural properties of Native American cultures?***

Specific concerns that BLM is considering:

- Tribal consultation and input.
- Inventories of archaeological and cultural resources.
- Impacts to sites from land uses, including wild horses.
- Archaeological looting.
- Development of a Tribal consultation protocol.
- Management of traditional cultural properties and ethnographic sites, including rock art/petroglyph and other types of sites.
- Resource extraction.
- Future monitoring and partnerships.

Issue Area 9: ***How should the public lands be managed to meet the needs of local communities?***

The small communities that are associated with public lands in this area depend on public land resources for economic and social benefits.

Specific concerns that BLM is considering:

- Economic and social benefits to local and regional communities that are derived from the public lands.
- Management decisions supporting local/regional economies.
- Complement private uses rather than competing (e.g., camping).
- Benefits of biomass energy to community.
- The importance of these benefits to local and regional economies.
- Lifestyle and quality of life of local communities.
- Dependency of private ranch land on public land grazing and impacts from private land conversion.

Issue Area 10: ***How will grazing and range issues be managed?***

Livestock and wild grazing animals have a large impact on the habitat that they occupy. There is concern that current grazing and range practices may be affecting the health and appearance of ecosystems in the area.

Specific concerns that BLM is considering:

- Providing adequate forage in planning area lands to support existing permit levels.
- Furnishing adequate infrastructure to support domestic animal grazing.
- Minimize increase of invasive, undesirable species, such as juniper.
- Management of range resources to ensure healthy and ecologically sustainable communities.
- Management of range resources to provide appropriate habitat elements for wildlife species.
- Current conditions and management situations at herd management areas.
- Current appropriate management levels at herd management areas.
- Management of neighboring non-isolated herd management areas as herd complexes.

Issue Area 11: ***What lands will be identified for retention, exchange, disposal, and acquisition?***

Scattered tracts of public lands present throughout the area often complicate management or limit access or opportunity for enjoyment by the public. Opportunities exist to increase public benefits by disposing of some public lands through sale or exchange, or to acquire offered lands in areas which would enhance public enjoyment and facilitate resource management.

Specific concerns that BLM is considering:

- Public lands that are central or not central to BLM's mission or PRMP goals and objectives
- Isolated parcels of BLM lands and private in-holdings, especially in-holdings in wilderness study areas (WSAs).
- Effective management of isolated parcels.
- Existing rights-of-way (ROWs) and utility corridors.
- Extending/continuing trails from other areas and states, including historic trails such as the Applegate, Lassen, and Noble emigrant trails.
- Inconsistencies in existing ROWs.

Issue Area 12: ***What lands are available for energy and mineral development?***

Potential for and interest in the development of renewable and non-renewable energy occurs across the planning area. Extraction of a variety of mineral materials occurs on public lands in the area and constitutes an important economic use of public land resources. Interest in decorative rock collection has also increased. Energy and mineral development may not be appropriate for all lands, such as those having special resource values.

Specific concerns that BLM is considering:

- BLM's potential participation in the licensing process for power plants on adjacent lands that may impact BLM lands.
- Oil and gas potential.
- Potential for renewable energy, such as wind, geothermal, and biomass.
- Occurrence and demand for minerals.
- Compatibility of energy and mineral development with other resource uses, goals, and objectives.
- Establishment of utility corridors.
- Migratory bird routes.
- Impacts of mining on ground and surface waters.
- Split-estate lands issues.
- Potential impacts of decommissioning hydroelectric facilities.
- Timing of permits for renewable energy sources to coordinate with ongoing resource uses.
- Using woodlands as sources of biomass.
- Reclamation issues.
- Routing of overhead transmission lines.
- Dismantling unused poles to reduce avian roosting/resting sites.

Issue Area 13: ***How will recreation opportunities be managed?***

With the rapid population growth of urban areas in northeastern California and northwestern Nevada, the demand for recreation opportunities has increased substantially in recent years. In addition, a significant shift in the demographics of these urban areas, as well as in some of the more rural small communities, has noticeably changed the types of recreation experience traditionally sought on public lands.

Specific concerns that BLM is considering:

- Current extent and nature of demand for recreational opportunities in the analysis area.
- Recreation opportunities that are currently provided in the planning area.
- Compatibility with adjacent land uses and resources.
- Impacts of OHV play areas.
- New facilities.
- Impact of OHVs and other recreation uses on hunting, grazing, water quality, riparian ecosystem health, scenic quality, wilderness characteristics, and wildlife, as well as other resources and land uses.
- Management of trails to address OHVs, hiking, and horses.
- Meeting demand for interpretive outdoor education.

- Extent and placement of signage.
- Management of user fees - Where will they be required? How will the fees be used?
- Master trail plan updates, integrations, extensions, etc.
- Integration of commercial recreation operations and opportunities with Alturas-Eagle Lake-Surprise resources.
- Impacts of mining and other uses on recreational opportunities
- Opportunities for cooperative management of recreation and visual resources
- Changing demands for recreation on public lands
  - Hang gliding
  - Additional water sources
  - Primitive camping
  - Scenic driving
  - Rock hounding
  - Accessible to disabled populations

Issue Area 14: ***How will fish, wildlife, and special status species be managed?***

Lands in the planning area are habitat for a range of fish, wildlife, and special status species. The habitat needs for healthy populations will be integrated into management decisions in the plan. Hunting and fishing activities are popular throughout the planning area as well and must be considered.

Specific concerns that BLM is considering:

- Habitat needs of special status species, including species listed as threatened or endangered by the USFWS.
- Habitat needs of fish and wildlife in the planning area.
- Importance of habitats on BLM lands to overall populations.
- Connecting BLM public lands to refuges and other natural areas.
- Management of domestic livestock while considering wildlife needs.
- Balancing ecosystem management with species management.
- Implementation of population monitoring plans.
- State agency populations of interest.
- Demand for hunting and fishing.
- Interest in reintroduction of bighorn sheep.
- Sage grouse conservation strategies.

Issue Area 15: ***How should special values and special management areas be managed?***

Existing special management areas, including WSAs, areas of critical environmental concern (ACECs), and wild and scenic rivers (WSRs) require special management to protect particular values and/or resources. New areas may require special management, including free-flowing rivers and streams; unique vegetation types; habitats for threatened, endangered, and sensitive species; cultural resources; and unique geologic resources.

Specific concerns that BLM is considering:

- Resources and values to be managed.
- Manageability of the areas.
- Current and potential land uses.
- Existing special management area effectiveness and appropriateness.
- OHV usage in WSAs.
- Appropriate new designations.
- Visitor educational opportunities.
- Review wild and scenic status of all streams and rivers.
- Integrate and/or replace other ACEC plans.

Issue Area 16: ***How will air quality be managed?***

Air quality is a region with far-reaching impacts on watershed health, ecosystem health, and the pursuit of various land or resource uses. There is concern that resource use, both within and outside of BLM's jurisdiction, may be affecting the quality of air in the area.

Specific concerns that BLM is considering:

- Maintenance of appropriate air quality.
- Coordination with neighboring power plants regarding emission levels and time periods.
- Assessment of impacts from fire management emissions.

Issue Area 17: ***How will paleontological resources be protected and managed?***

There is concern that resource use, both within and outside of BLM's jurisdiction, may be affecting the integrity of paleontological resources in the area. Management objectives are needed.

Specific concerns that BLM is considering:

- Instatement of a paleontological resource protection policy.
- Management of scientific study so that it won't adversely impact paleontological resources.
- Management of recreation so that it won't adversely impact paleontological resources.
- Potential for paleontology ACECs.
- Establishment of paleontology collection areas.

Issue Area 18: ***How will the PRMP planning process be organized?***

The planning process for the PRMP needs to provide for participation from a number of different stakeholders, and will be organized to maximize participation and incorporate as much input as possible. Objectives will help BLM staff organize the planning process efficiently.

Specific concerns that BLM is considering:

- Integration of BLM management with other agency and community plans.
- Making the process open to the public to the greatest extent possible.
- Completing the process in a manner fully compliant with law and regulations.
- Format the EIS to be easily integrated with future planning processes and documents in the region.

- Involvement of other major federal land management agencies, as necessary.
- Provide consistency in management between the three field offices and other BLM offices in Nevada, Oregon, and California.
- Involvement of partners/cooperating agencies in the planning process.
- Challenges associated with having a dispersed, rural public.
- Coordinate these planning documents with other regional land use plans, conservation plans, conservation strategies, and the Standards and Guidelines for Rangeland Health in Northeastern California and Northwestern Nevada.
- Create a framework for implementing policies, rather than identify specific locations for implementation or management activities.
- Education/outreach as a priority.
- Re-examination of the Management Framework Plans for the three areas to ascertain what succeeded and what failed within the plans — what goals have been achieved, what decisions have been actualized, etc.

1.6 Issues Considered but Not Addressed

Issues beyond the scope of the Alturas planning process or BLM's jurisdiction were also raised during the scoping process. Table 1.6-1 summarizes these concerns and explains why they were considered outside the scope of the PRMP.

Table 1.6-1 Issues Beyond the Scope of the Alturas Resource Management Plan

Issue Raised during Public Scoping	Reason That Issue is beyond the Scope of the Alturas Planning Process
Ticketing and fines or penalties by BLM for those not using land properly	BLM enforces existing laws, regulations, and decisions to the best of its ability, given law enforcement and budgetary constraints. The level of fines for citations is not a decision a PRMP can make.
More funding by BLM to support law enforcement of OHV use	Funding levels are determined by the President and Congress, not by a PRMP. This comment has been forwarded to management for consideration in developing future budgets.
Use of BLM lands for small hydroelectric facilities for private home use	Regional water quality control boards have jurisdiction over instream uses. Therefore, PRMPs do not address this issue.
Mitigation for hazards by the Army before BLM acquires land	Specific land acquisitions would require site-specific environmental review before completion. This issue would be addressed for a specific acquisition.
Involvement of local fire districts in BLM's fire training	BLM coordinates many training opportunities for local fire districts, including classes at Lassen Community College, refresher courses, and periodic joint training sessions with local volunteers.
Public involvement in plan implementation	Near the completion of the PRMP, BLM will involve the public in developing an implementation strategy for the plans. This strategy will include volunteer and other public participation opportunities.
Use of fees from extraction activities to fund plan implementation	Funds gathered as part of the sale or lease of minerals and timber are deposited into the U.S. Treasury. Distributing these Treasury funds is the authority of Congress. BLM will propose funding from Congress for plan implementation when the plan is complete, but the PRMP does not discuss the use of funds.

1.7 Planning Criteria

BLM planning regulations (43 Code of Federal Regulations (CFR), Part 1610) require preparing planning criteria to guide development of all RMPs. Planning criteria are the constraints or ground rules that guide the development of the plan. The criteria determine how the planning team develops alternatives and ultimately selects a Preferred Alternative. These criteria ensure that plans address defined issues and that BLM avoids unneeded data collection and analysis. Planning criteria are based on the following: 1) standards prescribed by laws and regulations; 2) agency guidance; 3) the results of consultation and coordination with the public, other federal, state, and local agencies and governmental entities and Native American Indian tribes; and 4) analysis of information pertinent to the planning area. Planning criteria may change as the planning process proceeds.

The planning criteria for the Alturas PRMP process developed and refined through scoping are as follows:

- Develop the PRMP in compliance with FLPMA, NEPA, BLM planning regulations, and all other laws, regulations, executive orders, and policies.
- Establish economic and social baselines and consequences in coordination with local governments.
- Initiate government-to-government consultation with federally recognized tribes on federal land management agency obligations under tribal treaties and laws or executive orders relating to Native American reserved rights, religious freedoms, and traditional use areas.
- Designate areas where OHV use is allowed and prohibited and select specific routes in the planning process.
- Develop the PRMP that address WSR eligibility and suitability.
- Store all new data collected and its explanatory metadata in a data base. All metadata will meet the Federal Geographic Data Committee standards.
- Incorporate the Standards for Rangeland Health and Guidelines for Livestock Grazing Management into the PRMP.
- Coordinate resource inventory, planning, and management with other federal agencies, state and local governments, and Native American tribes to the extent consistent with administering the public lands.
- Provide opportunities for public involvement, including early notice and other opportunities for citizens, interested groups, and others (including Native American tribes) to participate and comment on the plan.
- Closely coordinate the planning effort with national and state fire management planning to provide needed program direction.
- Closely coordinate the planning effort with USFWS under the Consultation Agreement between the U.S. Fish and Wildlife Service and Bureau of Land Management for the Northeastern California Resource Management Plans.

The alternatives developed in this PRMP to meet the purpose and need and to address issues described above must meet legal mandates, such as the Clean Water Act and the Endangered Species Act; satisfy many regulatory constraints; support national policy, including BLM Strategic Plan goals; and follow state director guidance (see 43 CFR 1610.0-4[b]). A detailed list of legal and regulatory guidance is provided in Appendix A.

1.8 Collaboration

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

During plan implementation, BLM will continue partnerships with these public and local, state, and tribal governments and agencies to select high priority projects and to resolve emerging issues.

The Council on Environmental Quality defines a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any federal, state, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency. Formal cooperating agencies for this PRMP include Lassen County, Modoc County, Shasta County, USFWS, California Dept. of Fish and Game, Pit River Tribe, and California SHPOs.

The Northeast California Resource Advisory Council contributed issues and reviewed goals, objectives, and management alternatives. Other groups that participated in the planning process include the Modoc-Washoe Experimental Stewardship Group.

1.9 Public Comment Process

The Draft Alturas RMP EIS was published in April 2006. BLM distributed approximately 250 copies of the Draft Alturas RMP. The public had 90 days, until July 27, 2006, to submit comments on this Draft RMP EIS. During this period, BLM held seven public comment meetings, as follows:

Public Comment Meetings	
Date	Location
May 30, 2006	Susanville, CA
May 31, 2006	Alturas, CA
June 1, 2006	Cedarville, CA
June 12, 2006	Reno, NV Redding, CA
June 13, 2006	Fall River Mills, CA
June 12, 2006	Redding, CA
June 15, 2006	Dorris, CA

The public comment period generated 4,997 (nearly identical) form letters, and 33 additional unique comment letters from individuals and groups. The number of comments that BLM analyzed and responded to was approximately 402. These comments and BLM's respond to them are summarized in Appendix R of this document. Based on the comments and feedback received, BLM has prepared this PRMP/EIS, which will be followed by a 30-day public protest period. Following the protest period, BLM will resolve protests and publish a Record of Decision for the Alturas RMP.

1.10 Coordination and Consistency with Other Plans

Planning decisions will strive to be compatible with existing plans and policies of adjacent local, state, tribal, and federal agencies, and will be consistent with federal law and regulations. BLM-administered lands in the planning area are located in four counties; they also share boundaries with tribal lands. BLM manages land near or contiguous with the Modoc, Lassen, Klamath, and Shasta-Trinity National Forests; Modoc and Klamath Basin National Wildlife Refuges; Ahjumawi State Park; and Pine Creek and Fitzhugh Creek State Wildlife Areas.

BLM would consult with the military and jointly analyze any impacts to the military mission including: Military Operating Areas, Military Training Routes, and 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.

Involvement by cooperating agencies led to the development of a full range of alternatives to promote management that also would meet management goals on lands adjacent to BLM lands.

For example, working with local county administrators helped BLM develop alternatives for water resources that are compatible with the county general plans. USFWS and the California Department of Fish and Game worked in cooperation with BLM to assist in developing sound alternatives for various wildlife habitats. Ongoing collaboration and consultation with tribal representatives will ensure that the range of alternatives is responsive to tribal concerns. A list of key plans that have been consulted in the development of the PRMP is as follows:

- Lassen County General Plan
- Comprehensive Land Use and Management Plan for the Federally and State Managed Lands in Modoc County
- Shasta County General Plan
- National Fire Plan
- Modoc, Lassen, Klamath, and Shasta-Trinity National Forest Plans
- Siskiyou County Comprehensive Land and Resource Management Plan
- National Historic Trails Plan

Decisions in the PRMP are also compatible with decisions in land use plans for BLM-administered lands adjoining the planning area. This includes the recently completed PRMP for the Lakeview Field Office in Oregon.

1.11 Changes between Draft RMP EIS and PRMP/FEIS

The Draft Alturas RMP EIS was published in April 2006. The public had 90 days, until July 27, 2006, to submit comments on the DEIS. All comments received were seriously considered, and many were used to assist in making changes or clarifications to the PRMP.

Changes made to the Draft RMP EIS include the following:

- Changes to the Draft EIS Preferred Alternative; see Section 1.12.

- Clarifications, corrections, supplemental analysis, and additional information added to various chapters of the PRMP/FEIS.
- Two new maps were created and are included with this document.

1.12 Changes to the Preferred Alternative

Based on the comments received from the public, cooperating agencies, and from internal discussions, the following summarizes the substantive changes made to the Preferred Alternative, between the Draft RMP EIS and the PRMP/FEIS. These are arranged by topic, and followed by bulleted descriptions of the changes made.

Substantive Changes Made to the Preferred Alternative

Cultural and Paleontological Resources

- Clarification of text in working with local tribes in regards to lava rock collection, Indian Trust responsibilities, fire rehabilitation, livestock grazing, etc.
- Deletion of "cultural resource interpretive presentations including flyers and brochures".

Energy & Minerals

- Language added on how wind energy projects will be designed and developed in accordance with the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States, 2005.*
- Inclusion of Impacts to Renewable Energy Development in Chapter 4.

Fire Management

- Clarification of the relationship between NorCal Fire Management Plan and Alturas RMP decisions.

Fuels Management

- Additional text describing how important wildlife habitats will be protected during fuels management projects.

Rights-of-Way/Utilities

- Designation of the potential California-Nevada (east-west) utility corridor as a ROW corridor.
- Expand maximum width of utility corridors to 500 feet.

Livestock Grazing

- Language added in Chapter 2.8 to assure consistency between livestock grazing and vegetation and wildlife management actions.
- Addition to Appendix I: Range Improvements in the AFO.
- Addition of Appendix N: Alturas Drought Management Policy.

Special Area Designations

Areas of Critical Environmental Concern

- Additional text added to Ch 2.11 on management actions within individual proposed ACECs.
- Additional text describing livestock grazing strategies proposed in ACECs.
- Addition of Appendix P: *Tablelands Integrated Resource Management Plan* to clarify management actions proposed for the Likely Tablelands area outside of the proposed ACEC.

Wild and Scenic Rivers

- Addition to Appendix J: Wild and Scenic River Inventory (Streams Evaluated for Eligibility), and WSR Suitability Determinations.

Travel Management

- Change of boating restrictions: Nelson Corral Reservoir and Delta Lake: electric trolling or non-motorized; Moon Lake: 2- and 4-cycle outboard. Bayley Reservoir: small 4 cycle outboard (implemented in 2012).
- Removal of snowmobile restrictions within 8,000 acres of Nelson Corral routes, December 1-March 15th.
- Clarification of text on authorized uses that are exempt from OHV travel restrictions.

Vegetation

- Clarify amount of new roads constructed for western juniper removal and/or forestry treatments to 10 miles of permanent roads and 50 miles of temporary roads.

Wild Horses and Burros

- Change of decision to retain the Red Rock Wild Horse Herd Management Area as it currently exists.
- Changes to glossary terms and definitions.

Wildlife and Fisheries

Sagebrush Ecosystems and Sagebrush Obligate Species

- Revision of Chapter 4.24 Wildlife and Fisheries, including additional impact analysis on sage-grouse habitat.
- Additional text describing how important sage-grouse habitats will be protected during fuels management projects.

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CHAPTER 2:
MANAGEMENT ACTIONS

Chapter 2. Management Actions for the Proposed RMP

Introduction

This chapter describes proposed management actions under the Preferred Alternative for land and resources managed by the Bureau of Land Management (BLM) Alturas Field Office (AFO). The Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) has been developed from the Preferred Alternative analyzed in the Draft Resource Management Plan (RMP) EIS and in some cases, revised according to public comments received on the Draft RMP. The PRMP has been developed from a reasonable range of alternatives to managing land and activities consistent with law, regulation, and policy. Development of the PRMP/FEIS was guided by the National Environmental Policy Act (NEPA), the Federal Land Policy and Management Act (FLPMA), regulations, policy, and input from the public through public and agency scoping.

The PRMP/FEIS includes specific actions and action plans to be followed so as to make necessary changes in resource management within the planning area. However, not all issues can be resolved in an RMP; some will require that subsequent actions be taken to determine exactly how to reach desired conditions or to achieve a desired result.

Alternatives Considered

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

The Alturas Draft RMP considered five alternatives. The alternatives are not re-printed here, as they have not changed. They are, however, summarized in the Alternatives Summary Table at the end of this chapter. The basic goal of developing alternatives was to explore the range of use options, protection options, and management tools that would achieve a balance between protection of the planning area's natural character, and a variety of resource uses and management issues. Alternatives were evaluated in the Draft RMP/EIS for potential impacts to resources that might occur as a result of implementing management decisions.

The five management alternatives that were developed for the Draft Alturas RMP include:

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

Alternative 1. Resource / Economic Development: Emphasizes commodity production from BLM resources in accordance with local economies and land use plans from local communities and counties.

Alternative 2. Ecosystem Restoration or Protection: Maximizes efforts to maintain, restore, or improve components of the ecosystem using natural ecosystem processes.

Alternative 3. Traditional or Historical Uses: Emphasizes traditional community uses of resources and/or emphasizes historical uses.

Preferred Alternative. The Preferred Alternative was "crafted" from all of the other alternatives and combines management actions from all four of the above listed-alternatives. This alternative has been designed to best meet the purpose and need of the plan as described in Chapter 1 and best meet desired future conditions, goals, and objectives of individual and combined resources and resource uses.

Chapter 2 provides a detailed description of proposed management actions for the Preferred Alternative for 24 resource subjects. The desired future conditions, goals, objectives, and management actions for each major resource area are discussed in detail. The *Alternatives Summary Table*, at the end of this chapter, contains a summary of the five alternatives by resource subject, with emphasis on the key features described below and those aspects that differentiate the alternatives from one another.

Summary of Environmental Consequences

The Impacts Summary Table, at the end of this chapter, contains a comparative summary of the key environmental consequences for each of the five alternatives. A detailed description of environmental impacts resulting from implementation of the Preferred Alternative can be found in Chapter 4, Environmental Consequences.

Environmentally Preferred Alternative

The Environmentally Preferred Alternative is defined as "the alternative that would promote the national environmental policy as expressed in §101 of the National Environmental Policy Act." Section 101 states, "…it is the continuing responsibility of the federal government to…

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that would permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

Compared to the other alternatives analyzed, Alternative 2 and the Preferred Alternative best meet the national environmental goals identified above. Alternative 2 provides the highest level of protection of natural and cultural resources; however, it does not allow for a wide range of beneficial uses of the environment.

The Preferred Alternative would enhance the ability of BLM to achieve the purpose and need of this document, as outlined in Chapter 1, as well as meet desired future conditions, goals and objectives of specific resources as outlined in Chapter 2. Alternatives No Action, 1, and 3 do not contain the degree of management emphasis required to protect benchmark native vegetative communities and restore degraded sagebrush steppe habitat found in the Preferred Alternative. Portions of the field office area that are currently in a degraded condition can only be improved with the scope of active restoration efforts provided for in the Preferred Alternative.

The Preferred Alternative would result in overall minor to moderate adverse impacts to resources, and these impacts would continue to be mitigated. Proposed management actions would result in moderate to major beneficial impacts to native vegetation communities from restoration efforts, and the use of fire and mechanical treatment to remove invasive juniper. Improvements to riparian areas, water bodies, and other special habitats would improve soil and water resources, and wildlife habitat. The designation of six areas of critical environmental concern (ACECs), three wild and scenic rivers (WSRs), and an increased emphasis on cultural resource protection and management would have beneficial impacts to these important and unique resources.

Adaptive Management

In developing the Alturas PRMP/FEIS, BLM used the best science currently available, collaborated with other government agencies, and involved the public extensively. However, BLM's knowledge of resource conditions continues to evolve as local environmental conditions change, as new management techniques are developed and used, and as advances in science and technology are made available. Therefore, it is inevitable that in the future, some of the management direction in this PRMP/FEIS will be found to be erroneous, or inadequate, and need to be revised. To address this, implementation of the Alturas PRMP/FEIS will use an adaptive management approach to modify management actions and to incorporate new knowledge into our resource management decisions.

The complex interrelationships between physical, biological, and social components of an ecosystem and how they will react to land management practices are often not fully understood when a land use plan is developed. To be successful, plans must have the flexibility to adapt and respond to new knowledge or conditions. Adaptive management involves planning, implementation, monitoring, evaluating and incorporating new knowledge into management approaches. It is a procedure in which decisions are made as part of an on-going process. This process builds on current knowledge, observation, monitoring data and information, and learning from experiences, which are then used to modify management decisions and/or policies.

BLM would utilize the adaptive management process for making modifications to management decisions in the PRMP/FEIS, in the following situations: 1) a management action is no longer appropriate for the resource conditions that were assumed during planning, 2) an event substantially changes the character of the landscape, 3) new information attained through monitoring indicates that planned objectives are not being met, or 4) advances in research and technology indicate a need for a change. Changes to management direction would be made consistent with requirements of FLPMA, NEPA, and other BLM policies and regulations.

2.1 Air Quality

The Clean Air Act requires federal agencies to comply with federal, state, and local air pollution standards. The Act also requires states to develop a plan and implement measures to ensure that national air quality standards are achieved and maintained for criteria pollutants.

National standards have been established for six pollutants described in the Clean Air Act. Of the six, only particulate matter is substantially affected by natural resource management activities. Particulate matter is produced by fire or windblown dust (mainly from uncovered agricultural land and dirt roads). However, particulate matter on BLM-administered land is principally produced by fire, and most of this is less than 10 micrometers in diameter (PM_{10}). This fine particulate matter is the size regulated by the Act, because it is detrimental to human health. However, wildfires and smoke are a natural component of forest and rangeland ecosystems, so PM_{10} does not appreciably affect these systems.

Land managers (and the public) must make well-considered choices regarding particulate emissions from prescribed fires and wildland fire use (WFU) versus emissions from wildfires. Land managers have little control over where, when, or how much smoke is produced by wildfires. However, particulate emissions (smoke) can be managed with prescribed fire.

2.1.1 Desired Future Condition

Continue to meet or exceed the national air quality standards for PM_{10} and the five other criteria pollutants regulated by the Clean Air Act.

2.1.2 Goal

Achieve and maintain federal, state, and local air pollution standards with respect to PM10 throughout the management area.

2.1.3 Objectives

Follow the direction and requirements of the Modoc, Lassen, Shasta and Siskiyou air pollution control districts when using wildland fire, and when conducting fuel reduction projects and other prescribed burns.

2.1.4 Legislative, Regulatory, and Policy Direction

- The Clean Air Act of 1963 as amended (42 United States Code [U.S.C.] 7401 et seq)
- California Code of Regulations. Title 17, Section 80101 and California Code of Regulations Title 14, 1561, 1.
- Any other applicable federal legislation
- Any applicable state legislation
- Regulations, Memoranda of Understanding (MOUs), etc. for applicable counties

2.1.5 Proposed Management Actions

WFU and prescribed fire would be implemented on anywhere from 75 to 10,000 acres/year to achieve maximum resource benefits and quickly reduce dangerous fuels. However, burn totals would be less than 10,000 acres during an average year. A large yearly maximum provides flexibility to achieve resource objectives on a *landscape* scale in exceptional years when high levels of treatments are possible.

Wildland fire use and prescribed fires would be coordinated with the state air quality control board and local air quality control districts. If PM_{10} limits are exceeded, alternative fuel reduction treatments would be considered.

An approved prescribed fire burn plan would be in place prior to the ignition of any prescribed fire, and adhered to throughout the project. In order to select appropriate weather conditions, firing methods, and mop-up standards, a prescribed fire plan must include resource objectives, size of treatment area, topography, and location of population centers, as well as fuel types, loading, moisture content, and (fuel) continuity. A plan must also include techniques and procedures for controlling particulate matter (smoke).

Ensure that prescribed fires comply with stipulations of the Clean Air Act and other federal, state, and local air pollution standards. Use timing and atmospheric dispersal to control particulate emissions. Record and review data on fire prescriptions and mitigation measures; and the location, size, and date of burns.

2.2 Cultural and Paleontological Resources

Cultural sites, artifacts, and traditional gathering areas (prehistoric and historic) of indigenous people are treasured and preserved throughout the world. They connect us with those who came before, making them real in our mind's eye. They help us understand and identify with people of different cultures and times and provide insights into history and our shared humanity. The AFO management area contains a large number of prehistoric and historic Native American archaeological resources including village sites and gathering areas. There are also numerous historical sites and trails associated with European exploration and settlement. Paleontological sites are not common, but there are a few. Protection of cultural and paleontological resources is required by federal laws, regulations, and executive orders, as well as by California law and BLM policy. The cultural and paleontological resource section is comprised of the following program areas, each with an individual goal:

- Preservation and protection
- Survey and inventory
- Education and interpretation
- Native American consultation

2.2.1 Desired Future Condition

National Register of Historic Places (NRHP) "use categories" would be assigned to all (qualified) cultural sites. Eligible and qualified sites would be adequately protected from vandalism and illegal collecting. Physical deterioration would be arrested. Site stewardship, public education, and active involvement of Native Americans and the public at large would enhance understanding, appreciation, and protection of cultural and paleontological resources. An ongoing policy of tribal consultation would help identify and protect undocumented or unknown archaeological sites and cultural properties, and would facilitate protection of eligible and qualified sites. Paleontological sites would also be identified and protected.

2.2.2 Legislative, Regulatory, and Policy Direction

- The National Environmental Policy Act (1969)
- The Federal Land Policy Management Act, Sec. 103c, 201 a, and 202 c (1976)
- The National Historic Preservation Act (NHPA), Sec. 110, 106 (1966)
- The Archaeological Resources Preservation Act, Sec. 14a (1979), as amended (1988)
- The Historic Sites Act (1935)
- American Antiquities Act (1906)
- The Historic and Archaeological Data Preservation Act (1974)
- The Native American Graves Protection and Repatriation Act (1990)
- Executive Order No. 13,007 (Indian Sacred Sites) (May, 1996)
- BLM–California State Historic Preservation Office (SHPO) Protocol Agreement (1998)
- BLM Information Bulletin No. 2002-101 (May, 2002)
- The American Indian Religious Freedom Act (1978), as amended

- The Paleontological Resources Protection Act (2005)
- Reservoir Salvage Act (1960)
- Executive Order no. 11,593 – "Protection and Enhancement of the Cultural Environment" (1971)
- National Trails System Act (1968), as amended (1992)
- Executive Order no. 13,175 – "Consultation and Coordination with Indian Tribal Governments" (2000)
- BLM Manual 8100 (Cultural Resource Management)
- BLM Manual 8270 (Paleontological Resource Management)
- Federal-Aid Highway Act (1956); Section 120, authorizing use of Federal-Aid Highway funds for archaeological and paleontological salvage
- 512 Department Manual 2.1, Departmental Responsibilities for Indian Trust Resources

2.2.3 Goal 1–Preservation and Protection

Cultural and paleontological resources would be adequately protected and physically preserved for appropriate uses by present and future generations.

2.2.3.1 Objectives

- Cultural resources will be managed in accordance with current (federal and state) laws, regulations, executive orders, and BLM policy; and in consultation with the California SHPO and designated representatives of Native American tribes.
- Paleontological resources would be managed for their scientific, educational, and recreational value and to ensure that significant deposits are not deliberately or inadvertently damaged, destroyed, or removed from public lands.

2.2.3.2 Proposed Management Actions

- Management actions and permitted activities on public lands, and private land projects that are federally funded or assisted, must comply with sections 106 and 110 of the NHPA.
- Native American tribes would be consulted on matters related to traditional cultural properties (e.g., religious or village sites and graveyards) or traditional economies (i.e., historical economic activities that employ traditional technology for subsistence-level resource utilization).
- BLM law enforcement officers would regularly patrol listed, eligible, and potential NRHP sites and other areas of significant cultural or paleontological interest to discourage illegal collecting and vandalism. Site condition would be monitored and enforcement effectiveness assessed. Law enforcement efforts would be altered as necessary.
- BLM would develop a cultural resources monitoring protocol in consultation with the tribes.
- The BLM–SHPO Protocol Agreement would be sustained and the state historic preservation officer would be consulted for appropriate issues.
- All livestock grazing allotments would be evaluated for significant cultural resources according to an existing schedule with the California SHPO. Additional, more intensive cultural resource surveys will focus on Category 1 grazing allotments.

- Yankee Jim Ranch would be nominated for the NRHP.
- A geographic information system (GIS) database would be used to record and manage cultural resource information.
- Known and newly identified archaeological sites would be evaluated and placed in one of six use categories (as specified in Department of Interior Information Bulletin [DOI IB] No. 2002-101). Categories and management actions are as follows:

Table 2.2-1 Use Categories for Cultural Resources

Category	Allowable Uses	Management Actions	Desired Future Condition
a. Scientific use	Research	Permit appropriate research & data recovery	Preserve until research potential is realized
b. Conserve for future use	Research or public interpretation	Propose protective measures/designations	Preserve until use conditions are met
c. Traditional use	Native American activities	Consult with tribes & determine use limitations	Long-term preservation
d. Public use	Recreation, public interpretation & education, etc.	Determine limitations and allowed uses	Long-term preservation and on-site interpretation
e. Experimental use	Research, followed by interpretation	Determine nature of experiment	Protect until used
f. Discharged from management	All uses allowed	Remove protective measures	No use after recordation; not preserved

Source: U.S. DOI IB No. 2002-101, "Cultural Resource Considerations in Resource Management Plans"

Three interpretive sites would be developed, as specified in Table 2.2-2.

Table 2.2-2 Proposed Cultural Resource Interpretive Sites

Location	Size (acres)	Cultural Resources
Descent to Goose Lake	5	Historic trail, Prehistoric site
Bayley Reservoir	2	Historic battle, Prehistoric site
Coyote Ridge	½	Historic battle

Cultural sites at or near interpretive areas would be evaluated for NRHP eligibility and nominated, if appropriate. Interpretive sites would be developed in consultation with tribes. Survey efforts would focus on locating areas of ethnographic importance, since these would have greatest value as interpretive sites. The (cultural resource) sensitivity model would be used to prioritize inventory efforts according to disturbance vulnerability. Areas that are potential traditional cultural properties would be protected until properly assessed. Yankee Jim Ranch (1,400 acres) would receive ACEC designation. See Section 2.11 for a detailed description of ACECs.

Exclosure fences (2,750 total acres) would be used (in consultation with permittees and tribes) to protect important cultural sites from damage by off-highway vehicles (OHVs) and livestock (see Table 2.2-3).

Table 2.2-3 Cultural Site Exclosures

Location	Size (acres)	Sensitive Resources
Red Rock Lakes	250	Cultural, Wildlife
Juniper Creek	200	Cultural, Wildlife
Crooks Canyon	700	Cultural, Water quality, Wildlife
Bilicke Spring	300	Cultural, Riparian, Wildlife
Rocky Prairie	200	Cultural, Riparian, Wildlife, Scenery
Tablelands	200	Cultural, Riparian, Water quality, Wildlife, Scenery
Tule Mountain	300	Cultural, Plants, Riparian, Wildlife, Scenery
Dill Field	400	Cultural, Sensitive Species, Water quality
Yankee Jim Ranch	200	Cultural, Wildlife, Scenery

Additional exclosures would be built where (cultural) resource issues are identified. Affected tribes will be notified.

The flag-and-avoid method would be used to protect cultural sites from land-use activities until evaluated for NRHP eligibility. However, protection would not apply to sites described as "sparse or light lithic scatters." On these sites, research efforts may be instigated to determine the degree of site disturbance caused by mechanized juniper harvesting. Should research indicate unacceptably adverse effects, these sites would be subject to avoidance until such time as they are evaluated for NRHP eligibility.

Ground-disturbing activities (e.g., wildlife habitat improvements, urban development projects, right-of-way construction, mineral development, recreation facilities and livestock grazing) would be assessed for archaeological impacts. Activities most likely to directly or indirectly affect archaeological sites would be reduced, restricted, eliminated, or otherwise mitigated, where feasible, in consultation with affected tribes. OHVs would be restricted to existing or designated routes throughout the planning area.

Educational programs would serve and encourage public interest in cultural and paleontological resources. Efforts would include presentations and brochures. Other educational experiences would also be encouraged, particularly field trips to interpretive sites by school, community, and tour groups.

Cultural resource management plans (CRMPs) would be developed for: Rocky Prairie/South Graves, Tule Mountain, Likely Tablelands/Yankee Jim Ranch, and Beaver Creek. CRMPs would also be developed for the three interpretive sites proposed under this alternative. The (existing) Mount Dome CRMP would remain unchanged, but the Juniper Creek CRMP would be updated.

Known paleontological sites would be surveyed to establish the extent and importance of deposits. New sites would be sought and surveyed. Significant finds would be protected from ground-disturbing activities, and considered for interpretive site development.

2.2.4 Goal 2–Survey and Inventory

Imminent threats to cultural and paleontological resources from human-caused or natural deterioration would be substantially reduced or eliminated. Potential conflicts with other land-use activities would be reduced by identifying priority areas for cultural and paleontological resource inventory.

2.2.4.1 Objectives

Increase total of surveyed lands within the field office jurisdiction. Identify priority areas for future survey by designating high, medium and low sensitivity areas.

2.2.4.2 Proposed Management Actions

- Inventory, survey, classification, and preservation of cultural and paleontological resources on public lands, and on private land projects that are federally funded or assisted, will comply with procedures enumerated in Sections 106 and 110 of the NHPA—including consultation with the state historic preservation officer (when appropriate).
- Determine sensitivity ratings (high, medium, or low) for all planning area lands using the model developed in the Class I Cultural Resource Overview.
- Consult with tribal representatives regarding management of areas that are culturally significant for Native Americans. Such areas would be thoroughly inventoried.
- The effects of mechanical and hand treatment of juniper on "sparse/light" lithic scatters would be evaluated, and this information used to determine appropriate protection levels.

Cultural resource inventories would be structured on the recently-developed sensitivity model. Surveys would initially be conducted under NHPA Section 106 guidelines. However, Section 110 guidelines would be used to prioritize high sensitivity areas for thorough evaluation before resource management activities are initiated.

Ground observations may require transect spacing adjustments (a procedure left to the discretion of the archaeologist-in-charge). This procedure would greatly reduce survey times in areas of low to moderate sensitivity, thereby making additional time and resources available for project implementation. All discoveries would be flagged for avoidance—except for sites involved in the juniper harvesting study. (However, juniper harvest must not cause subsurface disturbance that would affect the site's potential for NRHP eligibility.) Motor vehicles would be restricted to existing roads and designated trails.

2.2.5 Goal 3–Education and Interpretation

Increase the public's knowledge of, appreciation for and sensitivity to cultural resources, Native American Issues, and paleontological resources.

2.2.5.1 Objectives

Increase the public's knowledge of, appreciation for and sensitivity to cultural resources, Native American issues, and paleontological resources.

- Scientific research would be encouraged and accommodated.
- Qualified applicants would be enrolled in a 'site stewardship' program designed to monitor site condition and promote public interest and appreciation for cultural and paleontological resources.

2.2.5.2 Proposed Management Actions

- Ensure that management actions on public lands, and on private land projects that are federally funded or assisted, comply with Sections 106 and 110 of the NHPA.

- Consult with Native American tribes regarding cultural resource issues of relevance to them. Interpretive sites, in particular, would be developed in partnership with tribal representatives and qualified (Native American) individuals.
- Actively recruit and enroll qualified native and non-native (cultural) 'site stewards' under the California Site Stewardship Program. Employ local advertising (including the AFO website) and program presentations in this effort.

Research would be actively encouraged through new and existing cooperative agreements. Monies to support research would be sought (on a yearly basis) through the challenge cost share initiative.

Interpretive sites would be built only where they would deflect, or at least not contribute to, activities that would degrade the site. Brochures and other publications would be developed, and would be site-specific or general in nature to assist cultural staff in their public education efforts. However, site-specific literature would be developed for Yankee Jim Ranch, Descent into Goose Lake, and the Infernal Caverns.

A structured, formal program would be developed to educate schoolchildren, local citizens and visitors, thereby encouraging interest and appreciation for cultural and paleontological resources, and aiding in their preservation. Additional inventories would search new locales and evaluate their potential for possible paleontological interpretive sites.

2.2.6 Goal 4–Native American Consultation

Native American tribes would be consulted on matters related to traditional cultural properties (TCPs) and traditional economic activities. These properties and activities would be available to native peoples for recognized traditional uses.

2.2.6.1 Objectives

- Ensure that Native American tribes are consulted on matters related to TCPs (e.g., religious or village sites and graveyards) or traditional economies (i.e., historical economic activities that employ traditional technology for subsistence-level resource utilization).
- Ensure that TCPs are available for traditional uses by Native Americans. Where properties had economic significance, ensure their continued availability for economic activities practiced in a traditional manner.

2.2.6.2 Proposed Management Actions

- Consult with Native American tribes on matters related to traditional cultural properties and traditional economic activities. Ensure that consultations are adequately documented.
- Identify, verify, and document qualifying traditional cultural properties in consultation with Native American representatives.
- Make qualifying TCPs available for traditional uses by Native Americans. Where TCPs had economic significance, ensure continued availability for economic activities practiced in a traditional manner.
- Although traditional cultural properties would be managed for Native American use, TCPs are public land and would remain under BLM management.

An active consultation program would be initiated to identify traditional cultural properties and ethnographic sites. However, ethnographic inquiries would emphasize old village sites. Sites would be confirmed by survey; qualifying TCPs would be protected and (ecologically) restored if deteriorated. Resource uses that threaten these sites would be modified, reduced, or eliminated as necessary to protect the site.

2.3 Energy and Minerals

BLM plays an essential role in supplying mineral and energy resources. However, adverse effects from mineral and energy exploration and development must be minimized (or mitigated) so that overall land health is preserved or restored. For the sake of clarity and administrative efficiency, energy and mineral resources are divided into four program areas: leasable minerals (e.g., oil, natural gas, and geothermal energy), locatable minerals (i.e., 'hard-rock' minerals, such as gold and silver), saleable minerals, (e.g., sand, gravel, cinders, and decorative rock), and renewable energy (e.g., biomass fuels, solar energy, and wind).

The potential for discovering commercially viable oil, natural gas, or geothermal energy reserves is low to non-existent throughout the planning area. Locatable mineral activity has largely been confined to sporadic exploration. Most activity is concerned with saleable minerals, particularly cinder operations and flat-rock collecting.

2.3.1 Desired Future Condition

An active mineral exploration, leasing, and development program would provide essential mineral resources and domestic energy supplies. Exploration and development activities will not be allowed to degrade ecosystem health.

2.3.2 Legislative, Regulatory and Policy Direction

- The Mineral Leasing Act (1920), as amended
- The Geothermal Steam Act (1970), as amended
- The Mining and Mineral Policy Act (1970)
- The Federal Land Policy and Management Act (1976), Section 102
- Executive Order 13212 – Actions to Expedite Energy-Related Products (2001)
- The President's National Energy Policy of 2001
- BLM Mineral Policy (1984)
- The General Mining Law (1872)
- The Material Act (1947)
- Surface Mining And Reclamation Act of 1975
- BLM Wind Energy Policy (IM2003-020)

2.3.3 Proposed Management Actions Common to All Mineral Activities

- Until Congress makes a determination on wilderness status, wilderness study areas (WSAs) are 'Closed' to leasable, salable, and renewable energy development.
- Mineral activities in WSAs will be closely monitored to ensure strict adherence to the terms and conditions of the Wilderness Interim Management Policy (IMP).

- Acquired lands would be managed according to the purpose of acquisition or in the same manner as adjacent lands. For instance, acreage acquired for mining mitigation would be recommended for mineral withdrawal.
- Mineral and energy activities would be monitored to ensure compliance with all stipulations, terms, conditions, and reclamation plans.
- Mines would be rehabilitated and remedial action would be taken where abandoned mine hazards are identified.

2.3.4 Leasable Minerals

The following definitions apply to standards and restrictions for leasable mineral development:

***Standard lease terms*:** These are the usual conditions and requirements applied to mineral leases (Sections 6 of Form 3110-11, "Offer to Lease and Lease for Oil and Gas," and Form 3200-4, "Offer to Lease and Lease for Geothermal Resources"). They are the only constraints when other resources or resource uses do not require additional protection.

***Surface Use and Occupancy Requirements*:** These identify minimum standards and buffer distances for activities involving mechanical surface disturbance. Surface use and occupancy requirements (Appendix K) are designed to protect important natural resources (e.g., sage-grouse leks and nesting habitat) or man-made features (e.g., recreation sites).

***No Surface Occupancy (NSO)*:** This constraint prohibits surface-disturbing activities in order to preserve the natural character of the landscape. It is applied where resource values (e.g., sensitive plants or areas of high scenic value) would not be adequately protected by standard stipulations or special stipulations (such as timing limitations).

***'Closed' to leasing*:** This involves non-discretionary and discretionary leasable mineral closures. Non-discretionary closures (such as WSAs) are 'Closed' to leasing by legal constraints. Discretionary closures are imposed during the planning process. These closures are applied where natural resource values would be irreparably damaged and their preservation is more important than the expected economic return from mineral leasing.

***Special stipulations*:** These are conditions or requirements, applied when a lease is issued, that impose additional restrictions to the standard leasing terms. However, waiver of additional stipulations may be allowed if existing or emerging technologies can be used to satisfy RMP objectives for the protected resource.

***Other special stipulations*:** There are other special stipulations that do not fit any of the previous categories. However, like the other categories, these are applied when a resource requires protection beyond that provided by standard leasing terms. Other special stipulations are applied when the resource requiring protection must be preserved on a regional basis (e.g., special status plants or animals that are present throughout the management area, some in unknown locations) or when information about the resource is incomplete; thereby necessitating blanket stipulations for all leases.

2.3.4.1 Goal

Leasing opportunities for oil, natural gas, and geothermal development would be provided in locations appropriate for these activities.

2.3.4.2 Objectives

Provide exploration and development opportunities for leasable minerals while protecting other resources and maintaining ecosystem integrity.

2.3.4.3 Proposed Management Actions for Leasable Minerals

A total of 445,997 acres would be 'Open' to exploration and development of leasable minerals under standard BLM terms and conditions. Approximately 57,048 acres would be 'Closed' to exploration and development of leasable minerals. This includes WSAs (56,648 acres), the Baker Cypress research natural area (RNA), and the proposed Lower Pit River WSR (400 acres).

Surface use and occupancy requirements (see Appendix K) would apply to new leases (affecting about 200,000 acres).

NSO requirements would apply to the Ash Valley ACEC (1,322 acres) and to the proposed ACECs (see Table 2.3-1). NSO requirements would also apply to important wildlife habitats or other areas of exceptional natural resource value (approximately 9,290 acres). The total area managed under NSO requirements would be 18,580 acres.

Table 2.3-1 Proposed Areas 'Open' to Mineral Leasing with No Surface Occupancy Requirements

ACEC	Size (acres)
Emigrant Trails ACEC (portion outside of WSA)	750
Mountain Peaks ACEC (portion outside WSA)	2,515
Old Growth Juniper ACEC	3,115
Mount Dome ACEC	1,510
Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC	1,400
Additional NSO area	9,290
Total	18,580

2.3.5 Locatable Minerals

2.3.5.1 Goal

Opportunities to explore and develop locatable mineral resources would be provided in a manner appropriate for the location.

2.3.5.2 Objectives

Opportunities to explore and develop locatable mineral resources would be provided. However, these activities must be conducted in a manner that will protect other resources and resource uses. Therefore, mineral withdrawals would be applied where necessary. Locatable mineral withdrawals would be revoked where and if no longer required.

2.3.5.3 Proposed Management Actions for Locatable Minerals

WSAs are generally 'Open' to exploration for locatable minerals. Where permitted, however, exploration activities must satisfy the non-impairment criteria. This means that (exploration and development)

activities must not require reclamation unless the operation is 'grandfathered' (i.e., had established rights on or before October 21, 1976).

The Ash Valley ACEC would remain withdrawn from mineral entry. All proposed ACECs (i.e., Timbered Crater, Emigrant Trails, Mountain Peaks, Old-Growth Juniper, Mount Dome, and Likely Tablelands/Yankee Jim/Fitzhugh Creek) – a total of 29,171 acres – would also be recommended for withdrawal from mineral entry (Map ACEC-1). Mineral withdrawal would likewise be recommended for (proposed) WSRs (2,500 total acres). The total for newly recommended withdrawals is 32,993 acres, or less than 7% of the management area.

The rest of the management area (470,052 acres) would be 'Open' to exploration and development of locatable minerals, with stipulations to protect other resources.

2.3.6 Saleable Minerals

2.3.6.1 Goal

Saleable mineral materials (e.g., sand, gravel, and cinders) would be provided to meet the needs of local, state, and federal agencies, and the general public. Public demand for decorative rock would also be accommodated.

Mineral material pits would be developed, used, maintained, and 'Closed' in a manner that minimizes adverse impacts on other resources. Decorative rock would be collected in an environmentally responsible and visually acceptable manner.

2.3.6.2 Proposed Management Actions for Saleable Minerals

A total of 435,385 acres (86% of the management area) would be 'Open' to development of mineral material pits; 67,660 acres would be closed. Existing pits would continue to operate under BLM-approved reclamation plans. WSAs, existing and proposed ACECs and RNAs (Map ACEC-1), and the Lower Pit River WSR corridor would be 'Closed' to mineral material disposal. Pit development would be contingent on a favorable environmental assessment (lack of significant environmental conflicts at the proposed site).

Commercial decorative rock collecting would be permitted in the same areas. WSAs, existing and proposed ACECs and RNAs, and the Lower Pit River WSR corridor would be 'Closed' to decorative rock collecting.

Applicants for decorative rock permits must state the amount of rock they intend to collect and delineate boundaries for their proposed collection area. BLM reviews these requests and makes any necessary adjustments to quantities and/or boundaries. Once provisional approval is obtained, applicants must complete botanical and archaeological evaluations and an environmental assessment. If these are satisfactory, a collection permit may be issued. Collecting is limited to the drier months (generally May - September) and trucks must be certifiably free from noxious weeds prior to entering public lands. Other, site-specific stipulations also apply. Old (previously worked) collecting areas (6,612 acres) would remain 'Open', but solely for personal use. Personal use for anyone may not exceed three tons per person per calendar year. Permits are free for Native Americans, but only when gathered from locations designated or approved by BLM. Decorative rock collected under free use permits must be used for sweat lodges or other ceremonial purposes.

2.3.7 Renewable Energy

The National Energy Policy calls for increased use of renewable energy sources from federal lands. Using western juniper as a biomass fuel would be well suited to the AFO management area. This section presents proposed management actions for this and other renewable sources (e.g., wind and solar power).

2.3.7.1 Goal

Opportunities would be provided to develop renewable energy sources—particularly solar, wind, and biomass fuel from western juniper.

2.3.7.2 Objectives

Facilitate renewable energy development and operations in a way that will minimize adverse effects on other resources and resource users.

2.3.7.3 Proposed Management Actions for Renewable Energy

This section is primarily concerned with opportunities for solar, wind, hydroelectric and biomass facilities. A total of 435,385 acres (86% of the management area) would be 'Open' to renewable energy development; 67,660 acres would be closed. WSAs, proposed ACECs and RNAs, and the Lower Pit River WSR corridor would be 'Closed' to renewable energy development.

Wind energy projects will be designed and developed in accordance with the Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States, 2005 (see Map EN-1). Public land that is designated as an exclusion area (i.e., WSAs, ACECs, RNAs, and WSRs) will not be available for wind energy development. Implementation of any proposed management actions would ensure that potential adverse impacts to the natural and cultural resources present at wind energy development sites would be minimal to negligible. See Appendix O for a list of Wind Energy Best Management Practices.

Adverse impacts to wildlife and their habitats will be reduced by following the U.S. Fish and Wildlife Service's (USFWS's) *Interim Guidelines To Avoid And Minimize Wildlife Impacts From Wind Turbines*, 2003.

Potential wind energy projects will be discussed through consultation with Native American tribes to avoid impacts to cultural resources and traditional cultural properties.

Prior to authorizing any wind energy projects, a site-specific environmental analysis would be conducted to determine project feasibility and address and mitigate impacts. This analysis will include public involvement, and an assessment of cumulative impacts associated with a reasonably foreseeable development scenario for wind energy within the region.

A number of areas potentially suitable for wind energy development are identified in this PRMP as Visual Resource Management (VRM) Class 2 (see Chapter 2.21). BLM recognizes that wind energy development areas would more appropriately be placed in VRM Classes 3 and 4, which allow for more substantial visual contrasts (see Chapter 2.21). The analysis to reconsider VRM classes for wind energy locations is being deferred until specific projects are proposed and a reasonably foreseeable development scenario is completed. This analysis will assess both site-specific and cumulative visual impacts, and will include visual simulations to illustrate these impacts from key observation points, such as communities and trail corridors. Upon completion of this analysis, the VRM classes could be amended, if necessary, to provide an exception for wind energy development in appropriate locations.

Additional transmission corridors may be designated as future needs dictate, subject to on-site environmental reviews and clearances. *The West-Wide Energy Corridor Programmatic EIS, 2005* (PEIS) specifies that coordinating agencies (BLM) will designate 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* depicts an east-west transmission corridor between northern California and northern Nevada, which will potentially be routed through the AFO 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 environmental reviews necessary to identify proposed routes within the requisite time frames outlined in the PEIS.

2.4 Fire Management

Preservation of human life (public and firefighter) is the overriding consideration in any wildland fire situation. After this, management priorities must achieve a balance between protecting natural resources and community infrastructure. Decisions are based on health and safety considerations, the relative value of resources and structures requiring protection, and the cost of that protection.

Federal fire policy defines wildland fire as: "Any non-structural fire that occurs in the wildland." Three distinct categories of wildland fire are discussed herein:

- **Wildfires**—Naturally ignited or caused by man, these are suppressed using the appropriate management response (AMR).
- **Wildland Fire Use**—Naturally ignited fires that are allowed to burn in order to realize resource benefits.
- **Prescribed Fires**—Planned, deliberately-ignited fires set by resource managers in order to accomplish resource management objectives.

NorCal Fire Management Plan: The NorCal Fire Management Plan (FMP) is a strategic document for wildland fire management and hazardous fuels treatments within the AFOR planning area. FMPs define a strategy to manage wildland and prescribed fires based on the area's approved land management plan. The current NorCal FMP displays qualitative and quantitative objects that are in conformance with the existing Management Framework Plans and Resource Management Plan for the AFO. The current NorCal FMP would be updated upon signature and approval of the Proposed Alturas RMP to reflect management actions within the PRMP.

The NorCal FMP will be reviewed annually and revised as needed to ensure that the strategic guidance provided in the plan is in accordance with resource management and fire/fuels management goals, objectives, and actions outlined in the Alturas RMP. The management direction outlined in any future version of the FMP would be tiered to the NEPA analysis that was completed for this land use plan. Revisions, additions, and adjustments to the FMP that are in conformance with the RMP may be made in the future. Additional NEPA analysis would be conducted on any revision, addition or adjustment that is not adequately analyzed in other planning/NEPA documents.

2.4.1 Appropriate Management Response

AMR is any specific and suitable action taken to meet human safety needs and achieve resource objectives. AMR may encompass the entire spectrum of tactical options from basic monitoring to aggressive and extensive suppression. The AMR for a particular area uses objectives and strategies identified in the current NorCal FMP. Response to wildland fire is based on risk evaluation (public and firefighter), fire circumstances (particularly weather and fuel conditions), natural and cultural resource management objectives, protection priorities, and resource values. Priorities are set according to a holistic evaluation of fire context, local geography, and the national wildland fire situation.

Appropriate management response typically fits one of the following management scenarios:

- Prompt and aggressive suppression to quickly control the fire and keep burned area to a minimum. (Examples would include fires in the wildland-urban interface [WUI], developed recreation sites, and some critical natural or cultural resource areas.)
- Aggressive suppression on one portion of a fire and monitoring another part of the same fire.

- Fire monitoring. (This assumes that topography, weather, and fuel conditions reflect a minimal threat to other government-owned or private lands, resource objectives are enhanced [or at least not imperiled], and safety considerations are reasonable.)

2.4.2 Desired Future Condition

BLM has a mandate to restore and maintain healthy ecosystems. Therefore, fire would be integral to producing multiple seral stages and diverse, healthy vegetation. In turn, healthy and productive watersheds, forests, and rangelands would provide sufficient food, thermal, and escape cover for wildlife; adequate forage for livestock; and enhanced recreational opportunities. Unplanned fires would be successfully suppressed when they threaten the WUI, private timber and property, special (sensitive) resource features, and areas at risk of type-conversion to monocultures of noxious weeds.

Fire managers would be successful in reintroducing fire (and its ecological benefits) to fire-dependent ecosystems—a step that would result in dramatically lower suppression costs in the long term. A 'confine-and-contain' strategy would be typical of the flexibility required of fire managers to achieve these ends.

2.4.3 Goals

Wildland Fire Management

An AMR would be determined for every wildland fire (with public and firefighter safety as first consideration). Further prioritization would be based on the relative value of resources and structures requiring protection and the cost of providing that protection.

Risk Mitigation and Education

The public would acquire a greater appreciation for the hazards associated with fuel accumulation and the risk of catastrophic wildfires. Practical preventive measures would be widely adopted—especially in the WUI. The public would also come to understand and appreciate the natural role of fire and accept the necessity of prescribed burns to reduce fuels, protect property, and maintain healthy plant and animal communities.

2.4.4 Objectives

Wildland Fire Management

Wildland fires that merit full suppression will be fought to achieve a minimum burned area at reasonable cost. The full array of available (firefighting) options may be used, unless site-specific restrictions apply (e.g., WSAs, ACECs, and NRHP-eligible sites). Aggressive suppression is paramount in the WUI and in some important wildlife habitats.

Fire would be used as much as possible to achieve resource management objectives since it is the most natural and cost-effective means of restoring, improving, and maintaining ecosystems. Areas that have a history of wildland fire (when there is little potential for spreading) would be considered for WFU or a monitoring-and-containment strategy. This would be accomplished with minimum firefighter risk and at the lowest possible cost.

The NorCal FMP (in development) would be used for fire management strategies. This Plan would provide details for implementation level wildland fire management response and provides a variety of suppression options. It would also identify conditions and potential locations for WFU, prescribed burning, and other fuel-reduction treatments in accordance with the PRMP. The current NorCal FMP would be updated upon signature and approval of the Record of Decision for the Alturas RMP.

Risk Mitigation and Education

The AFO will provide citizen education and yearly refresher training for volunteer firefighters. The Bureau would also help equip rural and volunteer firefighters when funding is available. Education would emphasize community protection procedures and fire safety measures. However, there would also be lessons on fire ecology, fire's essential role as a natural ecosystem process, and the use of prescribed fire. AFO fire managers are committed to educating communities threatened by wildland fires. AFO fire and resource managers will work with individual communities, fire safety councils, and other government agencies to identify wildland fire hazards, create mitigation strategies, and help develop community wildfire protection plans. However, active community participation and citizen-driven solutions are essential to reducing wildfire risk in the WUI. Vulnerable communities will be encouraged to avail themselves of grant opportunities—such as rural, state, and volunteer fire assistance and economic action programs (available through various state and federal agencies).

2.4.5 Legislative, Regulatory, and Policy Direction

General

- Federal Wildland Fire Management Policy (1995), revised 2001
- Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy (June, 2003)
- Interagency Fire Management Plan Template (2002)
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy Implementation Plan (2002)
- Interagency Standards for Fire and Aviation Operations (published annually)
- U.S. Department of the Interior Departmental Manual, Chapter 910 (2000)
- BLM Manual 9200
- Fire Management Plan Guidance: IM No. 2003-38 (2003)
- Land Use Plan Guidance: IM No. 2004-007 (2004)
- An MOU is in effect between all federal and state agencies concerned with fire management on public and private lands in California. This is the Cooperative Fire Protection Agreement (between DOI BLM for CA and NV; DOI National Park Service, Pacific West Region; U.S. Department of Agriculture [USDA] Forest Service, Regions 4, 5, and 6; and the California Department of Forestry and Fire Protection [CDF]).
- BLM uses the Fire Program Analysis software for resource allocation and fire-related budgeting.

Specific to the Alturas Field Office

MOUs with other agencies:

- Cooperative Fire Protection Agreement – Madeline Fire Department
- Cooperative Fire Protection Agreement – Likely Fire Department
- Cooperative Fire Protection Agreement – Alturas Rural Fire Department

BLM plans:

- California Master Agreement between BLM and the USDA Forest Service, USFWS, Bureau of Indian Affairs, National Park Service, and CDF
- NorCal Fire Management Plan (1998)
- Alturas Field Office Fire Management Direction (From Phase I, Fire Planning)
- Risk Assessment and Mitigation Strategies (RAMS) software
- Alturas Resource Management Plan (1984)

2.4.6 Proposed Management Actions

Wildland Fire Management

- When severe fire intensity levels exist—as described in the current NorCal FMP—aggressive, initial attack and full suppression would be the AMR for all areas, especially in the WUI.
- When fire intensity is low, the AMR would be much less aggressive. Actions would be determined by resource management objectives for the area—the typical response being containment.
- Suppression efforts may employ fire engines and heavy equipment, aircraft, retardant, and hand crews, according to what is appropriate for the particular fire situation. However, use of heavy equipment would be avoided in ACECs, RNAs, WSAs, known NRHP-eligible sites, and other sensitive areas—unless deemed essential by the (fire) line officer.
- Firefighting efforts would employ local contractors and personnel, and utilize local supplies and resources, as much as possible.
- A policy of adaptive management (flexible response according to management objectives and prevailing conditions—especially weather and fuel conditions) would employ AMR (from monitoring and containment to full suppression) on 97% of the field office area (486,047 acres) (Map FIRE-2).
- Containment would involve direct and indirect actions, plus natural (e.g., rocky outcrops and rivers) and man-made (e.g., roads) barriers. In order to achieve specific resource objectives, WFU plans (or monitoring strategies) would be developed for 3% (16,998 acres) of the management area.
- For these areas, when it is apparent that a wildland fire is achieving resource benefits (e.g., reducing fuels or improving wildlife habitats) it would be managed under a contain-and-confine strategy and allowed to burn to natural or man-made barriers. The flexibility provided by these options would allow fire to play a significant and natural role in many vegetation types, given existing constraints.

Risk Mitigation and Education

- Fire education programs would be developed and then presented in local schools. Content would include fire prevention and hazard reduction, as well fire's essential role in ecosystem maintenance.

- BLM fire managers would attend local fire safety council meetings to present practical information on fire safety and on fuel and hazard reduction. Basic information on fire ecology would also be presented. This would emphasize the natural and essential role of fire for fuel reduction and ecosystem maintenance.
- Hazard identification and assessment is an ongoing process. When hazards are identified, fuel-reduction projects would be developed and coordinated with local agency programs.
- Volunteer fire departments would receive safety and fire training on a yearly basis. Equipment would be issued as funding permits.
- BLM would encourage and help local communities to develop comprehensive and effective wildfire protection plans.

2.4.7 Fire Rehabilitation and Stabilization

The National Fire Plan was developed in August, 2000 following a landmark wildland fire season. The intent of this plan is to actively respond to severe wildfires and their impacts on communities and resources while ensuring sufficient firefighting capacity for the future.

Emergency stabilization and rehabilitation (ES&R) activities are essential for landscapes and communities in the aftermath of severe wildfires. The objectives of the ES&R programs are to minimize threats to life or property or to stabilize and prevent further unacceptable degradation to natural and cultural resources resulting from the effects of a fire, in a cost-effective and expeditious manner. Within DOI, burned area rehabilitation (BAR) and emergency stabilization (ES) activities are an integral part of wildfire incidents, but are planned, programmed, and funded separately from each other. BAR and ES Guidebooks provide operational guidance.

ES is defined as "Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within one year following containment of a wildland fire."

Rehabilitation is defined as "Efforts undertaken within three years of containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire" (620 DM 3.3M). Specific objectives of rehabilitation are: 1) To evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildland fire damage; 2) To develop and implement cost-effective plans to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is infeasible, then to restore or establish a healthy, stable ecosystem in which native species are well represented; and 3) To repair or replace minor facilities damaged by wildland fire (620 DM 3.4B).

Development of ES&R plans is conducted immediately following a wildfire and implementation of BAR plans is often conducted over the course of several years following a wildfire; it typically includes reforestation, road and trail rehabilitation, fence replacement, fish and wildlife habitat restoration, invasive plant treatments, and replanting and/or reseeding with native or other desirable vegetation.

2.4.7.1 Desired Future Condition

Desired future vegetation in areas recently disturbed by fire are expanses (small to large—depending on the intensity and extent of the burn) of grasses, forbs, and young shrub-dominated areas interspersed with numerous patches of climax vegetation (woody shrubs and trees), and scattered juniper. Vegetation communities (upland, riparian, and special habitats, e.g., special status species) would be vigorous, diverse, reproductively successful, and valuable as wildlife habitat. With respect to site rehabilitation after wildfire, AFO resource managers would have created a site specific, interdisciplinary emergency stabilization/rehabilitation and restoration plan in a timely manner. Burned area ES&R plans would have been developed for specific plant communities and/or watersheds in order to fulfill resource objectives for the areas which have been burned. The ES plans would be prepared immediately following a wildfire. The burned area emergency response (BAER) plan, if needed, should be prepared concurrently with the ES plan.

The ES&R plans are completed by the AFO staff. BAER plans are generally developed by the DOI National BAER Team for a wildfire that involves multiple agency ownership or on large complex wildfires where preparation of ES&R planning is beyond the scope of the local staff and where values at risk are extremely high.

2.4.7.2 Goal

Burned areas would be stabilized and rehabilitated to mitigate the adverse effects of wildland fires on soils, vegetation, and waterways. This would be accomplished in a cost-effective manner. The possibility of wildfire recurrence or invasion by noxious weeds would be minimized.

2.4.7.3 Objectives

A unique environmental analysis would be completed for each emergency fire stabilization and rehabilitation project. Each plan would include monitoring and assessment for adaptive management decisions.

2.4.7.4 Legislative, Regulatory, and Policy Direction

General

- National Environmental Policy Act (1969)
- Federal Wildland Fire Management Policy (1995), program review and update of 2001
- Interagency Fire Management Plan Template (2002)
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy Implementation Plan (2002)
- U.S. Department of the Interior Departmental Manual, chapter 910
- BLM Manual 9200
- Fire Management Plan Guidance: IM No. 2003-38 (2003)
- Land Use Plan Guidance: IM No. 2004-007 (2004)
- Department of the Interior, Departmental Manual, 620 DM 3, Burned Area Emergency Stabilization and Rehabilitation (2004)
- Interagency Burned Area Rehabilitation Guidebook, Version 1.3, November 2006
- Interagency Burned Area Emergency Response Guidebook, Version 4.0, February 2006

- BLM Handbook H-1742-1, Burned Area Emergency Stabilization and Rehabilitation, USDI, BLM, 2006
- An MOU is in effect between all federal and state agencies concerned with fire management operations on public and private lands in California. This is the Cooperative Fire Protection Agreement and coordinates efforts between DOI BLM for CA and NV; DOI National Park Service, Pacific West Region; USDA Forest Service, Regions 4, 5, and 6; and the States of CA (CDF) and NV.
- BLM uses the Fire Protection Analysis software to allocate resources and determine fire management budgets in relation to natural resource goals and objectives.
- BLM Manual 1745 Supplement - California Native Plant Materials Policy

BLM Plans Specific to the Alturas Field Office

- NorCal Fire Management Plan
- Alturas Resource Management Plan

2.4.7.5 Proposed Management Actions

Prioritize post-fire rehabilitation, stabilization, and restoration actions to support ecosystem health of native plant communities. Plant species used for ES&R seedings would consist of native and non-native annuals and perennials.

Hay, straw, mulch, and seed used for emergency stabilization and rehabilitation projects on BLM-administered lands must be certified noxious weed free.

Areas burned by wildland fire would be rested from livestock grazing for a minimum of two growing seasons.

Emergency fire stabilization and rehabilitation activities would be implemented on a case-by-case basis following wildland fire in consultation with affected tribes and other interested parties. A unique and specific environmental analysis would be completed for each emergency fire stabilization and rehabilitation project. Each plan would include monitoring and assessment for adaptive management decisions. A local or regional programmatic ES&R plan with an associated Environmental Assessment (EA) would be developed at the landscape level prior to wildfire occurrence. Locally gathered, native seed caches would be developed for seeding projects. Timber salvage would be considered, with stringent stipulations to minimize impacts on other resources. Roads and trails constructed during timber salvage activities would be closed and rehabilitated to prevent them from becoming established ways.

2.5 Forestry

AFO forest resources are classified as forests or woodlands. By definition, forestlands (actually or potentially) have a 'forest tree' cover of at least 10%. The most common commercial species in northeastern California are Jeffrey pine, ponderosa pine, sugar pine, Douglas-fir, white fir, and incense cedar. For economic reasons, forestlands are divided into commercial (high-site) forestlands (capable of producing at least 20 cubic feet ($ft.^3$) of merchantable timber per acre per year) and non-commercial (low-site) forestlands, which produce less. Low-site forests generally occur where commercial forests grade into juniper woods. In addition to western juniper, these (low-site) forests contain scattered ponderosa pine, Jeffrey pine, and, occasionally, oaks. Woodlands are areas that produce trees not typically used for saw-timber. Woodland trees are usually sold in units other than board-feet and are not included in the allowable cut (which only applies to commercial forests). For management purposes, woodlands are now lumped with non-commercial forestlands and lands that cannot be reforested in less than 15 years.

Starting with BLM's origins (1946) and carrying through to the 1960s, logging concentrated on selective removal of high-risk, old-growth trees. (High-risk trees are those likely to die within 20 years.) These trees were/are between 200 and 400 years old. Over this twenty-year span, about half of these trees were harvested. From the late 1970s until 1993, although some old-growth trees were cut, most timber-harvesting activity was commercial thinning. This focused on trees that had reached economic maturity (i.e., about 120 years old and 21 inches diameter at breast height [DBH]). Since then (1993), the driving force for timber removal has been salvage logging following fire, insect infestation (primarily white fir engraver and pine beetle), and disease (dwarf mistletoe). Recent thinning and salvage operations have created stands that are relatively resistant to insect attack; however, hazardous fuels (in the form of overstocked stands, needle accumulation, slash from previous logging operations, and an abundance of bitterbrush and other shrubs) remain a concern. Stands have not been formally surveyed or rated for hazardous fuel loads – this has created an important gap in the AFO database.

2.5.1 Desired Future Condition

As timber-harvesting continues, commercial forests would show significant structural change. These forests would be increasingly composed of multi-aged stands with a significant old-growth component, although species composition in lower-elevation forests will likely remain constant (i.e., dominated by ponderosa and Jeffrey pine). Mid-elevation forests would contain a mixture of species. White fir would continue to dominate in higher-elevation forests, although other species would be present. Mechanical thinning and prescribed burns would have significantly reduced vulnerability to fire and enhanced forest health and resilience.

2.5.2 Goal

Enhance and maintain the health and resilience of forests and woodlands and reduce their vulnerability to wildfires. Provide a sustainable harvest of forest products for the local economy.

2.5.3 Objectives

- Reduce fire vulnerability on commercial and low-site forestlands, using a variety of techniques to reduce hazardous fuels.
- Conduct salvage logging when and where appropriate.
- Provide timber and other forest products on a sustainable basis.

2.5.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976)
- 43 Code of Federal Regulations (CFR) 5000 (Administration of Forest Management Decisions) (1984)
- Timber Management FEIS (1976)
- California Vegetation Management FEIS (1988)
- Timber Management Environmental Assessment: Sustained Yield Unit 15 (1981)
- Memorandum of Agreement (MOA) with the Lahontan Water Quality Control Board
- MOA with the California Department of Fish and Game
- MOA with the U.S. Fish and Wildlife Service (consultation re: threatened and endangered species)
- MOA with USDA Forest Service, Modoc National Forest; North Cal-Neva Resource Conservation and Development Council, Inc.; and Modoc County regarding development and implementation of the Northern California Juniper Management Strategy (2003)
- Planning/management documents on adjacent lands:
    - USDA Forest Service RMPs for the Klamath (1995), Lassen (1993), Modoc (1991), and Shasta-Trinity (1995) National Forests
    - EIS for the Lassen National Forest Land and Resource Management Plan (1992)
    - A Conservation Strategy for the Northern Spotted Owl (1990)

2.5.5 Proposed Management Actions

A combination of prescribed fire, manual, chemical (herbicide and pesticide),and biological treatments will be implemented to achieve resource objectives on 13,800 acres of commercial and low-site forestlands. Recreation, wildlife, visual resources and water quality are all taken into consideration when managing forestlands. The most current and effective silviculture practices will be employed considering local conditions.

Forestlands will be managed so that 40% is covered in older (late-succession) trees (i.e., healthy trees of greater than 30-inch DBH with stand density approaching two to four trees per acre). Such trees would not be harvested on low-site forests except for salvage following fire, disease, or insect outbreak, or to reduce the risk of catastrophic wildfire.

Timber harvesting would be implemented using mechanical methods on 12,000 acres of commercial and low-site forests.

Fuel reduction and stand improvement would be implemented on 13,800 acres using prescribed fire and biological treatments.

Reforestation would occur on 8,000 acres of productive and low-site forest lands after natural disasters, or harvesting operations to reach desired stocking levels.

Timber harvesting will be prohibited on Mount Dome to preserve the area as a bald eagle roosting site.

Federally approved herbicides and pesticides would be used as needed to control noxious weeds and insect outbreaks.

Ten miles of new permanent roads and 50 miles of temporary roads will be authorized for timber management and harvesting activities. Motorized recreational access would be determined case-by-case for the new permanent roads.

2.6 Fuels Management

Fuel management decisions are based on the NorCal FMP, RAMS software, this PRMP, and the best available science. Fuel treatment is necessary in order to alter, restore, and maintain vegetation; safeguard natural resources; and protect human life and property. The Healthy Forests Restoration Act (2003) provides direction and guidance for fuel management decisions designed to protect watersheds, reduce threats to forest and rangeland ecosystems, and aid recovery of endangered or threatened species. The scope of the Act includes vulnerable communities, municipal water supplies, and other important sites on or adjacent to federal lands.

2.6.1 Desired Future Condition

Effective and widespread reduction of hazardous fuels would be confirmed by healthy watersheds, vegetation, and wildlife habitats; productive forests; adequate livestock forage; and high-quality recreational opportunities. Fuel reduction efforts, by mimicking natural wildfire effects, would severely diminish invasive juniper and restored plant communities to their original condition and natural range of variability. Wildlife habitats would demonstrate a variety of seral stages and abundant structural diversity. Community-based projects would create fuel breaks and defensible space through aggressive fuel reduction efforts in the WUI.

2.6.2 Goal

Prioritize and conduct effective fuel reduction programs throughout the management area, but especially within the WUI. A variety of fuel treatment methods would be utilized—including fire—which would be reintroduced and promoted as a natural ecosystem component. Specifically developed fuel treatments would restore important wildlife habitats and protect vulnerable archaeological or historic sites.

2.6.3 Objectives

- Projects would be prioritized and planned according to resource specialist input, RAMS software, and community protection needs. Fuel reduction efforts would emphasize mechanical, prescribed fire, and biological methods.
- Fuel treatment projects would specifically target juniper-invaded sagebrush-steppe, important wildlife habitats, the WUI, and sensitive archaeological or historic sites.
- Long-term (fuel treatment) projects would restore and maintain fire-dependent ecosystems, increase forage for wildlife and livestock, minimize fuel accumulation, and protect vulnerable communities. These projects would also improve recreational opportunity and enhance traditional gathering areas for Native Americans.

2.6.4 Legislative, Regulatory, and Policy Direction

General Guidance

- The Healthy Forest Restoration Act (2003)
- Federal Wildland Fire Management Policy (1995), revised 2001
- Interagency Fire Management Plan Template (2002)

- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy Implementation Plan (2002)
- Interagency Standards for Fire and Aviation Operations (published annually)
- United States Department of the Interior, Departmental Manual, Chapter 910
- BLM Manual 9200 (Fire Management)
- Fire Management Plan Guidance: IM No. 2003-38 (2003)
- Land Use Plan Guidance: IM No. 2004-007 (2004)
- An MOU is in effect between all federal and state agencies concerned with fire management on public and private lands in California. This is the Cooperative Fire Protection Agreement (between the DOI BLM for CA and NV; DOI National Park Service, Pacific West Region; USDA Forest Service, Regions 4, 5, and 6; and the States of CA [CDF] and NV).

Planning Specific to the Alturas Field Office

- NorCal Fire Management Plan (1998)
- Fire Protection Analysis (software used for resource allocation and fire-related budgeting)
- RAMS (software package)
- Alturas Field Office RMP (1984)

2.6.5 Proposed Management Actions

Fuel treatment plans will emphasize fire as the primary means of restoring and maintaining fire-dependent ecosystems. Although prescribed fire would play a primary role, manual, mechanical, biological, and chemical treatments would also be employed. Special attention would be paid to the WUI to create fuel breaks and defensible space around vulnerable communities. Therefore, treatment would focus on degraded forest and rangeland (especially where western juniper is concerned), critical wildlife habitats, and vulnerable archaeological or historic sites (Map FIRE-1).

Planned yearly fuel reduction treatments are listed below.

- Prescribed fire (75 to 10,000 acres/year)
- Mechanical treatments (75 to 10,000 acres/year)
- Chemical treatments (50 to 2,000 acres/year)
- Biological treatments (0 to 1,250 acres/year)

BLM will continue to identify areas with excessive fuel accumulation and develop mitigation strategies in cooperation with local agency fuel reduction programs. Fuel reduction projects will be implemented by BLM fuel module crews and/or contract labor. Prescribed fire will be widely used as a natural and cost-effective means of reducing hazardous fuels. Its use would be incorporated in (approved) burn plans according to community protection constraints and resource specialist input.

Long-term fuel treatment plans and projects will be designed and gradually implemented to achieve broader-scale objectives. These would include general maintenance of healthy ecosystems, better protection of high-risk communities, general slowing of hazardous fuel build-up, improved timber

production, increased forage for wildlife and livestock, improved hunting (and other recreation), and better protection of traditional gathering areas for Native Americans.

Plans will be developed and implemented to reduce fuels over a wider area, especially targeting invasive juniper. Project design would mimic naturally occurring wildfire effects in order to restore plant communities to a condition approximating the biological diversity that originally characterized local ecosystems. By so doing, wildlife habitats would be enhanced, cultural sites protected, and an acceptable visual appearance maintained. Project locations, and treatment plans, methods and actions would be determined through resource specialist input, RAMS software, and community protection needs.

Classes in hazard reduction and fire protection will be presented at schools, and in greater depth, at fire safety council meetings. Instruction would include discussion of fire's critical role in fire-dependent ecosystems.

2.7 Lands and Realty

Lands and realty is managed under three program areas: land tenure adjustments (including access acquisition), withdrawals, and rights-of-way (ROWs).

The AFO Land Tenure Adjustment Plan (LTAP) was approved by the (California BLM) state director in March of 2002), and will be incorporated in this RMP with minor modifications. (The entire LTAP is found in Appendix L.) The LTAP identifies large geographic areas where land would be retained in public ownership. In these areas, land may be acquired through exchange to provide access or facilitate management, or to protect or enhance natural resources. Retention/acquisition areas currently total 478,040 acres.

The LTAP also identifies large geographic areas that contain legally and/or geographically isolated land that BLM does not actively manage. These are typically small, isolated parcels that lack road access and are surrounded by private property. Disposal of these parcels may be through exchange or sale, or by transfer to other government agencies. Disposal areas currently total 20,180 acres (including 1,847 acres on-or-near Widow Peak). The Widow Peak area is identified for limited disposal. Lands in this vicinity may only be exchanged for parcels with high resource value (e.g., lands adjacent to the Pit River or Hat Creek, lands providing access to the Pit River Canyon WSA, or similarly compelling acquisitions). However, BLM would retain some parcels in disposal areas for their resource value. These areas (a total of 4,825 acres) are identified for custodial management.

The LTAP contains specific rules, requirements, criteria, and procedures that apply to lands selected for retention/acquisition, disposal, or custodial care. There's also a priority acquisition objective—this is the 8,458 acres owned by Pacific Gas & Electric along the Pit River and Hat Creek south and east of Lake Britton (Shasta County).

A historic problem for the AFO (as elsewhere on BLM-administered lands) is public lands that contain valued or sensitive resources, or even facilities, but lack legal public access. Access may be required for public use and enjoyment, management activities, or administrative purposes. Prioritization and action regarding access acquisition (for such areas) is necessary and overdue.

Another important function of the lands and realty program is identification of areas for mineral entry withdrawal. Withdrawals protect vulnerable resources from the effects of mining activities.

The AFO also maintains an efficient system of utility corridors and communication sites to serve public needs.

2.7.1 Desired Future Condition

A deliberate and well-considered pattern of public and private land ownership would emerge to allow productive resource management, and the effective use of time and financial resources. Reasonable access to public lands would be provided so that natural resources and facilities would be available for public use and enjoyment, as well as for resource management and administrative purposes. Lands with sensitive resources would be protected by withdrawals to prevent mineral entry.

2.7.2 Legislative, Regulatory and Policy Direction

- The Federal Land Policy and Management Act (1976), Section 206
- The Federal Land Exchange Facilitation Act (1988)

- BLM Manual 2200 (Land Exchange Handbook) R&PP Act (as amended)
- BLM Handbook H-2101-4—Pre-Acquisition Environmental Site Assessment
- BLM Handbook H-2200-1 – Land Exchange Handbook
- BLM Handbook H-2100 – Acquisition Handbook
- The West-wide Energy Corridor Programmatic EIS (2005)
- BLM Wind Energy Policy (IM2006-216)
- Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (2005)

2.7.3 Land Tenure Adjustment

2.7.3.1 Goal

Patterns of land ownership would be consolidated to allow effective resource management and permit efficient use of time and financial resources.

2.7.3.2 Objective

Conduct land tenure actions according to resource management priorities.

2.7.3.3 Proposed Management Actions

- The Alturas LTAP would serve as the basis for future land tenure actions.
- A list of priority land tenure adjustments derived from the LTAP and this PRMP would be the basis for action. The list would be reviewed annually and revised to adjust for changing circumstances and conditions.
- Newly acquired parcels would initially be managed similar to adjacent parcels, unless the site-specific analysis and record of decision for the exchange specifies different management. For instance; Section 2, Township 36 North, Range 9 East, MDM is approved for donation from Lassen Gold, Inc. This parcel would be managed as a wetland preserve, in accordance with Nationwide Permit No. 9100184. Affected tribes would be consulted on the management of newly acquired parcels.

The Alturas LTAP would be implemented with slight modification. The Madeline disposal area would be divided from east to west (roughly in half). The northern half would remain a disposal area, with 687 acres of public land. The southern half (currently with no public land) would be designated as an acquisition (and future retention) area. The objective is to acquire important greater sage-grouse habitat.

Land would be purchased (from willing sellers) at three locations in the Infernal Caverns/Rocky Prairie special recreation management area (SRMA). These purchases would support fishing at Smith Reservoir (80 acres), Nelson Corral Reservoir (200 acres), and Delta Lake (200 acres).

A proposal in BLM's "Sustaining Working Landscapes Initiative" (2003) would be adopted as a pilot project. Under this plan, BLM would place a conservation easement on a parcel of public land in a designated disposal area. In exchange for the monetary value of this land *with* its conservation easement, the adjacent landowner would place a similar conservation easement on his land providing for resource conservation and public access. This would result in a larger block of land being preserved for

conservation purposes according to the covenants of the conservation easements. Such a project is proposed under this initiative for the Kramer grazing allotment. The project would involve 850 acres of public land in Big Valley (See Map LAND-1.) If successful, the project would become a program that would be expanded to other disposal areas.

Lands with habitat for federally listed, proposed, or candidate species or proposed or critical habitat would not be exchanged or disposed, unless the party acquiring the land agrees to maintain the habitat for the species.

All land use authorizations will be evaluated for their impact to sensitive resources, including critical and/or important wildlife habitat. Future BLM granted ROWs, including utility corridors and communication sites would be consistent with USFWS guidance to minimize effects to migratory birds.

2.7.4 Access Acquisition

2.7.4.1 Goal

The AFO would acquire and maintain legal public and administrative access to BLM-administered lands where none now exists.

2.7.4.2 Objectives

The need for easement acquisition or access around private land would be identified and pursued in order to facilitate public use and enjoyment of public lands, resources, and facilities; as well as for resource management and administrative purposes.

2.7.4.3 Proposed Management Actions

Measures would be taken to secure legal public and administrative access to BLM-administered lands, resources, and facilities. Bypass roads may be built (around private lands) where easement acquisition is not feasible. Easements would be acquired from willing owners or partners.

The AFO would be proactive in acquiring legal access (public and/or administrative) to BLM assets—regardless of whether access issues have arisen. Adequate public access through or around locked gates and private lands would be pursued where these hinder or deny access to public lands. Access acquisition would be prioritized according to the following schedule and criteria:

- Access to BLM facilities (e.g., campgrounds, fire stations, remote automated weather stations) and authorized communication sites.
- Access for BLM management activities (e.g., critical wildlife habitat, significant cultural resources, areas with special designations)
- Public recreational access—particularly where locked gates have hindered or eliminated access for historic uses.
- Access for range improvement projects.
- All other resource management issues or concerns.

2.7.5 Mineral Withdrawals (Locatable Minerals)

2.7.5.1 Goal

Areas where mineral entry is undesirable would be identified and recommended for withdrawal.

2.7.5.2 Objective

The minimum area necessary to protect sensitive resources or vulnerable lands would be recommended for withdrawal from mineral entry.

2.7.5.3 Proposed Management Actions

All ACECs and RNAs (30,493 acres) would be recommended for withdrawal from mineral entry. All 19 miles (2,500 acres) of proposed WSR corridors would also be recommended for withdrawal from mineral entry. There would be no variances for recreational mining. The total area recommended for withdrawal from mineral entry would be 7% of the management area (32,993 acres).

2.7.6 Rights-of-Way and Communication Sites

2.7.6.1 Desired Future Condition

An efficient and environmentally sensitive system of utility corridors and communication sites would be maintained or augmented (when necessary) to meet the energy and communication requirements of the public while minimizing adverse impacts on visual, biological, physical, or cultural resources. Primary access and maintenance roads would be maintained to a level that supports normal use and safe passage of vehicles.

2.7.6.2 Goal

Manage public lands to support the goals and objectives of all resource programs, respond to public requests for land use authorizations, and acquire administrative and public access where needed. Conduct ROW transactions, decisions, and actions in a manner that would prevent adverse impacts to scenic, ecological, water, air, scientific, and archaeological or historical values.

2.7.6.3 Objectives

Identify areas that are suitable and available for land-use authorizations that support the utility, telecommunications, and transportation needs of the region. Ensure that natural and cultural resources are adequately protected, or appropriately and effectively mitigated.

2.7.6.4 Proposed Management Actions

- Current linear ROWs and communication sites would be authorized, providing continued compliance with the terms and conditions of grants or permits.
- New utility corridors, pipelines or electrical transmission lines, or communication sites would not be permitted in any designated ACEC, WSA, or in the proposed Lower Pit River WSR corridor (excluded areas total 67,660 acres; total acres of ACECs include only those portions outside of respective WSAs, to avoid duplication of the same acres).

- New utility corridors, pipelines and electrical transmission lines, and communication sites (and associated ROWs) would be considered throughout the management area, except within the above-stated exclusion zones.
- All land use authorizations will be evaluated for their impact to sensitive resources, including critical and/or important wildlife habitat.
- Any new ROWs, including utility corridors, wind energy, and communication sites, would be consistent with USFWS guidance to minimize effects to migratory birds.
- Requests to authorize residential power line installation would be considered case-by-case.
- Wherever feasible, new development would use existing utility corridors and communication sites.
- Existing pipeline and electrical transmission corridors would be expanded to a width of up to 500 feet. All existing (commercial) lines would become utility corridors, thereby increasing development possibilities to a potential 500-foot or smaller width, depending on the size of the line and use potential.
- Interagency cooperation to facilitate regional utility corridor development would be encouraged (since only a small portion is likely to involve BLM-administered lands).
- ROW holders would be responsible for removing abandoned structures and facilities.
- Road access may be granted within a WSA where non-federal land is completely surrounded by lands administered by BLM.
- Additional corridors may be designated as future needs dictate, subject to on-site environmental reviews and clearances. *The West-Wide Energy Corridor PEIS, 2005* specifies that coordinating agencies (BLM) will designate 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* depicts an east-west transmission corridor between northern California and northern Nevada, which will potentially be routed through the AFO 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 environmental reviews necessary to identify proposed routes within the requisite time frames outlined in the PEIS.

2.8 Livestock Grazing

The land base managed by the Alturas Field Office is 503,045 acres in size. Livestock use is currently conducted on 457,519 acres in 145 grazing allotments (Appendix I). Past management involved adjudication of livestock numbers in the 1960s, when livestock animal unit months (AUMs) were reduced and forage allocations were provided for wildlife. The Bureau then placed allotments in selective management categories as: 'improve' (I), 'maintenance' (M), and 'custodial' (C). These categories were used to direct funding for monitoring and management, with major emphasis on "I" allotments. Beginning in the late 1990s, interdisciplinary rangeland health assessments using the newly established, numbered categories (i.e., 1, 2, 3, or 4) began replacing the older category designations. Under the new system, each allotment is placed into one of four categories according to identified rangeland health standards (see Map GRAZE-1):

- **Category 1:** Areas where one or more standard(s) is/are not met or significant progress is not being made toward meeting the standard(s), and livestock grazing is a significant contributing factor.
- **Category 2:** Areas where all standards have been met or significant progress is being made toward meeting those standards.
- **Category 3:** Areas where the status regarding one or more of the standards is not known or the cause of failure to meet the standard(s) is/are not known.
- **Category 4:** One or more of the standards are not being met or significant progress is not being made toward meeting the standards, by causes other than--or in addition to--livestock grazing activities.

Health assessments have been completed on 45 grazing allotments encompassing 300,000 acres of public land. Seventeen of these are areas where one or more (rangeland health) standards have not been met or significant progress achieved, and livestock grazing is identified as a significant contributing factor.

Of 17 allotments assessed as category 1, one has a new allotment management plan (AMP), seven have no AMP, and nine have AMPs over 15 years old. Six years after implementation of rangeland health standards, the AFO has increased compliance and short-term monitoring on category 1 allotments and will implement long-term monitoring when funding and budgeting permit. In the meantime, based on short-term monitoring, changes have been made to allotment terms and conditions in order to improve rangeland health. Rangeland improvement projects have also been implemented to minimize unacceptable livestock grazing impacts to riparian and spring areas and to improve livestock distribution.

2.8.1 Desired Future Condition

Allotments will be managed in compliance with standards set forth in the Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing (2000). Rangeland management strategies will provide for the maintenance or restoration of watersheds, nutrient cycling, water quality, habitat for special status species, and quality habitat for populations of native plants and animals. Adherence to these standards will ensure the health and biodiversity of rangeland ecosystems. Range improvements will be implemented on a priority basis for maximum effectiveness. Projects that improve livestock distribution and reduce grazing impacts will include, but are not limited to, fencing, gates, cattleguards, water developments, pipelines, and vegetation treatments–including prescribed fire.

Continuous, long-term monitoring will be conducted on priority allotments. This long-term data will be incorporated with compliance data and analyzed for use in gauging the effectiveness of current management and in the establishment of future management objectives. Allotment management plans will be developed based upon analysis of all monitoring data and future management objectives.

Grass banks would be established to provide alternative forage resources. This will enable BLM to work cooperatively with ranchers and other stakeholders to implement vegetative treatments and reduce juniper encroachment in sagebrush and grassland communities, restoring rangeland health and economic viability.

2.8.2 Goal

- Livestock grazing will be maintained as a recognized and economically viable use of public lands. Authorized use will be such that rangeland health standards are met and maintained, and the needs of other resources and resource users are adequately addressed.
- Treatments will effectively reduce invasive juniper while leaving sufficient herbaceous material to provide watershed protection as well as forage for livestock and cover for wildlife and other resource needs.

2.8.3 Objectives

- AMPs will be completed or revised for all priority (category 1) allotments, followed by lower category allotments as budget and time constraints allow.
- Livestock grazing will be adjusted to meet the requirements of BLM special status species and protect archeological sites/areas in consultation with grazing permittees and affected tribes.
- Grass banks will be established to provide forage reserves for conservation benefits and management flexibility, thus helping to maintain rangeland health standards.
- BLM will work cooperatively with ranchers and other stakeholders to implement juniper treatments and reduce juniper encroachment in sagebrush/grassland communities, thereby restoring rangeland health and economic viability.
- Range improvement will focus on optimizing forage utilization and livestock distribution to reduce grazing impacts and use available forage efficiently.

2.8.4 Legislative, Regulatory and Policy Direction

- The Federal Land Policy and Management Act (1976)
- Public Rangelands Improvement Act (1978)
- 43 CFR 4100 (Grazing Administration) and 4180 (Rangeland Health Standards) (1995)
- Taylor Grazing Act (1934)
- Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing, (S&Gs), (July, 2000)
- BLM Manual 1745 Supplement – California Native Plant Materials Policy

2.8.5 Proposed Management Actions

Livestock grazing would continue on 454,649 acres in 145 grazing allotments. Proposed fences for grazing exclosures would exclude livestock grazing from an additional 3,050 acres leaving a total of 48,396 acres unavailable for livestock grazing.

Livestock grazing would be managed primarily through adjustment of grazing systems, such as shortening season of use where rangeland health standards are not being achieved. Initial active AUM levels would be set at 54,881 AUMs. This level could be adjusted based on land health considerations. 27,000 AUMs would be authorized for actual use (that portion of the active AUMs actually utilized by grazing permittees in a particular year). Additional AUMs may be available in the future as vegetation treatments are accelerated under the sagebrush steppe restoration strategy.

Rangeland health evaluations necessitate assignment of livestock grazing allotments to appropriate management categories as defined under the rangeland health standards (i.e., improve, maintenance, or custodial allotments would be reclassified as category 1, 2, 3, or 4.) This having been done under present management, the Williams and Deep Canyon allotments would be re-categorized from "C" (custodial) management to "I" (improve) or "category 1" under the new system. In like manner, the Dry Cow, Westside, Rocky Prairie, and Nelson Corral allotments would also change; in this case from "M" (maintenance) to "I" (improve) or "category 1" management. AMPs would be completed or revised for all Category 1 allotments.

The Preferred Alternative emphasizes making adjustments and enhancements to existing grazing strategies in allotments that have made significant progress toward, or achieved, land health standards. These adjustments would be focused on improving the health, vigor, and reproduction of native rangelands and unique plant communities (aspen, curlleaf mountain mahogany, oak woodlands) and improving important wildlife habitat for identified species (e.g., sage-grouse, ungulates). On allotments where rangeland health standards are not met, and where livestock grazing is the identified cause, appropriate alterations to grazing practices will be introduced (as specified in the Standards and Guidelines) so that standards are met.

Grazing practices that degrade key wildlife habitats and alter the natural vegetation would be avoided. An especially important area is the eastern portion of the Likely Tablelands. Livestock grazing practices would be modified in applicable allotments to improve sage-grouse habitat, based on guidelines set forth in BLM conservation strategies for the *Sage-Grouse and Sagebrush Ecosystems in the Buffalo-Skedaddle, Likely Tablelands/Rocky Prairie, and Devil's Garden/Clear Lake Population Management Units.*

Typical modifications to grazing strategies are listed below.

- Season of use adjustments would be employed at times of the year when sensitive soils would be damaged by livestock and where forage is seasonally inadequate.
- Permitted grazing use—including reduction of animal numbers and/or season-of-use—would be assessed annually to reflect prevailing conditions. Conservative management of grazing would be especially needful during drought conditions, when there would not be enough water to support livestock for an entire grazing season.
- Conversely, AUMs or livestock numbers may be temporarily increased or season-of-use extended, when forage production is above average. Long-term or permanent increases in grazing would be considered where land health standards have been met or sustained significant progress has been made toward achieving those standards. However, increases must be based on a site-specific environmental assessment that confirms adequate and sustainable long-term forage production.

Utilization of key species (grasses, forbs, and shrubs) on native rangelands would not exceed moderate (40%-60%) levels. On allotments not meeting or making progress toward meeting land health standards due to current levels of livestock forage utilization, Guideline 16 (of the Standards and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and

Northwestern Nevada [S&Gs]) allowing 30 to 40% would be implemented. This would reduce the maximum allowable utilization levels on key species specifically in areas that are not meeting standards.

Proposed actions for vegetation management are to prioritize vegetation manipulation to restore ecosystem processes. Efforts would focus on reducing invasive juniper in sagebrush-steppe ecosystems, and treating closed-canopy big sagebrush and cheatgrass-dominated communities. Juniper reduction efforts will be prioritized within grazing allotments to improve the ecological health of sagebrush communities, at a rate of up to 10,000 acres per year (see Chapter 2.6 Fuels Management). Treatment will focus on more degraded rangeland (primarily the 21%–35% juniper canopy cover class). Large-scale juniper treatments would be conducted in an effort to improve livestock distribution, benefit wildlife, and create a more diverse environment. Prescribed fire, mechanical and hand treatments would be aggressively employed under guidance from the *Draft Sagebrush Steppe Restoration Strategy*. Successful treatment of these areas would significantly improve land health and will also provide maintenance (or potentially an increase) of forage production of native grasses, forbs, and shrubs.

Decisions to resume livestock grazing on areas that have been mechanically treated or burned by wild or prescribed fire would be based on assessment of monitoring data. Generally, grazing would not resume for a minimum of two growing seasons. However, mechanically treated areas may be assessed for potential resumption of livestock grazing following one growing season of rest.

Meadows, aspen stands, and other habitats with significant value as wildlife habitat (particularly sage-grouse) and NRHP-quality archaeological sites would receive priority for additional livestock exclusion. When fencing natural water sources, water would be made available for livestock and wildlife outside the fenced area. Livestock salting would not be allowed within ¼ mile of springs, meadows, NRHP-quality archaeological sites, streams, and aspen areas. Location of salting stations would be determined by BLM in consultation with livestock permittees.

Rangeland health will be re-evaluated as necessary to ensure proper watershed function, nutrient cycling, and energy flow. Water quantity and quality will be assured and sufficient quality habitat provided for communities of native plants and animals, especially special status species.

Livestock grazing would only continue in riparian/wetland plant communities where grazing is compatible with the attainment of 'Proper Functioning Condition' (PFC) and other riparian and wetland objectives. Sensitive sites known to be important for native fisheries, wildlife habitat, and other beneficial uses would be protected or excluded. Livestock exclusion fencing would be constructed in areas that are 'Functioning At Risk' (FAR) and in areas where the vegetation is in early seral plant communities. Spring sources classified as FAR or 'Not Functioning' would be protected by exclosure fencing to prevent trampling by livestock and wild horses. Current meadow and riparian habitat enhancement projects will continue, and an additional 500 acres of riparian habitats will be fenced.

Quaking aspen, curlleaf mountain mahogany, and oak woodlands are unique plant communities that occur randomly throughout the field office area in small patches. Livestock would be excluded from non-regenerative aspen and pertinent curlleaf mountain mahogany stands. Stands would be protected from livestock and wildlife use until aspen saplings are six feet tall. Temporary fencing would be used to protect 300 acres of aspen stands from livestock grazing, and permanent fencing would protect an additional 200 acres, over the life of this PRMP. Livestock grazing would be managed to minimize damage to suckers in aspen clones by changing the class of livestock use (i.e., dry cows rather than cow-calf pairs.) Livestock salting sites would be located at least ¼ mile away from aspen groves.

In aspen stands burned by wildland or prescribed fire, and greater than ½ acre in size, a minimum of two years rest from livestock grazing would be required. Post-fire recovery criteria (e.g., sapling height, wildlife use, or sapling density) would be used to determine when livestock grazing could be resumed.

Changes in livestock grazing strategies (season of use, distribution, class of livestock, etc.) would be implemented to reduce browsing pressure on curlleaf mountain mahogany and oak woodlands. Livestock would not be permitted to graze or seek shade in early seral stage mountain mahogany stands. This would be accomplished by improving livestock distribution and providing shade in adjacent plant communities, such as post-settlement juniper. Browsing by livestock would be limited to 50–60% of current annual growth to maintain productivity and a vigorous, shrubby growth pattern.

Forage reserves or grass banks would be established where feasible, in cooperation with federal, state, and private agencies. Forage reserves would facilitate juniper treatment and other rangeland improvements by providing alternative areas for livestock grazing. When a grazing permit is voluntarily retired, the allotment will be considered for use as a forage reserve.

Range improvements would include various projects in addition to juniper removal, such as fencing, gating and cattleguards, prescribed fire, spring developments, exclosures, pipelines, treatment of noxious weeds, and limited road construction. See Appendix Q for a list of existing range improvements.

When water sources are developed for livestock grazing, the needs of wildlife and wild horses would also be considered. Water would be retained or provided at ground level on all naturally occurring sources developed for livestock use—including springs, seeps, and perennial or ephemeral streams. Natural riparian habitat and cover around a substantial portion of these sources would be protected for wildlife use. This would be accomplished by piping livestock water a sufficient distance to minimize livestock impact or by exclosure fencing. As funding and technology allow, existing water sources developed from wells or pipelines would be retrofitted (on a priority basis) to provide water at ground level.

The AFO Drought Management Policy (Appendix N) will be implemented to maintain long-term health and productivity of rangelands when dealing with drought conditions and issues.

2.9 Recreation and Visitor Services

Recreation is one of the most important uses of the management area. Continued population growth, exacerbated by urban expansion and suburban sprawl, continues to shrink wildlands while increasing demand for outdoor activities. Meeting this demand, while simultaneously protecting the environment, is a major challenge.

In the AFO management area, fishing (spring, summer, and fall) and hunting (late summer, fall, and early winter) are the most popular recreational activities. The majority of primitive or semi-primitive camping uses are associated with these activities. However, camping at the Pit River Campground has its own followers and uses associated with riverine activities. Other popular recreational activities are day hiking, backpacking, car camping, wildlife viewing, photography, pleasure driving and sightseeing, OHV driving, exploration of historic and archaeological sites, picnicking, and 'rock-hounding.'

2.9.1 Desired Future Condition

Lands and waters of the planning area would provide a range of outdoor activities that emphasize self-sufficient exploration and discovery. Directional and interpretive signing would be installed where necessary or desirable for safety or education. A full range of recreational environments—from primitive, undeveloped areas through intensively used and managed natural settings—would be available for visitor use. An adequate and well-maintained road network would serve visitors where this is appropriate. Non-motorized areas would be accessed by a functional trail network or user-established trails. The effects of heavy use would be minimized by public information and by measures that encourage dispersed activity. Such measures would generally be adequate to protect natural and cultural resources. Corrections to control erosion hazards would vary in methods to manage impacts related to visitor concentrations. However, where this is not the case, regulations, use limitations, and closures would be used when environmental degradation cannot be controlled by other means.

The (largely) undeveloped character and scenic beauty of northeastern California would be maintained on BLM-administered lands by applying VRM Class I, II, or III criteria to most of the planning area. Where use is concentrated around high-demand resources, SRMAs would be established to minimize environmental impacts and preserve quality recreation. The rest of the planning would be managed for self-sufficient, dispersed recreation.

Management actions in the extensive recreation management area (ERMA) (where recreation is dispersed) would be minimal and subtle to ensure that the undeveloped character of the landscape is maintained. Directional signage (primary routes only) and interpretive displays would be installed where necessary for safety or desirable for visitor education. Routes that are 'Closed' to motor vehicles would be marked as such and/or physically blocked. If needed, roads or trails would be realigned to enhance or protect resource values, and to reduce erosion and sediment caused by poor road design or location.

Visitors would have the option of enjoying a separate system of high-quality recreational trails. Some would be 'Open' to motorized use while others would be restricted to non-motorized activities. The trail system would be most extensive in SRMAs and other scenic areas. BLM would collaborate with Lassen and Modoc Counties to acquire the abandoned (Union Pacific) railroad line and modify it for a variety of trail uses. Trails would vary in length, terrain, difficulty, and purpose.

Interpretive information concerning natural and cultural resources would be developed and distributed to aid visitor understanding and appreciation of public land resources. Cultural resource information would be developed in consultation with affected tribes. Most would be informational brochures (distributed in

gateway communities, BLM offices, and over the internet). Public presentations would also be given by BLM staff and volunteers as time and opportunity allow. Facility development would be minimal; however, some high-quality interpretive exhibits would be developed for key areas.

2.9.2 Goal

Support a broad range of appropriate and sustainable recreational opportunities and minimize potential conflicts between user groups.

2.9.3 Objectives

Support developed (facility-based recreation) and undeveloped (self-reliant and unstructured) public recreational opportunities in suitable locations throughout the management area. Ensure that recreational facilities and recreational activities do not degrade ecosystems, natural and cultural resources, or scenic values.

2.9.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (FLPMA) (1976)
- 43 CFR 8340 (2004), et seq.
- Management Policy and Guidelines for Lands Under Wilderness Review (USDI, Dec., 1979)
- Comprehensive Land Use and Management Plan for Federal and State Lands in Modoc County (May, 1995)
- National Park Service, Comprehensive Management and Use Plan (FEIS), "California National Historic Trail and Pony Express National Historic Trail" (1998)
- Emigrant Trails Scenic Byway Plan, Resource Conservation and Development (RC&D), Alturas, California (2003)

2.9.5 Proposed Management Actions

- Lands that are not within SRMAs would be assigned to the ERMA and managed for dispersed recreation.
- The Tablelands Integrated Resource Management Plan (1999) would remain in effect for that area.
- Commercial and non-commercial recreation activities that require a special recreation permit must be evaluated for impacts. Following evaluation, a permit would be issued for compatible activities; otherwise, the application would be modified or denied to protect resource values.
- Acquire (from Pacific Gas and Electric Company [PG&E]) segments of the Pit River (13 total miles) that support significant cold and warm water fisheries. Also acquire a five-mile stretch of Hat Creek (also from PG&E) to preserve world-class trout fishing.
- Implement a variety of boating, road, and access stipulations, as well as recreation opportunity spectrum (ROS) classifications to create and maintain diverse fishing opportunities on reservoirs, lakes, and streams of the planning area.
- Designate Pit River as non-motorized boating (i.e., a 16-mile stretch in the Pit River SRMA), and Delta Lake, Moon Lake, and the Nelson Corral and Bayley Reservoirs in the Infernal Caverns/Rocky

Prairie SRMA for limited motorized boating. Identify and protect premium fishing (i.e., specific areas, contexts, or species) by maintaining limited or difficult access.

- Any recreational use of ACECs, including commercial and non-commercial uses authorized under special recreation permits, will be evaluated and permitted, modified, or prohibited as needed to protect ACEC values.
- Limit camping to 14 consecutive days at a single location and 28 days per calendar year (for the Alturas, Surprise, and Eagle Lake management areas combined).
- Seasonally limit, establish safe boundaries, or (if necessary) prohibit activities that create health or safety hazards for public land users in or near developed recreation sites, high-use fishing areas, or other areas where human activity is concentrated.
- Provide public access (walk-in or drive-in) for water-related activities according to the ROS (recreation opportunity spectrum) classification for the area.
- Ensure that VRM classes are adequate to maintain high-quality scenic buffers around SRMAs, campgrounds, and other recreational projects as well as heavily-used travel routes (i.e., major roads and scenic vistas, bikeways, and trails).

The Infernal Caverns/Rocky Prairie SRMA and the Pit River SRMA (see Map SRMA-1) would be designated to improve delivery of services where high-density use is degrading resources and creating user conflicts or safety issues. The proposed SRMAs are outstanding for their geology, archaeology, abundant wildlife, interesting vegetation, impressive scenery, and exceptional recreational potential. This includes high-quality hunting, fishing, hiking, recreational driving and sightseeing, environmental education, and scientific study. The SRMAs would encompass the Pit River Canyon, Tule Mountain, and Lava WSAs. Separate management plans would be prepared for each SRMA. Facility-oriented and technology-based recreation would be de-emphasized. Self-contained, low-impact recreation and dispersed use would be favored throughout the planning area (including SRMAs), in order to minimize impacts on natural and cultural resources. Visitor information, education, and nature-friendly attitudes and behaviors would be stressed. Hunting and motorized boating would be allowed. However, personal watercraft (jet-skis and wave-runners) would not be permitted. Motor vehicles would generally be 'Limited to Existing and Designated Routes'. The following projects would enhance existing facilities or provide new recreational opportunities:

- Existing campgrounds and other facilities would be properly maintained throughout the planning area. Where need is evident, new facilities (e.g., boat ramps, trailheads, and handicapped-accessible nature trails or fishing piers) would be built—particularly in the SRMAs.
- Roads would be rehabilitated or upgraded when required to maintain public access or to control erosion and minimize resource degradation. Other roads would be closed to protect sensitive resources.
- The existing trail systems (motorized and non-motorized) would be properly maintained and new trails (motorized and non-motorized) would be built where needed. Trail maps and other practical, informative literature would be developed and disseminated.
- Commercial recreation and competitive outdoor events would be encouraged in suitable locations (i.e., where natural and cultural resources can be protected and health and safety standards can be maintained). Special recreation permits would be issued to meet demand for commercial white-water rafting, guided hunting and fishing trips, provided resource protection remains adequate and health and safety would be provided.

Recreational Fisheries

Public Access and Roads
Public access would be improved at three sites in the Infernal Caverns/Rocky Prairie SRMA. Road access to Moon Lake would be established along existing roads from two directions; one from the southeast (1 mile) and the other from the southwest (3 miles). The parking areas would be graveled if appropriate. Road access to Nelson Corral would be maintained at the present level, with partial-gravel in the worst locations, and the last mile of road to the dam would receive no maintenance to maintain a high quality fishery. The third improvement would be a trail, 2 miles in length, to the Williams Ranch step ponds (and possibly, a fishing pier accessible to the handicapped).

On the Likely Tables in the ERMA, 750 feet of existing road would be used as a trail, and a graveled parking area (if applicable) would be built (capable of accommodating vehicles with horse trailers) to provide a suitable trailhead for horse and hiking trails (to access California Department of Fish and Game (CDFG)-administered lands) leading to the upper reaches of the Fitzhugh Creek watershed.

Land and Water Right Acquisition and Facility Construction
Land would be purchased or exchanged (from willing sellers) at three locations in the Infernal Caverns/Rocky Prairie SRMA. These purchases would support fishing at Smith Reservoir (80 acres), Nelson Corral Reservoir (200 acres), and Delta Lake (200 acres). Minimum pool water rights would be obtained (from willing owners) at Bayley and Holbrook Reservoirs. The Williams Ranch step ponds (20 total acres) would be rebuilt to increase depth and size in order to produce a self-sustaining fishery and benefit wildlife. With respect to the ERMA, minimum pool water rights would be obtained (if the owner is willing) at Little Juniper Reservoir.

Day Use and Site Interpretation

Seven to nine graveled parking areas would be developed to serve popular recreational destinations. These lots would provide trailhead access for a host of recreational activities ranging from hunting to hiking, wildflower-viewing, and OHV recreation. Some areas would include interpretive displays or scenic vistas. Selected trails would be accessible to the handicapped. All parking areas and trails would be designed to accommodate heavy use. Recommended sites include:

- Centerville Road/Westside Grazing Allotment
- Crowder Flat Road/Rimrock Grazing Allotment
- US Highway 395/Battle-of-the-Infernal-Caverns
- Blue Door Flat
- Beaver Creek
- Kelly Reservoir
- Williams Ranch

Primitive Camping

Camping would not be permitted within 200 feet of waters (e.g., springs, lakes, and reservoirs—including stock-watering structures [water tanks, troughs, and dugouts]), sensitive or special status plant and wildlife habitats, cultural sites, or other areas identified as vulnerable to human occupancy. This restriction would apply to the entire management area (in order to preserve water quality, protect vegetation and soil, and avoid disturbing wildlife).

'Setbacks' (i.e., distance from a water source, 10 to 100 feet) would be variable for streams and rivers, depending on local topography and likely environmental impacts. If environmental degradation is sufficient, an area may be closed to camping. Campers would not be allowed to cut live trees within 200 feet of water; however, downed-and-dead material may be collected for firewood.

Campgrounds

Semi-primitive campgrounds, and/or day-use areas would be built at Knox Gulch Reservoir (15 acres) and Antelope Reservoir (10 acres), primarily for the convenience of fishermen. If campgrounds are developed, facilities could include graveled parking and campsite areas, picnic tables, fire-rings, sweet smelling toilets, and some trails accessible to the handicapped. If the upgrades are implemented, a fee could be charged for campground use. A semi-primitive campground or day-use area may also be built at Dry Creek Station. The old fire station facility and fenced areas would be used in construction, and the helipad would be converted to a horse corral. A four-mile hiking-and-equestrian trail would lead to the Nelson Corral Reservoir (see section 2.15.3 Non-Motorized Trails). If built, a fee would be charged for campground use.

2.9.6 Recreation Opportunity Spectrum

People want and need different recreational experiences that a given resource base has a varying potential to provide. The ROS is a management tool designed to characterize and quantify demand for various types of recreational opportunities while realistically evaluating the capability of the resource base to provide such experiences. Any combination of recreational settings, opportunities, and experiences may be arranged along a continuum or spectrum. Six ROS classes are recognized:

1. ***'Primitive'*** – Unmodified natural landscape; little use and no on-site management controls.
2. ***'Semi-Primitive Non-Motorized' (SPNM)*** – Predominantly natural landscape; low use and few management controls.
3. ***'Semi-Primitive Motorized' (SPM)*** – Largely natural landscape; some evidence of others and few management controls.
4. ***'Roaded Natural' (RN)*** – Natural appearance retained but modifications present; moderate use and visible management controls; proximity to improved and maintained roads.
5. ***'Rural' (R)*** – Substantially modified natural environment with resource modification, development, and obvious human presence; moderate to high use and management controls.
6. ***'Urban' (U)*** – Natural landscape dominated by human modifications; heavy use and numerous management controls; proximity to paved highways.

Each of these classes is defined in terms of a combination of settings, activities, and experiential opportunities. ROS classes are established through inventory and assessment, and are used as an analytical tool in the resource management planning process. A ROS inventory has been completed for the AFO management area (Map ROS-1). It would be used to develop OHV designations, set limits for special recreation permits, and would be utilized in planning for a range of recreational experiences on public lands.

An inventory of all OHV roads and trails was completed in 2004 (see Map TRAVEL-1). Roads were designated as 'Open,' 'Limited,' or 'Closed' on approximately 902 miles of BLM roads and trails in the AFO management area to properly manage the OHV program and reduce negative impacts on various resources.

In addition, pressure is mounting from the general public, environmental groups, and within BLM itself, for better monitoring and enforcement of existing OHV regulations.

'Open' areas allow the use of any kind of vehicle, at any time, anywhere in the area. 'Open' use areas have been designated in areas suitable for intensive OHV use. These are areas with no compelling resource protection needs, user conflicts, or public safety issues that warrant limiting cross-country use.

'Limited' areas pose restrictions at certain times, or in certain areas, or for certain types of vehicles. Examples include seasonal limitations, requirements restricting use to existing roads and trails, and requirements restricting use to 'designated' roads and trails. The intention in restricting vehicles to designated or existing roads and trails is to limit the impacts of vehicle use to established travel routes. Reasonable pull-off space (adjacent to the road or trailside) is permissible for parking and camping unless otherwise posted (in many areas terrain and vegetation would limit pull off distance.) In WSAs, all vehicle travel is 'Limited to Existing Roads and Trails' as identified in the BLM roadless-area inventory of 1979.

'Closed' areas are not open to any kind of motor vehicle entry. Areas are 'Closed' where required to protect natural and/or cultural resources, or to provide areas for non-motorized recreational experiences.

2.9.6.1 Desired Future Condition

Multiple-use management is a fundamental tenet of BLM policy; therefore, reasonable and appropriate compromises would be achieved between the demand for OHV access and enjoyment, conservation of the resource base, and the equally important demands of those seeking to enjoy a non-motorized experience. Therefore, the future would involve designation of certain areas as 'Open' to OHV use. However, OHV use would be 'Limited to Designated Routes' where required to meet land health objectives and other areas would be 'Closed' to motorized access and recreation to protect vulnerable natural and cultural resources. If needed, roads or trails would be realigned to enhance or protect resource values, and to reduce erosion and sediment caused by poor road design or location.

Visitors would be provided with a spectrum of outdoor opportunities emphasizing self-sufficient exploration and recreation in 'Primitive', SPNM, SPM, and more intensively managed and used roaded natural settings. A variety of methods would be used to manage the impact of visitor concentration, including dispersal of use through visitor information and, if required, regulation. Corrections to control erosion hazards would vary in methods to manage impacts of visitor concentration. Facilities such as campgrounds, trailheads, trails, wayside interpretive exhibits, and directional signing would be installed where needed to protect resources or improve customer service and meet the objectives of this land-use plan. The public would be provided with opportunity to experience a variety of motorized and non-motorized recreational experiences including: hunting, fishing, hiking, horseback riding, and wildlife viewing.

2.9.6.2 Goal

The recreation opportunity spectrum process would be used to inventory, assess, and classify recreational opportunities and would be an aid to management planning. ROS classifications would be applied to the land base in the RMP process and would be used to guide management decisions within each ROS class.

2.9.6.3 Objectives

- Appropriate recreation opportunity spectrum classes would be selected for use in planning efforts.

- Inventories would be conducted and ROS classifications assigned for the entire management area.
- Appropriate actions and infrastructure would be used to apply ROS decisions to the land base.
- Lands would be managed on the basis of guidance provided within defined ROS classifications.

2.9.6.4 Legislative, Regulatory, and Policy Direction

- 43 CFR 8340 - Off-Road Vehicles; et seq. (1979)
- Executive Order 11644 – Use of Off-Road Vehicles on Public Lands (1972), as amended by Executive Order 11989 (1977)
- BLM Handbook H-8550-1 – Interim Management Policy and Guidelines for Lands Under Wilderness Review, DOI (Dec, 1979)
- Comprehensive Management and Use Plan – California National Historic Trail and Pony Express National Historic Trail, DOI National Park Service (1998)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, California (2003)
- BLM Handbook H-1601-1 – Land Use Planning (Mar., 2005)
- The National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (Jan, 2001)

The last two items direct BLM to complete OHV designations as part of the land use planning process. Federal regulations (43 CFR 8340) and BLM planning guidance require BLM to designate all BLM-administered land as 'Open', 'Limited', or 'Closed' to off-road vehicle (now termed off-highway vehicle or OHV) use. These designations help meet public demand for OHV activities, protect natural resources, ensure public safety, and minimize conflicts between users.

2.9.6.5 Proposed Management Actions

- All WSAs, including those that form part of an ACEC, are governed by the Interim Management Policy for Lands under Wilderness Review, or IMP (DOI BLM, 1995b), therefore; OHVs are 'Limited to Existing Roads and Trails' at the time of WSA designation until such time as Congress makes a determination regarding wilderness designation. OHV designations in WSAs would remain in effect until congressional release of the WSA, or until such time as actual, unforeseeable use levels cause the non-impairment criteria to be violated, in which case more restrictive designations may be imposed. Areas released from WSA status would be managed as 'Limited to Designated or Existing Routes', or according to the OHV designation underlying WSA status.
- Where existing roads have an adverse ecological impact, they may be closed through the plan maintenance process in accordance with Northeast California Resource Advisory Council (RAC) Guidelines for OHVs (See RAC Guidelines for OHVs, Appendix C). Roads designated for closure may be signed, physically barricaded, and/or obliterated and the land restored. Priority sites for restoration are riparian areas, damaged watersheds, and sensitive plant or wildlife habitats.
- Final area sizes would be accurately determined, and figures modified, according to results of on-the-ground global positioning system (GPS) inventories, while taking into account new designations and resource constraints.
- The San Francisco State University visitor survey would be used to help formulate ROS decisions.

- Scenic qualities would be maintained, at a minimum, to the present level. A recent recreation survey by San Francisco State University confirms this to be the desire of most local residents and the vast majority of visitors. However, new scenic byways would be considered, providing they are consistent with OHV designations and resource concerns are adequately addressed. Additional environmental analysis and documentation would be required.
- Corridors would be established along existing roads in RN, SPM, and SPNM areas of sufficient width to allow for road maintenance, vehicle pull-offs, and camping.
- The largest total acreage identified with 'Primitive' ROS classifications are within WSAs; as such, management of these areas is prescribed by Congress and BLM policy. Motor vehicle travel in the Pit River Canyon (10,984), Tule Mountain (16,998), and Lava (10,770) WSAs would be 'Limited to Existing Roads and Trails'. Where roads exist in 'Primitive' or SPNM areas, vehicle travel is acceptable as long as the vehicles stay on existing roads and ways.
- Roads throughout the planning area may be seasonally closed to prevent damage to soils, sedimentation, and other resource damage.
- OHV travel is 'Limited to Existing Roads and Trails', unless otherwise designated.
- Information and education would be provided to off-highway enthusiasts concerning awareness and sensitivity to proper use of public lands.
- Once the record of decision is signed, maps would be prepared for all areas with OHV designations and roads would be posted (where required) as directed in the PRMP/FEIS.
- Any recreational use on BLM lands, including commercial and noncommercial uses authorized under special recreation permits, would be evaluated, modified, prohibited, or permitted as needed to protect recreation settings and ROS designations.

Management would focus on modification of areas where changes are obviously needed due to condition of the road network, major or minor modifications to the environment, and other management concerns. BLM would provide opportunities for OHV travel and actively manage their use on public lands. This would be done while protecting significant cultural and historic resources, trail traces and locations associated with national historic emigrant trails.

Significant wildlife populations, as well as wildlife habitat and other valued resources, would also be protected. ROS designations would provide a full range of recreational opportunities for OHV enthusiasts and non-motorized uses of the public lands. Refer to Map ROS-1 for all changes to ROS designations and areas.

- Development of new roads and trails would only be allowed in RN and SPM areas where required to meet management objectives of this RMP.
- Where needed, roads or trails would be realigned to reduce erosion and sedimentation caused by poor road location or design, or when required to enhance or protect other resource values.
- Routes within areas classified 'Primitive' or SPNM would be 'Closed' or removed where continued unauthorized use (off road travel) dictates aggressive management to maintain the ROS designation. Roads and trails in RN and SPM areas would be 'Closed' when adaptive management indicators show this to be necessary.
- 'Primitive' and SPNM areas are limited to non-motorized recreational activities. However, motorized entry would be allowed for permitted activities or range management purposes.

- Project work, permitted uses, and recreational activities within SPNM and SPM areas would require careful consideration and thoughtful design, as well as stipulations and mitigations, in order to maintain the integrity of ROS and VRM classifications.
- The Lower Pit River Canyon (800 acres) would be classified 'Primitive' to protect its historic value, vulnerable wildlife habitat, and its primitive, roadless recreational character as a potential WSR candidate.
- A portion of upper Sheep Mountain (2,000 acres) would be classified 'Primitive' to maintain its historic value, scenic quality, and remote character.
- A portion of upper McDonald Mountain (2,515 acres) would be classified 'Primitive' to maintain unique ecotypes, its scenic quality, and remote character.
- The upper portion of Mount Dome (1,510 acres) would be classified 'Primitive' to maintain unique ecotypes, sensitive plant and animal associations, scenic quality and remote character.

Table 2.9-1 Recreation Opportunity Spectrum Classes

ROS Class	Area (acres)
'Primitive'	55,594
'Semi-Primitive Non-Motorized'	63,472
'Semi-Primitive Motorized'	273,539
'Roaded Natural'	110,440
Total	503,045

2.10 Soil Resources

Soil is essential for the growth of vegetation. Without an intact base of healthy, productive soil, watershed management goals for vegetation, wildlife, and livestock are not achievable. Soils in the AFO management area are semi-arid, young, and poorly developed. Chemical and biological processes that form soils (e.g., weathering of rock, accumulation of organic matter, decomposition of plant materials and nutrient cycling) proceed slowly in this environment. Soil recovery processes are also slow. For these reasons, soil disruption can have long-term adverse effects on soil ecology and productivity.

2.10.1 Desired Future Condition

Soils would exhibit PFC and moisture infiltration and permeability rates appropriate for the climate, local landforms, and soil types. Soils would have desirable physical, chemical, and biological characteristics – including biological crusts. PFC means that soils are adequately protected from man-caused wind and water erosion and soil fertility is maintained at, or restored to, an appropriate level for the site. Where biological threshold conditions exist (i.e., areas in stable but non-natural or degenerate condition–such as sagebrush/cheatgrass sites), "appropriate characteristics" are those that one would expect under threshold conditions. Under such conditions, reestablishing natural, healthy soils could only be expected over an extended timeframe (up to 100 years, and possibly longer). Despite this, some visible progress should be made within the life of this RMP.

2.10.2 Goal

The long-term health and productivity of area soils would be assured, with no *net* loss of soil fertility. Sedimentation would be controlled, occurring at a rate that does not threaten sensitive resources, or human health and property. Lithic and earthen materials would be available for suitable uses (e.g., roads, gravel, and livestock watering facilities).

2.10.3 Objectives

Soils would be protected where they meet land health standards. Site stability and/or soil productivity would be substantially improved where soils do not currently meet these standards. Erosion and sedimentation would be prevented or eliminated in sensitive aquatic (or other sensitive) environments and would no longer pose a threat to property or human health. Development of any kind would be limited to suitable soils. Earthen materials would be sufficient for the needs of county and state road departments.

2.10.4 Legislative, Regulatory, and Policy Direction

- Standards and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (S&Gs) (July 2000), particularly the Standards for Rangeland Health (Appendix B).[1]

[1] A portion of this document is concerned with the health standard for soil. This standard requires that upland soils exhibit infiltration and permeability rates appropriate for climate, landform, and soil type, and exhibit functional biological, chemical, and physical characteristics. It also requires that soil be adequately protected from man-caused wind or water erosion and fertility maintained at, or brought to, a pre-defined level. Although other standards guide and influence soil management decisions, the soil health standard are the basis for determining soil health, desired future condition, and the goals and objectives stated above.

2.10.5 Proposed Management Actions

Management practices will be implemented in order to achieve the desired future condition for soil. Management practices are generally applied as a system or set (rather than a single intervention), and are applied on a site-specific basis according to natural background conditions (i.e., climate, geology, landform, and ecology); current social, economic, and political considerations; and technical feasibility. Management practices will be used to achieve the following ends:

- Promote soil recovery on 10,154 acres known not to meet land health standards (see Map SOILS-1). Recovery practices would be formulated and applied on a site-specific basis at the project level.
- Employ bio-engineering projects to improve soil condition and achieve PFC on 200 acres of degraded soils.
- Ensure that management activities do not result in a *net* loss of soil productivity or productive potential.
- Developments and uses (e.g., roads and trails, stock ponds, and reservoirs) would be limited to soils with the most suitable characteristics or unproductive soils. (Soil survey reports are available for the entire management area at the local office of the Natural Resources Conservation Service (NRCS). Suitability determinations are included in these reports, which are also available on NRCS's website, currently at www.soils.usda.gov .)
- Manage livestock grazing to promote healthy soils and watersheds. This means preserving biological integrity (including biological crusts), ensuring proper hydrologic function, and maintaining soil productivity.
- Restrict wild horses to herd management areas (HMAs) and maintain numbers at or below appropriate management levels (AMLs). Reduce the AML if soil degradation is attributable to horses.
- Minimize activities and uses in perennial and intermittent drainages that would have adverse effects on watershed processes or function.
- Treat invasive plants and noxious weeds (or modify management) on sites where soil function and integrity are compromised. Medusahead and juniper-infested sites are of particular concern (except in areas where western juniper is a significant component of the ecological site description).
- Prevent damage to soils with high shrink-swell characteristics by limiting compacting activities (e.g., grazing, OHV use, and BLM maintenance activities) to periods when soil is dry and firm enough to resist compacting activities (i.e., when soil compression would be no greater than 2 inches for the sum of activities). Appraise and manage infrequent activities (i.e., those that occur at greater than 10-year intervals) on the basis of soil structural changes following the compacting activity (rather than using the compression standard).

Soil protection and management would primarily involve mitigation of soil-disturbing activities, conducted on a case-by-case basis. When altering uses and activities, by themselves, would not suffice to restore soil health – such as when threshold conditions have been exceeded – treatments would emphasize bio-engineering and other practices to rapidly achieve PFC and, ultimately, desired future condition. Practices will include:

- Construction of exclosures and upland fencing
- Intensive planting of woody riparian vegetation
- Vegetation manipulation

- Installation of in-stream structures
- Check dams and other erosion-control structures

Where significant progress is being made toward meeting land health standards, emphasis will be placed on natural recovery processes, including activity exclusion. Other important management actions are given below.

- Conduct road maintenance at the current rate.
- Rehabilitate or close roads where needed to protect or restore soils. Where necessary, relocate roads to more suitable locations. (See the "Travel Management" section of this RMP for details on proposed road relocations.)
- Limit development of roads, facilities, watering facilities, etc. to locations where soil would be most suitable for development, in order to avoid loss of soil productivity. Employ suitability data from soil survey reports and site investigations for this purpose.
- Plan and apply measures to ensure that no net loss of soil productivity occurs within 'sixth-level' (or larger) watersheds. (i.e., 10,000 to 40,000 acres).
- Establish properly constructed sediment intrusion buffer zones that extend for at least 50 feet beyond sensitive sites (e.g., bodies of water, vulnerable plants, and archaeological sites) and developed property. This primarily concerns roads and trails, but applies also to any soil-disturbing activity that would create significant wind or water-borne sediments that would threaten sensitive resources, property or human health.
- Restore and maintain soil health by emphasizing prescribed burns and other fuel-reduction projects. Follow this with reseeding or replanting, where indicated.
- Restrict heavy equipment to roads near perennial and intermittent drainages and wherever soils are not meeting land health standards—except where needed for rehabilitation or restoration.

2.11 Special Designations - Areas of Critical Environmental Concern

43 CFR and BLM policy require that environmentally sensitive areas be evaluated and considered for special management as ACECs during the PRMP planning process. 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 must extend beyond the local level.

The designation of an ACEC is a BLM discretionary decision made through adoption of an RMP. In order to protect the resource values that justified designation of each ACEC in this PRMP (Appendix E "Relevant and Important Criteria"), BLM is required to develop and implement an ACEC management schedule or an activity plan (BLM ACEC Manual 1613.6). Each ACEC's management schedule or activity plan will be unique to the resources to be protected and are "management measures that would not be necessary and prescribed if the critical and important features were not present" (BLM ACEC Manual 1613.1.12).

RNAs are a special category of ACEC designated to protect examples of typical or unusual ecological communities, associations, phenomena, characteristics, or natural features or processes for scientific and educational purposes. They are established and managed to protect ecological processes, conserve their biological diversity, and provide opportunities for observational activities associated with research and education. Areas may consist of diverse vegetative communities, wildlife habitat, unique geological formations, cultural resources, and/or other values.

Designation of an ACEC does not automatically create land use restrictions that affect all ongoing or proposed land uses but, rather, requires development of a set of management prescriptions tailored to protect the unique resource values for which the ACEC is established. Following adoption of this PRMP, a management schedule or activity plan for each ACEC will subsequently be developed, involving affected stakeholders, to set future management direction for the area. An ACEC designation applies to BLM lands and does not apply to private property rights and privately held water rights.

In compliance with NEPA, all proposed management actions on BLM lands, must be evaluated for their impacts whether such proposed management actions are within or outside an ACEC (e.g., fencing, ROW corridors, events authorized under a special recreation permit, etc.). The type of NEPA document required depends on the type of possible impact(s) and the extent of public interest and/or controversy associated with the proposed project.The AFO planning area contains a diversity of landscapes. These range from dense mountainside forests of white fir and pine to open grasslands and sagebrush-steppe. These habitats are interspersed or divided by prominent geological features such as lava plateaus, cinder cones, and river canyons. Fall is especially beautiful; at this time of year the reds, oranges, and yellows of oak, redbud, and aspen contrast sharply with black lava fields. This rugged and beautiful country contains many interesting plants and animals that depend on uncommon or unique ecosystems. As is often the case in harsh climates or difficult terrain, many occur in low numbers, have very limited ranges or widely scattered habitats. Such habitats are easily damaged or destroyed. The planning area (and the region) also has an ancient and important human presence with many irreplaceable (and easily damaged) archaeological sites.

2.11.1 Desired Future Condition

Unique resources and important values within ACECs would be enhanced (where feasible) and protected from irreparable harm.

2.11.2 Goal

Designate ACECs where the relevance and importance criteria are met, and implement management actions to protect recognized values.

2.11.3 Objectives

Identify and protect all sites and resources that meet the relevance and importance criteria. Where necessary, take immediate steps to prevent irreparable damage to resources and natural systems. Promote safety and protect human life where natural hazards exist. Evaluate and consider designation for all areas that meet ACEC requirements. Formulate and implement management plans for designated ACECs.

2.11.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act, Sections 603, 201, and 202 (1976)
- Federal Cave Resources Protection (16 U.S.C. 4301-4310), (Nov., 1988), as amended (1990)
- Baker Cypress/Lava Rock Natural Area and Instant Wilderness Study Area (Feb., 1979)
- BLM Regulations: H-8550-1 (July, 1995)
- Comprehensive Management, Use Plan, and Final EIS; California National Historic Trail and Pony Express National Historic Trail; USDI-National Park Service (1998)
- BLM Manual 1621 (Supplemental Guidance for Environmental Resources) (1986)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, CA (2003)
- The Mount Dome Planning Unit EIS (1980)
- Archaeological Resources Protection Act (1979)
- 43 CFR 1610
- BLM Manual 1613
- Land Use Planning Handbook, BLM H-1601-1, (2005)

2.11.5 Proposed Management Actions

BLM would maintain the existing Ash Valley ACEC (1,322 acres) and manage the Baker Cypress Natural Area (1,448 acres) as part of the new Timbered Crater ACEC.

Designate the following (proposed) ACECs, for a total of 29,171 acres, as shown on Map ACEC-1 and summarized in Table 2.11-3:

- Timbered Crater ACEC/RNA (17,896 acres)
- Mountain Peaks ACEC/RNA (3,500 acres)
- Old Growth Juniper ACEC/RNA (3,115 acres)
- Emigrant Trails ACEC (1,750 acres)
- Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC (1,400 acres)

- Mount Dome ACEC/RNA (1,510 acres)

Three of the proposed ACECs, and one instant study area (ISA) are wholly or partially within WSAs. These are listed for clarification in Table 2.11-1.

Table 2.11-1 Relationship between Wilderness Study Areas, Areas of Critical Environmental Concern, and Instant Study Areas

Wilderness Study Area	WSA Size (acres)	ACEC Title	ACEC Size (acres)	Instant Study Area	ISA Size (acres)
Timbered Crater WSA	17,896	**Timbered Crater ACEC**	within WSA 17,896	**Baker Cypress Natural Area**	within WSA 1,448
Pit River Canyon WSA	10,984	**Emigrant Trails ACEC**	within WSA 1,000 outside WSA 750	N/A	N/A
Tule Mountain WSA	16,998	**Mountain Peaks ACEC**	within WSA 985 outside WSA 2,515	N/A	N/A

The following table provides a summary of ACEC lands that are proposed and would exist outside WSA boundaries (see Maps ACEC-1 and WSA-1).

Table 2.11-2 ACECs Outside of WSA Boundaries

ACEC Name	Total Area (acres)
Emigrant Trails ACEC	750
Mountain Peaks ACEC	2,515
Old Growth Juniper ACEC	3,115
Mount Dome ACEC	1,510
Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC	1,400
Total	**9,290**

An ACEC (or portion thereof) that is encompassed by a WSA is governed under the wilderness IMP until such time as Congress makes a determination regarding wilderness designation. (ACECs are proposed and management plans developed without reference to WSA status since wilderness designation is uncertain.) Such an ACEC (or portion thereof), if released from wilderness study, would be managed under management actions prescribed in this PRMP.

In some cases, ACEC management is more restrictive than the wilderness IMP (e.g., limiting vehicles to designated routes or closing the area to livestock grazing). Under such circumstances, the more restrictive management would apply. Should an ACEC (or portion thereof) receive wilderness designation, management of that area would be determined by the authorizing legislation.

Recreational activities in ACECs—including (commercial and non-commercial) pursuits that require special recreation permits—will be evaluated for compatibility with the purposes for which the ACEC was created. The activity would then be allowed (a permit would be issued for certain activities), modified, or prohibited as necessary to preserve the resources and values within the ACEC.

ACECs would be managed under VRM Class II criteria (or Class I criteria where subject to the wilderness IMP).

Livestock grazing within ACECs would be managed according to permit stipulations, AMPs, and ACEC management plans.

Noxious weeds would be aggressively controlled in ACECs.

All ACECs are closed to new ROWs. This means that any applications for new ROWs or utility corridors would completely avoid all ACECs.

All ACECs or ACECs/RNAs would be 'Closed' to saleable minerals. Withdrawals would be recommended for locatable minerals. Leasable minerals would be restricted to NSO requirements.

Most ACECs would be closed to woodcutting and timber sales unless actions are required for maintenance or health of the ACEC and the associated values. Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC would be open to woodcutting with stipulations.

2.11.5.1 Timbered Crater ACEC/RNA

The Timbered Crater ACEC/RNA would be managed to protect the unique geological, botanical, and biological resources of this area under provisions of the existing WSA and the Baker Cypress Natural Area, with the following additions:

- Combine the Timbered Crater ACEC/RNA (17,896 acres) with the Baker Cypress Natural Area (1,448 acres-all within Timbered Crater) and designate the total area (17,896 acres) as the Timbered Crater ACEC/RNA.
- Protect the lava ecosystem, special status plant slender Orcutt grass (*Orcuttia tenuis*), and the unique stand of Baker cypress (*Cupressus bakeri*), and provide research related to the representation of a healthy vegetation community.
- Maintain fences so that livestock are excluded from the Orcuttia site, as well as OHVs, to prevent degradation of soil and vegetation.
- Manage vegetation (through prescribed fire treatments) to eliminate the threat of disease to this unique special plant community and promote the health and viability of the species.
- Continue current research and monitoring. Focus on recovery of the potential natural community; begin with determining characteristics of this unique botanical community.
- Designate OHV use as 'Limited to Designated Routes'.
- Implement fire protection and control methods appropriate for the maintenance of this unique ecosystem.
- Manage the ACEC under VRM Class I-as long as the area is under WSA status and VRM Class II if Congress elects not to designate the area as wilderness.
- Designate approximately 95% of the ACEC as a 'Primitive' classification under the ROS to ensure pristine, unspoiled conditions for hunting, hiking, wildlife observation, and geologic and scenic sightseeing (see ROS designations for this area shown on Map ROS-1).

2.11.5.2 Mountain Peaks ACEC/RNA

Create the ACEC by designating the a portion of the Tule Mountain WSA (985 acres) and a portion of McDonald Mountain (2,515 acres) as the Mountain Peaks ACEC/RNA (3,500 acres of BLM-administered land) to protect unique high mountain peak vegetation, scenic values, wildlife resources and habitat linkage.

- Designate approximately 75% of the ACEC as a 'Primitive' classification under the ROS to ensure pristine, unspoiled conditions for hunting, hiking, wildlife observation, and scenic sightseeing (see ROS designations for this area shown on Map ROS-1).
- Monitor livestock grazing to ensure compliance with permit stipulations. Emphasize meeting and maintaining land health standards and protection of wildlife habitats.
- Manage approximately 25% of the ACEC/RNA under VRM Class I criteria (i.e., preserve the existing character of the landscape within the Tule Mountain WSA), and the remainder as VRM Class II (i.e., retain the existing character of the landscape).
- Manage for undeveloped recreation opportunities such as primitive trails and scenic resources. Obtain legal access and establish non-motorized trails to McDonald Peak and non-motorized portions of Tule Mountain, subject to seasonal wildlife-protection requirements.
- Build or maintain non-motorized trails that cross scenic landscapes, provide wildlife viewing opportunities, and link recreation areas.
- Monitor mountain peaks use to ensure compliance with OHV restrictions ('Limited to Existing Roads and Trails) and camping regulations.

2.11.5.3 Old Growth Juniper ACEC/RNA

Create the Old Growth Juniper ACEC by designating two areas – Sheep Valley consisting of (2025 acres), and Ticker Springs (1090 acres), with a total of 3,115 acres – to protect botanical, cultural, biological and geological values, fish and wildlife resources, and scenic values.

- Preserve the ACEC's undeveloped character by acquiring internal or adjacent private lands from willing sellers that support the ACEC designation.
- Protect historic and prehistoric resources under Section 106 of the NHPA.
- Monitor stream channel conditions in Sheep Valley to detect changes that threaten the riparian community, sensitive soils, and wildlife and native fish habitat.
- Close the Sheep Valley portion (2025 acres) of the ACEC to motorized vehicles. The Ticker Springs area (1090 acres) would limit OHVs to designated roads and trails.
- Monitor water quality in Sheep Valley to ensure that state standards are upheld. Where problems are indicated, take steps to control bank degradation or other impacts that adversely affect water quality.
- Designate approximately 60% of the ACEC as a 'Primitive' classification under the ROS to ensure pristine, unspoiled conditions for hunting, hiking, wildlife observation, and scenic sightseeing (see ROS designations for this area shown on Map ROS-1).
- Manage the entire ACEC/RNA as VRM Class II to retain the existing character of the landscape.
- The ACEC would remain available for livestock grazing with the exception of a few areas of public land behind fences that exclude livestock from riparian areas, cultural resources, or sensitive soils. Improve and maintain riparian and aquatic habitats of Sheep Valley.

2.11.5.4 Emigrant Trails ACEC

Create the Emigrant Trails ACEC by focusing on three areas that have significant trail traces or resources associated with the Lassen and Applegate National Historic Trails (1750 acres), to protect cultural and historic, biological and geological values, fish and wildlife resources, and scenic values. The ACEC falls within portions of the Pit River Canyon WSA and incorporates segments of trails on the Lower Klamath Marsh and the Descent into Goose Lake areas.

- Manage portions of BLM-administered lands in the Pit River Canyon WSA and at the Descent into Goose Lake for non-motorized uses.
- As part of the Pit River Canyon WSA, manage the ACEC under the Wilderness IMP—including VRM Class I criteria (preserve the existing character of the landscape) —to protect its natural appearance and wilderness qualities. However, if the area is not designated wilderness by an Act of Congress and is released from WSA status, it will no longer be subject to the Wilderness IMP. If this happens, visual resources would be managed under VRM Class II criteria. VRM Class II is not quite as restrictive as Class I but still emphasizes management to retain the existing character of the landscape.
- Protect prehistoric and historic sites and artifacts under Section 106 of the NHPA.
- Monitor livestock use on historic trail resources and artifacts. If deemed necessary, modified grazing systems, changes to season of use, or fencing may be used to preserve and protect significant trail resources.
- Acquire private land (from willing sellers) that support the ACEC designation within and adjacent to the ACEC that would protect the Emigrant Trails ACEC values and provides legal public access.
- OHV use would be 'Limited to Designated Routes' in Lower Klamath marsh area, and 'Limited to Existing Roads and Trails' in the Pit River Canyon WSA and the Descent into Goose Lake.
- Acquire legal access (from willing sellers) from Highway 299 to Pit River WSA (T. 37 N. R 6 & 7 E) for the benefit of fishermen, hunters, and hikers.
- Provide and enhance opportunities for fishing, hiking, and archaeological/historic sightseeing.
- Designate approximately 40% of the ACEC as a 'Primitive' classification under the ROS to ensure pristine, unspoiled conditions for hunting, hiking, wildlife observation, scenic, and historical sightseeing (see ROS designations for this area shown on Map ROS-1).
- Monitor visitor impacts on cultural resources, wildlife, and scenic landscapes. If necessary, modify management to protect these resources.

2.11.5.5 Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC

Create the Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC by designating 1,400 acres of BLM-administered land as an ACEC, to protect cultural and historic, biological and botanical values, fish and wildlife resources, and scenic values.

- Improve cultural and riparian condition by maintaining existing or modified livestock grazing strategies, which limits livestock grazing to specific areas and seasons of use.
- Manage and protect prehistoric and historic sites and artifacts under Section 106 of the NHPA.

- As part of the Tablelands Integrated Resource Management Plan and proposed ACEC, manage this area under the VRM Class II criteria. Class II emphasizes management to retain the existing character of the landscape.
- Manage the ACEC for OHV use as 'Limited to Designated Routes'.
- Track management objectives by monitoring visitor impacts, recording, and evaluating water quality, riparian health, wildlife, scenic landscapes, and the condition of cultural resources. If necessary, modify management to protect these resources.
- Provide and enhance opportunities for primitive (self-contained) camping, hunting, hiking, and scenic and historic sightseeing.
- Provide a peaceful, undisturbed setting for cultural use by Native Americans.

2.11.5.6 Mount Dome ACEC\RNA

Create the Mount Dome ACEC/RNA by designating 1,510 acres of BLM-administered land within the Lower Klamath basin as an ACEC/RNA to protect vegetation, wildlife, and scenic values and the undeveloped setting of Mount Dome.

- In conjunction with the Mount Dome Habitat Management Plan, manage the Mount Dome ACEC/RNA under VRM Class II criteria (emphasizes management to retain the existing character of the landscape) in order to protect its natural appearance, wilderness like qualities, and bald eagle habitat.
- Designate the ACEC as a 'Primitive' classification under the ROS to ensure pristine, unspoiled conditions for hunting, hiking, wildlife observation, and scenic sightseeing (see ROS designations for this area shown on Map ROS-1).
- Monitor livestock grazing numbers. Manage so that land health standards and riparian objectives are achieved.
- OHVs would be 'Limited to Existing Roads and Trails'.
- Protect cultural resources under Section 106 of the NHPA.
- Protect raptor nesting sites under the Migratory Bird Treaty Act and the Bald Eagle Act (which also includes golden eagles).
- Acquire private land (from willing sellers) adjacent to the ACEC to provide legal public access and protection of wildlife habitat and cultural resources.

Table 2.11-3 Management Summary for Proposed Areas of Critical Environmental Concern

Acres	ROW	VRM	Grazing	OHV	Minerals			Timber Harvest/ Wood-cutting	Wildland Fire Manage-ment
					Leasable	Saleable	Locatable		
Ash Valley ACEC									
1,322	Exclusion	II	Available	LE	NSO	Closed	Withdrawn	Closed	AMR
Baker Cypress Natural Area, ISA, and ACEC (entire ACEC is within Timbered Crater WSA)									
1,448	Exclusion	I	Available	LD	Closed	Closed	Rec. for Withdrawal	Closed	AMR
Timbered Crater ACEC/RNA (entire ACEC is within Timbered Crated WSA)									
17,896	Exclusion	I	Available, except in *Orcuttia* exclosure	LD	Closed	Closed	Rec. for Withdrawal	Closed	AMR
Emigrant Trails ACEC (1,000 acres are within Pit River Canyon WSA)									
1,750	Exclusion	I, II	Available	LE	NSO, Closed in Pit River WSA (1,000 acres)	Closed	Rec. for Withdrawal	Closed[2/]	AMR
Mount Dome ACEC/RNA									
1,510	Exclusion	II	Available	LD	NSO	Closed	Rec. for Withdrawal	Closed	AMR
Mountain Peaks ACEC/RNA (985 acres are within Tule Mountain WSA)									
3,500	Exclusion	I, II	Available	LE	NSO, Closed in WSA (985 acres)	Closed	Rec. for Withdrawal	Closed	AMR, WFU in Tule Mt WSA
Old Growth Juniper ACEC/RNA									
3,115	Exclusion	II	Available, except in Sheep Valley exclosure	Closed in Sheep Valley (2,025 acres) LD at Ticker Spring (1,090 acres)	NSO	Closed	Rec. for Withdrawal	Closed	AMR
Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC									
1,400	Exclusion	II	Available	LD 4/16–11/30 Seasonally Closed 12/1–4/15	NSO	Closed	Rec. for Withdrawal	Open with restrictions	AMR

OHV designations: LD = 'Limited to Designated Routes' LE = 'Limited to Existing Roads and Trails'

Leasable minerals: NSO = no surface occupancy

2.12 Special Designations – National Historic Trails

The first (known) explorers to enter this region were Hudson's Bay Company employees, chief-traders Peter Skene Ogden in 1826, followed by John Work in 1832. These men established a far-reaching beaver-trapping and trade route network based at Fort Vancouver (in what is now Washington State) that extended throughout the Pacific Northwest and into the great Basin, including the high-desert country of northeastern California. Ewing Young, together with other American trappers, followed shortly thereafter, competing with the Hudson's Bay Company for the lucrative trapping grounds of the Pacific Northwest.

In 1843, Joseph Chiles left the Oregon Trail (at the Hudson's Bay Company post of Fort Hall, in what is now Idaho) and entered this region with a party of men on horseback. This party was soon followed (1846) by settlers in wagons led by Levi Scott and the Applegate brothers. Two years later, Peter Lassen established the trail that bears his name. Both trails entered California through the Surprise Valley and traversed the Warner Mountains before separating at Goose Lake. The Lassen Trail followed the course of the Pit River to reach the Sacramento Valley and the main California goldfields. However, the Applegate Trail (a.k.a. the Southern Road to Oregon) pressed north to the fertile valleys of Oregon Territory. An offshoot, the Yreka Trail (established in 1852), left the Applegate near Lower Klamath Marsh and served miners and settlers bound for the Klamath River goldfields in northwestern California.

The first military expedition (The United States Exploring Expedition) to this region was led by Commander Charles Wilkes of the U.S. Navy (1841), follow by John Charles Fremont in 1843 and 1846. Fremont was present in the California/Oregon border region when, in 1846, news of the Bear Flag revolt arrived. Fremont was instrumental in taking northern California from Mexico. A short time later, the U.S. Army Topographical Corps played a major role in exploring the region, searching for routes that would unify the nation through an east-west railway link. A U.S. Army topographical engineer, R.S. Williamson, was a prominent figure in the exploration and early history of the Pit River country from 1849 through 1855.

Throughout the period of settlement the native Modocs, Pit Rivers, and Paiutes were at odds with the U.S. Army because of conflicts stemming from the wholesale invasion of their homeland by gold-seekers and emigrants. Hostilities commenced with the first wagon of settlers in 1846. Volunteer militia and the U.S. Army patrolled regional roads (such as the Lockhart Wagon Road and the Yreka, Lassen, and Applegate Trails) to protect emigrants from attack by native peoples. Hostilities escalated, culminating in the battle of the Infernal Caverns in 1867. The Modoc War of 1872-73 marked the end of significant armed conflict in northeast California.

2.12.1 Desired Future Condition

Visitors to lands administered by the AFO would increase their understanding and appreciation for local history by exposure to, and direct experience of (e.g., exploration of trail remnants), historic trails and associated locations, structures, and artifacts. Interpretive displays would identify important locales and explain their role in historical events. These efforts would lead to an increase in history-based tourism and greater understanding between peoples of Euro-American and native origin.

2.12.2 Goal

Provide or enhance history-based recreational opportunities related to historic trails (in developed and undeveloped settings), where appropriate. Ensure that history-related facilities and increased visitation will not threaten other resources.

2.12.3 Objectives

Protect historically important settings, including the physical traces and visual integrity of historic trail sites. Provide a range of recreational opportunities that encourage visitors to learn about and experience emigrant trails, military patrol routes, and trail-related historical sites.

2.12.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976)
- 43 CFR 8340, (Federal Register 44:34836) (June, 1979)
- DOI BLM, H-8550-1, Rel. 8-17 (Interim Management Policy for Lands under Wilderness Review) (July, 1995)
- DOI BLM, Priorities for Recreation and Visitor Services (May 2003)
- BLM Land-Use Planning Handbook (H-1601-1) (Mar., 2005)
- Comprehensive Management and Use Plan, California National Historic Trail and Pony Express National Historic Trail, DOI National Park Service (1998)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, California (2003)
- BLM Manual 8400 (Visual Resource Management) (1984)

2.12.5 Proposed Management Actions

The AFO will protect and manage significant national historic trails and associated locations, structures, and remnants, for public edification and enjoyment. BLM will emphasize off-site (historical) interpretation and compatible recreational development in three especially significant locations: Lower Klamath Marsh, Goose Lake, and the upper Pit River Canyon. Although these areas are very different in terms of ease of access and suitability for certain forms of recreation, together they offer a range of possibilities for exploring and enjoying historic trails that is compatible with trail preservation, if properly managed. Typical activities of this kind are hiking, horseback riding, and recreational driving/sightseeing (two-wheel drive [2WD] and four-wheel drive [4WD]) (Map HT-1).

An Emigrant Trails ACEC would be created to protect and intensively manage 1,750 acres of historic trail remnants and associated historical artifacts. (See the ACEC section for additional information.)

The following sites (and possibly others) would become part of the "Historic Sites Scenic Byway":

- Bloody Point–County Road
- Madigan's Rock
- Infernal Caverns–U.S. Highway 395

Individual recreation development packages would be implemented at key historic trail locations. Visitor conveniences may include hiking and horseback trails, (history-related) interpretive trails and panels, sweet-smelling toilets, and vehicle parking, pullouts, and barriers.

The following areas have been identified for such development:

Applegate Trail

- Lower Klamath Marsh (4WD)

- Applegate/Yreka Trail--Laird's Landing
- Sheep Mountain–Modoc War (4WD)
- Battle of the Infernal Caverns
- Baker Toll Road (4WD)

Lassen Trail

- Round Barn
- Crowder Flat Road

Additional management actions include:

- Provide or enhance recreational opportunities related to national historic trails, by establishing interpretive locations that specialize in history that fits the site, specific location and motif of the locale.
- Develop an interpretive package for and at the Descent into Goose Lake. This would include a 0.25-mile interpretive trail, picnic tables, waterless toilet, parking area, and access for viewing trail traces. On-site interpretive displays would feature regional exploration, emigrant trails, Native Americans, and native wildlife.
- Collaborate with the Sierra Pacific Power Company and the BLM California State Office to acquire fee title to a parcel of land (256 acres) associated with the Battle of the Infernal Caverns.
- Protect and maintain 29 miles of the following historic trails (Map HT-1):
    - Applegate Trail (4 miles)
    - Lassen Trail (20 miles)
    - Applegate/Lassen Trail (2 miles)
    - Yreka Trail (2 miles)
    - Burnett Cutoff (1 mile)
- Whenever possible, acquire important historical sites and historic trail segments (from willing sellers).
- Collaborate with federal, state, and county agencies, and private entities (e.g., Oregon-California Trails Association, Trails West, etc.) to develop a Historic Sites Scenic Byway to encourage rural tourism through off-site interpretive displays and history-related vista points. (On-site development would be minimized in order to reduce vandalism and vehicular impacts.)

2.13 Special Designations – Scenic Byways

Driving scenic byways has become a commonplace activity and an effective aid to rural tourism—especially where popular routes are conjoined. These routes may follow short, sinuous country roads or involve long-distance travel on major federal and state highways. They may include scenic vistas, points of interest, interpretive sites, and other attractions. Routes that qualify as national scenic byways have more rigorously defined parameters.

Qualifying routes must be suitable for ordinary passenger vehicles and, in addition to outstanding scenery, require points of interest and other high-quality, tourist-oriented attractions and conveniences adjacent to the byway.

As previously mentioned, shorter routes are often narrow, winding country roads that offer outstanding scenery and other roadside attractions—such as wildlife-viewing, photography, picnicking, and the opportunity to explore historical or archaeological sites. Some routes are relatively rough, and more suited to adventurous drivers and high-clearance vehicles.

Other routes access trailheads for hiking or horseback riding, or rugged terrain requiring 4WD. Such routes are associated with other recreational activities such as hunting, fishing, vehicular (self-contained) camping, rock-hounding, and caving. As one might expect, use is greatest on holiday weekends—particularly Memorial Day, the Fourth of July, and Labor Day. Peak use is in fall and summer; primarily for hunting and fishing (and self-contained camping associated with these activities) and, to a lesser degree, for sightseeing or hiking access.

2.13.1 Desired Future Condition

A wide range of scenic driving opportunities would be available to the public. Routes would vary in length and degrees of difficulty (from major highways to single-track, 4WD routes), roadside attractions, and travel amenities. The routes themselves, and associated facilities, would be appropriate to the ROS and VRM classifications for the area.

Well-traveled routes would feature identified scenic vistas, interpretive displays, developed (or basic) campgrounds and directional signing where required for visitor convenience and safety. Interpretive displays would provide basic information on natural history or cultural resources. Detailed information, maps, and brochures would be available at the AFO (or from the website), and from visitor's centers and businesses in gateway communities.

Trail systems (motorized and non-motorized) would be designed to show scenic potential to best advantage, particularly in SRMAs. As with hard-surfaced roads, trails would vary in distance, construction, design, and degree of difficulty. They would be built as return-routes ("loop trails") in most locations. Outside SRMAs, signs would generally be limited to primary routes and employed only for direction-finding, to preserve the undeveloped character of the extensive recreation management area. However, signs may be placed on secondary routes where necessary for resource protection or to minimize user conflicts. 'Closed' routes would be physically blocked according to site-specific requirements (in some instances trails would only be signed). The abandoned railroad line would be obtained from the Union Pacific and converted to recreation trails (in cooperation with Lassen County, Modoc County, and the Eagle Lake Field Office).

2.13.2 Goal

Enhance or modify existing routes, or maximize potential when planning new routes, to showcase scenic qualities and points of interest for roads and trails eligible as scenic byways. Ensure that development and use does not compromise natural or cultural resources.

2.13.3 Objectives

Ensure that scenic byway potential is recognized and developed for routes that vary in length, construction, user-suitability, and scenic attributes. Route planning, design, and construction must be compatible with ROS and VRM classes for the affected areas.

2.13.4 Legislative, Regulatory, and Policy Direction

General Direction

- The Federal Land Policy and Management Act (1976)
- 43 CFR 8340 (Off-Road Vehicles) (1979)
- DOI BLM, H-8550-1 (Interim Management Policy for Lands under Wilderness Review) (July 1995)
- Comprehensive Management and Use Plan, California National Historic Trail and Pony Express National Historic Trail; DOI National Park Service (1998)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, California (2003) `

Planning and Management Documents for Adjacent Lands

- Comprehensive Land Use and Management Plan for Federal and State-Managed Lands in Modoc County (May 1995)
- DOI National Park Service; Comprehensive Management and Use Plan and Final Environmental Impact Statement, California National Historic Trail and Pony Express National Historic Trail (1998)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, California (2003)

2.13.5 Proposed Management Actions

Designate and manage the following proposed scenic byways:

• U.S. Highway 395 - Alturas to Reno	190 miles
• State Highway 139 - Canby to Susanville	90 miles
• State Highway 299 - Adin to Redding	110 miles
• State Highway 139/Canby to U.S. Highway 395/Nevada state line	170 miles
• Total	560 miles

Continue work to add additional segments and interpretive locations to the Emigrant Trails Scenic Byway (U.S. Highway 395 and State Highways 299 and 139). The Modoc County Scenic Byways Committee recommends Highway 395 from Alturas to the Nevada border *or* Route 299/139 from Canby to Susanville for the next phase of development.

Assume responsibility for interpretive planning and development on the BLM-administered portion of the Emigrant Trails Scenic Byway at the Descent to Goose Lake. BLM would cooperate with the Northern California Resource Center for interpretive planning and development on the Applegate and Lassen National Historic Emigrant Trails (also at the Descent to Goose Lake). The site would encompass ten acres plus a one-quarter mile interpretive walking trail, as well as a one-mile hiking trail.

Modify or enhance existing routes to create new scenic roadways, driving loops, and vista points, where there is sufficient demand. Development and use must be consistent with VRM and ROS classes, and with OHV designations: site-specific planning would ensure harmonious integration with the surrounding area.

Cooperate with the Modoc County Scenic Byways Committee, adjacent BLM offices, and other agencies to include both sections recommended by the Committee into the Emigrant Trails Scenic Byway (i.e., State Highways 139/299, from Canby to Susanville, and U.S. Highway 395, from Alturas to Susanville to the Nevada border). Work with the same cooperators to add State Highway 299, from Adin to Redding, to the scenic byways system (see Map SB-1 for proposed locations).

Designate the Clark's Valley Road Driving Route for 21 miles. Encourage the development of additional routes in suitable locations, if justified by public demand.

2.14 Special Designations - Wild and Scenic Rivers

Lower and Upper Pit River Canyon and 18 other streams were initially examined for WSR eligibility. After detailed evaluation, portions of three waterways were found suitable for consideration by Congress, namely: lower Pit River Canyon, upper Pit River Canyon, and lower Horse Creek. (See Map WSR-1 for the location of these river and stream segments.)

The proposed **Lower Pit River Canyon WSR** is 2.5 miles in length and covers 400 acres. This portion of the canyon is impressive geologically and contains outstanding recreational assets. It also contains abundant fish and wildlife and areas of historical significance. This stretch of river is popular with kayakers and rafters as well as fishermen and hikers. Access is obtained over a deteriorated and badly-overgrown historic road from the east, the condition of which precludes motor vehicle access. (The road is not maintained.) From the west a better and more useable trail accesses the area. The area encompasses a near-pristine setting that is no great distance from Redding, CA and other northern California population centers. BLM, PG&E, Clearwater Lodge, and local residents have initiated plans for a recreational trail system (based on existing, but deteriorated routes) in an effort to provide healthful recreation and promote tourism.

The proposed **Upper Pit River Canyon WSR** is 13 miles in length and covers 1,500 acres of riparian and upland habitats. This portion of the canyon is also part of a WSA because of its pristine, natural state. In this region, the Pit River bisects a large volcanic plateau to form a deep and spectacular canyon containing many unique geological features and exceptional scenery. It also contains abundant fish and wildlife, largely untapped recreational potential, and areas of historical significance. The flats above the canyon are critical wintering habitat for deer and pronghorn. Canyon cliffs provide important nesting habitat for birds of prey. Two branches of the Lassen Emigrant National Historic Trail traverse the study area. There is also a warm-water fishery, but difficult access and rugged topography result in low-level participation for all recreational activities. Unfortunately, late-summer water volume is quite low due to agricultural water diversions in three upstream valleys. A fourth diversion provides water for a small hydro-power project downstream from the (proposed) WSR boundary. (The diversion, dam, reservoir, and powerhouse are outside the study area, on private property.) However, water is only diverted during high-water periods (winter and spring). A minimum flow requirement ensures that water will remain when river volume is low (summer).

The proposed **Lower Horse Creek Canyon WSR** is this creek's terminal portion and also part of the Pit River Canyon WSA. Three miles in length, it covers 400 acres of riparian and upland habitats before joining the (proposed) Upper Pit River WSR. The creek flows through a smaller, though equally unspoiled canyon, of exceptional scenic beauty and geological interest. It also contains abundant fish and wildlife, largely untapped recreational potential, and some areas of historical significance. Cold and warm-water fisheries exist, but difficult access and rugged topography result in low-level participation for all recreational activities.

2.14.1 Desired Future Condition

Assuming Congressional designation, these waterways, associated uplands, and sensitive resources would be preserved in a natural state. Public awareness and appreciation for these WSRs would be encouraged through (mostly off-site) interpretive signing and roadside scenic vistas (where feasible and appropriate).

Through these efforts, and the recognition WSR designation would bring, these areas would become more widely known, appreciated, and used for low-impact activities such as fishing, hunting, hiking and backpacking, rafting and kayaking, nature study, sightseeing, and photography.

Motor vehicles would be allowed within reasonable distance of canyon rims, on designated routes established and maintained for public access. However, non-motorized travel (e.g., walking, horseback, or mountain-bike) would be maintained where feasible within these WSR areas.

2.14.2 Goal

The free-flowing character, remarkable features, and outstanding natural beauty of these proposed WSR segments would be preserved until such time as Congress makes a determination regarding WSR designation. If designated, these same features and qualities would be permanently preserved for present and future generations.

2.14.3 Objectives

Manage three rugged canyonland waterways (a total of 18.5 miles), and associated uplands, so as not to impair their suitability for WSR designation. If designated, ensure that future planning, projects, and management actions maintain the free-flowing character and outstandingly remarkable values of these WSRs. Provide reasonable public access and encourage low-impact recreation. Ensure that hazard information is available to the public and encourage safe and responsible behavior for inherently dangerous activities—particularly whitewater kayaking and rafting.

2.14.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976)
- The Wild and Scenic Rivers Act (PL 90-542) (1968)
- The Wilderness Act (PL 88-577) (1964)
- DOI, Management Policy and Guidelines for Lands Under Wilderness Review (Dec., 1979)
- Interim Management Policy and Guidelines for Lands Under Wilderness Review (1995)
- Comprehensive Land Use and Management Plan for State and Federal Lands in Modoc County, CA (May, 1995)
- DOI National Park Service, Comprehensive Management and Use Plan: California National Historic Trail and Pony Express National Historic Trail (1998)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, CA (2003)

2.14.5 Proposed Management Actions

River and stream segments that are eligible and recommended suitable for protection under the Wild and Scenic Rivers Act will be managed to preserve their "outstandingly remarkable values". River segments not recommended suitable would be released from further protection under the Act. The Wild and Scenic River Suitability Criteria for each eligible stream are listed in Appendix J. The following river segments have been found administratively suitable for WSR designation:

- The Upper Pit River Canyon (13 miles) and Lower Horse Creek Canyon (3 miles) WSRs are recommended as suitable under a 'wild' classification.
- A 'scenic' classification will apply to the Lower Pit River Canyon WSR (2.5 miles).

These classifications will better preserve the pristine, natural conditions that make these river segments so appealing. The free-flowing character and outstandingly remarkable values of rivers judged suitable for WSR designation would be fully protected under the interim protection afforded by WSR legislation until such time as Congress makes a determination.

Areas that receive WSR designation will be 'Closed' to leasable minerals and fluids, renewable energy, mining and mineral exploration (i.e., saleable and locatable mineral activity). Whenever possible, BLM would acquire privately owned land (from willing sellers), within study area canyons, on or near their rims, or in areas that—when seen from the river or nearby roads and trails—would expand, enhance, or provide additional protection or needed public access to these WSR study areas.

Management would emphasize visitor education and interpretation. The connection between historic trail remnants and early American exploration, military expeditions, settlement and conflict would be emphasized for the Lower Pit River Canyon WSR, along with Native American sites and culture, geology, and native fish and wildlife. Visitor education and interpretation for the Lower Horse Creek Canyon and Upper Pit River Canyon WSRs would focus on native wildlife, geology, emigrant trails and Native American culture.

The Upper Pit River Canyon and Lower Horse Creek Canyon WSR study areas are within the Pit River Canyon WSA; therefore, they are subject to the wilderness IMP. For this reason, the following requirements also apply to them:

- WSAs (and these WSR areas) are 'Closed' to mineral extraction.
- WSAs (and these WSR areas) are managed under Class I VRM stipulations to preserve an essentially unaltered landscape.
- OHVs are 'Limited to Existing Roads and Trails' in WSAs (and these WSR areas).

ROS 'Primitive' stipulations would apply to all three WSR areas.

OHVs are 'Limited to Existing Roads and Trails' in the Lower Pit River Canyon WSR study area

Except where constrained by other resource prescriptions (e.g., those governing WSAs and ACECs), visual resources would be managed according to prescriptions formulated during the visual inventory process (and subsequently identified on Map VRM-1). Barring wilderness designation for the Pit River Canyon WSA, all three WSRs (if designated) would be managed under VRM Class II objectives to preserve the existing landscape with minor alterations.

Appropriate locations and suitable means (literature, displays, or signage) would be used to interpret historic and prehistoric sites (including portions of the National Historic Lassen Emigrant Trail that pass through upper Pit River Canyon).

2.15 Special Designations - Wilderness Study Areas

AFO planning area landscapes and vegetation are remarkably diverse, ranging from dense highland forests of fir and pine to sagebrush-steppe, ancient lava fields and deep river gorges. Regional geology is predominantly volcanic, with lava plateaus, cinder cones, and other volcanic remnants much in evidence. Fall is an especially attractive time of year; then the brilliant reds, oranges, and yellows of oak, redbud, and aspen illuminate hillsides and streambanks, contrasting with darkly colored lava fields and precipitous, shaded canyons. Some of the most impressive country is found in the WSAs, along with important riparian vegetation, critical wildlife habitats, mountain mahogany and old-growth juniper woodlands, and highland forests of white fir and pine. Several WSAs are also associated with significant historical features, notably the National Historic Lassen Emigrant Trail, Lockhart Wagon Road, Baker Toll Road, and remnants of the Nevada, California, and Oregon Railway.

WSA 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.

2.15.1 Desired Future Condition

WSAs, and the unique features and ecosystems they contain, would be protected until such time that Congress acts to designate WSAs as wilderness, or release them from further consideration. The remote character, physical and scenic integrity, and unique plant, animal, and cultural resources would be protected under the Wilderness IMP.

2.15.2 Goal

Protect all potential wilderness areas (i.e., WSAs, ISAs), under BLM's IMP. Qualified additions (acquired since the wilderness inventory) within or adjacent to a WSA would be added to the associated WSA.

2.15.3 Objectives

Manage four WSAs, totaling 56,648 acres, so as not to impair their suitability for wilderness designation.

2.15.4 Legislative, Regulatory, and Policy Direction

- The Wilderness Act (Public Law 88-577), (1964)
- The Federal Land Policy and Management Act (1976) Sections 603, 201, and 202
- Federal Cave Resources Protection (16 U.S.C. 4301-4310), (Nov., 1988), as amended (1990)
- Interim Management Policy and Guidance for Lands under Wilderness Review (1979)
- California Statewide Wilderness Study Report (1990)
- Baker Cypress/Lava Rock Natural Area and Instant Wilderness Study Area (Feb., 1979)
- Wilderness Final Intensive Inventory (Dec., 1979)
- Wilderness Recommendations, Alturas Resource Area (1986)
- Wilderness Recommendations, North-Central California Study Areas (1986)

- BLM Regulation H-8550-1, (July 1995)
- Comprehensive Management and Use Plan, and Final Environmental Impact Statement, California National Historic Trail and Pony Express National Historic Trail; USDI-National Park Service (1998)
- BLM Manual 1621 (Supplemental Guidance for Environmental Resources), (1986)

2.15.5 Proposed Management Actions

Four WSAs (56,648 acres) will be managed under the BLM's Wilderness IMP until Congress makes a determination regarding wilderness designation (see Map WSA-1).

Under the Wilderness IMP, WSA objectives take precedence over other management objectives. However, a WSA (or any portion thereof) that is also part of another special management area would be subject to a *more* restrictive management prescription (where applicable). This situation applies, in whole or in part, to three WSAs. See Table 2.15-1 (below).

Table 2.15-1 Relationship between Wilderness Study Areas, Areas of Critical Environmental Concern, and Instant Study Areas

Wilderness Study Area	WSA Size (acres)	ACEC Title	ACEC Size (acres)	Instant Study Area	ISA Size (acres)
Timbered Crater WSA	17,896	**Timbered Crater ACEC**	within WSA 17,896	**Baker Cypress Natural Area**	within WSA 1,448
Pit River Canyon WSA	10,984	**Emigrant Trails ACEC**	within WSA 1,000 outside WSA 750	N/A	N/A
Tule Mountain WSA	16,998	**Mountain Peaks ACEC**	within WSA 985 outside WSA 2,515	N/A	N/A
Lava WSA	10,770	N/A	N/A	N/A	N/A

N/A = Not applicable.

Management of historic trails is slightly more complex, since they are also governed by MOUs with the National Park Service and the Forest Service. However, as with other special area designations, the more restrictive management applies. Therefore, any portion of a historic trail traversing a WSA will be managed under VRM Class I criteria.

WSAs that are denied wilderness status by Congress would be managed according to the RMP prescription governing adjacent lands at the time of release.

WSAs (and wilderness areas) are managed under VRM Class I criteria. If denied wilderness status by Congress, lands would be returned to their originally inventoried VRM class – unless reclassified due to inclusion as an ACEC (VRM Class II), RNA (VRM Class II), or WSR (VRM Class II).

All acquisitions within or adjacent to WSAs have been assessed for wilderness characteristics. To date, none have fulfilled the criteria. However, any new acquisition that does meet the criteria would be combined with the adjacent WSA and protected under the Wilderness IMP.

Any newly acquired lands within a WSA would be managed according to the management prescriptions for that WSA as described within this PRMP.

In reference to WSAs evaluated under Section 202 of FLPMA: "New and existing mining operations conducted under the 1872 mining law are required (under 43 CFR 3802) to avoid unnecessary or undue degradation of lands—not to necessarily prevent impairment of wilderness suitability." However, all other activities are managed under the Wilderness IMP.

According to the Wilderness IMP: "…mechanical transport, including all motorized devices as well as trail and mountain bikes, may only be allowed on existing ways and within 'Open' areas that were designated prior to the passage of FLPMA" (Oct., 1976). This means that—within WSAs—"existing ways" are roads and trails that were evident at the time FLPMA was passed *and* subsequently identified in the "California Wilderness Final EIS." (For the rest of the planning area, "existing ways" are those that were documented at the time the route inventory was completed.)

After publication of the record of decision, WSA roads and trails would be re-examined. Maps from the "California Wilderness Final EIS" (BLM, 1990) will be compared with digital ortho-photography (1994), aerial photos (2001), and current GPS data. Roads and trails that do not appear on the wilderness inventory maps from 1990 would be 'Closed' to comply with the Wilderness IMP.

Preservation of wilderness characteristics supplants all other objectives for WSAs. Facility and use proposals must not conflict with, or degrade, wilderness values. Therefore, all proposals must be reviewed to assess compliance with the non-impairment criteria. These criteria require that:

- The use, activity, or facility must be temporary. This means it must not create surface disturbance or become a permanent fixture. A new facility may be allowed if it could easily and immediately be terminated upon wilderness designation and also comply with the non-impairment criteria.
- When the use, activity, or facility is terminated, wilderness values must not have been degraded to the point where significant constraint is placed on wilderness suitability.
- The only exceptions to the non-impairment criteria are:
  - ✓ Emergencies associated with wildfire or search-and-rescue operations
  - ✓ Reclamation activities designed to minimize impacts created by violations and emergencies
  - ✓ Uses and facilities that are "grandfathered" as valid pre-existing rights under the wilderness IMP
  - ✓ Uses and facilities that clearly protect or enhance wilderness values and those that are necessary for public health and safety reasons
  - ✓ Reclamation of pre-FLPMA impacts

Any action approved within a WSA must employ the "minimum tool" concept. This means that the task must be completed with methods and equipment that would have the least possible impact on wilderness characteristics (the physical, biological, and cultural resources of the WSA) and the wilderness experience itself. Although pre-FLPMA facilities may remain, associated activities are limited to pre-FLPMA levels. Such facilities may also be maintained, but cannot be modified to the degree that their physical or visual impact would exceed pre-FLPMA levels. Pre-FLPMA structures such as waterholes, spring developments, guzzlers, and fences are also grandfathered and may be maintained using motorized equipment—where such equipment is the minimum tool necessary for maintenance activities.

Any new development must be temporary, easily removed, otherwise fulfill the non-impairment criteria and enhance wilderness values. New permanent development must also satisfy the non-impairment criteria, truly enhance wilderness values, and must not require motorized access if the area receives wilderness designation.

2.16 Travel Management

Travel management is concerned with selecting and designating suitable areas and routes for motorized travel, while reserving other areas for non-motorized uses. It also encompasses motorized and non-motorized water and snow travel. Reliable baseline data, combined with a logical and coherent system of route designation, will allow most roads and trails to remain open for public use. However, in some areas, seasonal road closures are necessary to protect vulnerable wildlife or archaeological sites, or to prevent excessive road degradation, soil erosion and sedimentation. Cross-country travel would be prohibited—except in specially designated areas—to protect natural and cultural resources and to provide a quiet and unspoiled environment for non-motorized recreation. The decision to create a designated system of roads and trails will provide suitable areas for recreational driving, protect natural resources, minimize user conflicts, and create a safer recreational environment.

Roads and trails throughout the management area (2,430 miles) were inventoried in 2004 using GPS technology. On-site characteristics were also noted. Information was stored and collated using the BLM's GIS. This technology has enabled BLM to produce the most accurate route map ever created for the AFO management area (map TRAVEL-1). When the record of decision is signed, routes identified on this map will be designated for appropriate uses according to criteria identified in the approved RMP document. Designations are designed to minimize road damage, weed dispersal, soil erosion and sedimentation from OHVs, protect sensitive natural and cultural resources, and preserve large roadless areas for 'Primitive' or SPNM recreation (according to the applicable ROS class).

2.16.1 Off-Highway Vehicle Designations

An ***off-highway (or off-road) vehicle*** (OHV) is any land-based motorized conveyance designed for, or capable of, travel on or immediately above land and, in some instances, water. Common vehicles of this type are 2WD or 4WD automobiles and trucks, all-terrain vehicles (ATVs), motorcycles, and amphibious vehicles. For practical and legal reasons the following uses are exempted from this definition: (1) non-amphibious registered motorboats; (2) BLM and other-agency vehicles while engaged in administrative activities; (3) emergency, fire, law enforcement, and military vehicles while engaged in official business; (4) combat or combat-support vehicles when in use for emergencies or national defense. Exceptions one through four above are applicable without special authorization (or further comment under the management alternatives). Under certain circumstances, individual exceptions may also be authorized.

'Open' areas are available for motor vehicle use anytime and anywhere within the designated area. These areas have been specially selected as suitable for intensive OHV use, because there are no compelling resource protection needs, user conflicts, or public safety issues that would justify limitations on cross-country travel.

'Limited' areas include seasonal or cross-country travel restrictions that limit OHVs to existing or designated ways, or disallow certain vehicle types. Such requirements are imposed where necessary to limit adverse impacts. Seasonal restrictions are imposed to preserve road surfaces and minimize soil erosion, or to protect vulnerable wildlife.

OHVs are 'Limited to Existing or Designated Routes' where necessary to confine impacts to established routes. However, reasonable route-deviation (i.e., vehicle pull-off space) is allowed for parking and camping (unless otherwise posted).

'Closed' areas may not be entered by any motorized vehicle. This restriction is imposed where necessary to provide year-round protection for natural or cultural resources, or to reserve certain areas for non-motorized recreation.

2.16.1.1 Desired Future Condition

A network of designated travel routes would provide motorized access to BLM-administered lands for recreation, permitted activities, and area administration. The route designation system would be used to limit motorized travel in areas deemed appropriate for such use. Areas 'Closed' would be so designated to provide for non-motorized activities under the recreation opportunity spectrum. Area designations would accommodate the requirements of motorized and non-motorized recreational pursuits. Designations would range from 'Open' areas where motorized cross-country travel is unrestricted (and resource concerns minimal) to areas where OHVs are 'Limited to Designated or Existing Routes' or 'Closed' altogether (to protect resources or ensure that an undisturbed, natural landscape is maintained). Such measures would ensure high-quality, non-motorized recreation (e.g., hunting, hiking, fishing, horseback riding, and wildlife viewing) by preventing user conflicts and protecting resources. The designated route network would not be static; with sufficient justification, it could be altered.

2.16.1.2 Goal

Manage motor vehicle use so that natural and cultural resources are protected, user conflicts minimized, and public safety maintained. Provide adequate motorized public access, and ensure that the area and route designations provide sufficient protection for non-motorized areas and non-motorized recreation, while accommodating motorized activities in suitable locations on appropriate routes.

2.16.1.3 Objectives

- Designate 'Open', 'Limited' and 'Closed' areas as required by Executive Order 11644 and amended by Executive Order 11989.
- Identify and map undocumented routes in areas that were not included in the 2004 route inventory, including areas not normally accessed by motor vehicles.
- Modify the travel route system on 902 miles of routes, where needed to improve access or protect resources.

The AFO will work with Lassen and Modoc Counties, the Eagle Lake Field Office, and the Union Pacific Railroad to acquire the abandoned Modoc Line ROW (40 miles on the AFO) for trail conversion.

2.16.1.4 Legislative, Regulatory, and Policy Direction

- Executive Order 11644 (Use of Off-Road Vehicles on Public Lands) (Feb. 1972), as amended by Executive Orders 11989 and 12608
- 43 CFR 8340 (Off-Road Vehicles) (1979)
- DOI BLM, H-8550-1 (Interim Management Policy for Lands under Wilderness Review), Rel. 8-17 (July, 1995)
- DOI BLM, Priorities for Recreation and Visitor Services (May 2003)
- DOI BLM, H-1601-1 (Land Use Planning) (Mar. 2005)

2.16.1.5 Proposed Management Actions

All OHV travel in the AFO management area would be 'Limited to Existing Roads and Trails' year-round, except where other designations are specifically assigned (e.g., 'Open', 'Closed,' 'Seasonally Closed',' or 'Limited to Designated Routes').

A total of 80 acres would be 'Open' to OHV use, 498,340 acres would be 'Limited to Designated or Existing Routes', and 4,625 acres would be 'Closed' to motor vehicles. Existing routes would be available for motorized travel, as described below, and shown on Map TRAVEL-2.

Where existing roads are having an adverse ecological impact, they may be 'Closed' (on a temporary or permanent basis) through plan maintenance in accordance with Northeast California RAC Guidelines for OHVs (Appendix C).

'Open'

The AFO would identify one area, and certain routes, as 'Open' specifically for recreational driving:

- Cinder Cone OHV Management Area (near Cassel), 80 acres.

In addition, the AFO would manage two other areas specifically for recreational driving on a system of designated routes:

- Fall River Trail (near Fall River Mills), managed as 'Limited to Designated Routes', and
- Barnes Grade/Crowder Flat OHV Management Area (near Alturas), managed as 'Limited to Existing Roads and Trails'.

Driving options would include areas and routes suitable for 2WD and 4WD vehicles, ATVs, and motorcycles.

'Limited to Designated Routes'

Motor vehicles would be 'Limited to Designated Routes' on the Likely Tablelands (56,800 acres) to prevent damage to pronghorn and deer habitat, and protect special status plants and cultural resources. This area includes the Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC of 1,400 acres. (A seasonal closure would also apply—see 'Seasonally Closed' below.)

Motorized travel on Williams Ranch would be 'Limited to Designated Routes' from the Ash Valley Road to the Step Ponds (600 acres) to protect riparian vegetation, sensitive fish and wildlife habitats, and cultural resources. (A seasonal closure would also apply—see 'Seasonally Closed' below.)

Motor vehicles would be 'Limited to Designated Routes' (on a total of 48,910 acres) in the Cold Springs area to protect sensitive sage-grouse habitat (especially brood-rearing areas) and old growth juniper. The Old Growth Juniper ACEC would be 'Limited to Designated Routes' (on a total of 1,090 acres) in the Ticker Spring area, and 'Closed' in Sheep Valley (2,025 acres).

Motor vehicles would be 'Limited to Designated Routes' in the Ash Valley ACEC (1,322 acres).

Motor vehicles would be 'Limited to Designated Routes' in the Westside Grazing Allotment (3,500 acres) to protect degraded or at-risk soils and special status plants.

Motor vehicles will be 'Limited to Designated Routes' in the Hogback Ridge area (1,800 acres) to prevent damage to sensitive soils and minimize the spread of noxious weeds.

Motor vehicles would be 'Limited to Designated Routes' in the Beaver Creek area (972 acres) to protect special status plants, sensitive wildlife and cultural resources.

Motor vehicles would be 'Limited to Designated Routes' in the Juniper Creek area (1,182 acres) to protect sensitive wildlife habitat (especially pronghorn winter range) and cultural resources.

Motor vehicles would be 'Limited to Existing Routes' from April 16 through November 14 on the Day Bench (3,000 acres). However, to reduce disturbance of deer on critical wintering habitat, OHVs would be 'Limited to Designated Routes' between November 15 and April 15 (the Day Cinder Pit Road would remain 'Open' yearlong).

Motor vehicles would be 'Limited to Designated Routes' in the Mount Dome/Tablelands area (1,500 acres) to protect degraded or at-risk soils and historic trail remnants.

Motor vehicles would be 'Limited to Designated Routes' in the Mahogany Mountain area (6,000 acres).

An OHV trail system would be created for the Fall River watershed. The area under consideration is roughly 15,000 acres in size, and vehicles would be 'Limited to Designated Routes'. (Trail design and final size would be determined after this RMP is approved.)

OHV travel in the Coyote Ridge area (2,500 acres) would be 'Limited to Designated Routes', to protect impaired and at-risk soils.

The OHV classification at Timbered Crater WSA/ACEC (17,896 acres) is 'Limited to Designated Routes', as its lands are classified 'Primitive' or 'Semi-primitive' under the ROS, and this is one of the best means of preserving wilderness characteristics, and still allowing use.

'Limited to Existing Roads and Trails'

OHV restrictions on the Nelson Corral Reservoir Road would be 'Limited to Existing Roads and Trails' on a year-round basis.

OHV restrictions on Bryant Mountain and Bloody Point would be 'Limited to Existing Roads and Trails' on a year-round basis.

Motor vehicle travel in the Pit River Canyon (10,984 acres), Tule Mountain (16,998 acres) and Lava (10,770 acres) WSAs would be 'Limited to Existing Roads and Trails' from Congressional action and BLM policy.

'Seasonally Closed'

The Likely Tablelands (56,800 acres) would be 'Seasonally Closed' to motor vehicles from December 1 through April 15 to minimize disturbance of pronghorn and deer on critical wintering habitat, and to protect special status plants, sensitive wildlife habitat and cultural resources. This area includes the Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC of 1,400 acres.

The Williams Ranch (600 acres) would be 'Seasonally Closed' to motor vehicles from November 15 through June 15 to protect riparian vegetation, sensitive fish and wildlife habitats, and cultural resources.

The Barnes Grade/Crowder Flat OHV Management Area (260 acres) would be 'Seasonally Closed' to motor vehicles from November 15 through April 15 (to coincide with the closing and opening dates of the Barnes Grade woodcutting area) to minimize disturbance of deer on critical wintering habitat. However, motorized travel would be allowed on the Crowder Flat Road during this period.

The Hayden Hill sage-grouse territory (200 acres) would be 'Seasonally Closed' to motor vehicles from March 1 through May 15 to protect sage-grouse breeding habitat. The area would be 'Limited to Existing Routes' during the remainder of the year.

'Closed'

The Timbered Crater WSA/ACEC slender orcutt grass exclosure is 'Closed' to motor vehicles to protect a special status plant (50 acres).

The area around the spring on the northwest corner of Nelson Corral Reservoir (120 acres), south to the road on the south end of the dam, would be 'Closed' to motor vehicles to protect the spring, trout-spawning habitat and riparian vegetation.

A 1,800-acre section of Fitzhugh Creek (1/4 mile buffer zone corridors on the north and south rims of the creek) would be 'Closed' to motor vehicles to protect sensitive wildlife and preserve critical habitats. Fitzhugh Creek (660 acres) would be 'Closed' to OHVs to protect the creek canyon and preserve vulnerable riparian plants and wildlife.

The Old Growth Juniper ACEC and Sheep Valley area (a total of 2,025 acres) would be 'Closed' to motor vehicles to protect rare fen-bog spring systems and riparian habitats, old growth juniper, and degraded or at-risk soils.

A 20-acre area surrounding the vernal pools in the Lava WSA would be 'Closed' to motorized travel to protect the Boggs Lake hedge-hyssop (a special status plant).

Other Management Actions

OHV events would be restricted to approved locations and designated routes.

Exceptions to off-road travel restrictions and seasonal road closures include, but are not limited to, the following permitted or authorized activities:

- **Woodcutting Areas:** These areas are generally adjacent to or near communities to provide fuel wood for home heating needs. All areas have Class III archaeological surveys; recorded sites are excluded from woodcutting or mitigated at the proper level with SHPO concurrence. Threatened and endangered plant and animal document searches and field surveys are conducted at the appropriate level. Boundary and fuel wood cutting signs are posted at entrance and exit points of the cutting units. Most woodcutting areas have been used historically for fuel wood and ranching needs for the last 60-70 years.
- **Noxious Weed Eradication:** Areas with noxious weed infestations are accessed by 4WD trucks and ATVs. With low-scale impacts associated with ATVs, BLM or contract weed crews will be able to reduce impacts to the landscape that are traditionally associated with large 4WD vehicles.
- **Permitted Flat Rock Collection:** All areas have Class III archaeological surveys. Recorded sites are excluded from collection areas or mitigated at the proper level with SHPO concurrence. Threatened and endangered plant and animal document searches, and field surveys are conducted at the appropriate level. Flagging is required on the boundary of the collection areas, and specific access

road(s) are identified. Compacted and disturbed soils are mechanically prepared and seeded with native vegetation, and closed with large rock placement to avoid proliferation of new roads. Most collection areas have been used historically for flat rock collection for the last 30 years.

- **Ranching Activities:** Traditional ranching activities usually involve horse access, but where off-highway travel is required, it is generally associated with fencelines, salting locations or water developments on existing two track roads. In the past 4WD trucks were the standard vehicle for accessing range needs, but with the popularity of ATVs, these low-impact vehicles are being used more throughout the ranching community.
- **Scientific Studies:** In the past, most scientific studies have been associated with existing roads and trails. Where off- highway travel was required it has generally been near or adjacent to existing roads.
- **BLM Administrative Activities:** Generally most BLM activities that require off-highway travel are a combination of 4WD truck, ATV, and foot. More use is being made of low impact ATVs for access needs rather than the large 4WD trucks with more associated impacts.
- **Private Property Access:** Generally private land owners access their property on existing roads, or obtain easements across unrouted short segments of public lands. Legal and non-easement access needs are discussed between BLM staff and private land owners for the least impacting route across public lands. Cultural and threatened and endangered surveys are conducted prior to establishment of access.
- **Big Game Retrieval:** Retrieval of big game is the only exemption of use for OHVs for hunting activities. It is expressly forbidden to use 4WD vehicles, ATVs, motorcycles etc., for hunting off-road. The sole purpose of this exemption is for big game retrieval only; no other hunting use is allowed. BLM law enforcement is expected to be heavily involved for compliance of this exemption to OHV travel.

Any portion of an ACEC (or other special management area) within a WSA is subject to the Wilderness IMP until Congress makes a determination regarding wilderness designation. This means that OHVs are 'Limited to Existing or Designated Routes' until a determination is made, or until actual and unforeseen use violates the (wilderness) non-impairment criteria—at which point a more restrictive designation would be imposed. Following wilderness designation, all routes would be closed and rehabilitated. If wilderness status is denied, the underlying travel designation would apply (generally that for adjacent areas).

OHV travel designation will be based on ROS classification (i.e., 'Primitive', SPNM, SPM, and RN).

Visual resource management considerations would also influence route designation decisions.
A trail would provide non-motorized access to Delta Lake from Bayley Reservoir during the annual spring closure of the Delta Lake Road (imposed yearly to minimize road damage, soil erosion, and sedimentation of the Pit River [an already-impaired watercourse]).

Land acquired after this RMP is approved would ordinarily receive the same travel designation as adjacent lands. However, if sensitive resources are involved, the acquired parcel may receive a more restrictive travel designation.

Route designations will be altered as GPS inventories are completed and GIS mapping is refined (Map TRAVEL-1).

Maps would be prepared for all areas with assigned OHV designations. 'Closed' roads would be posted according to management protocol.

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.

2.16.2 Non-Motorized Travel

Non-motorized means walking, or land travel aided by (e.g., mountain bikes) or animals (e.g., horses, mules, or llamas). The management area includes a portion of the Pacific Crest Trail, which is restricted to non-mechanical travel (i.e., no mountain bikes or motor vehicles). However, three planning area OHV routes have been identified for mountain bikes (many more are also suitable in the AFO). Two areas receive substantial amounts of snow and are suitable for cross-country skiing or snowshoeing. Altogether, the management area has more than 900 miles of roads and trails, the majority of which are suitable for some form of non-motorized recreation. The Wilderness IMP limits mechanically aided travel (motor vehicles *and* mountain bikes) to existing routes in WSAs.

Otherwise, all forms of non-motorized travel are allowed throughout the management area, regardless of the presence or absence of roads or trails. Development of trails specifically for non-motorized use would focus on SRMAs, scenic back-country areas, and abandoned railway grades.

In most instances this would not involve new trail construction, but, rather, reserving some existing roads and trails for non-motorized travel.

Table 2.16-1 Existing and Proposed Routes for Motorized and Non-Motorized Travel

Route	Length or Size	Use Designation
Pacific Crest National Hiking Trail	2 miles	Non-mechanized (e.g., no mountain bikes)
Woodland Jurassic Mountain Bike Route	8.6 miles	Unrestricted—but identified for mountain bikes
Devil's Garden Mountain Bike Route	5.3 miles	Unrestricted—but identified for mountain bikes
Likely Mountain Challenge Bike Route	9.4 miles	Unrestricted—but identified for mountain bikes
Roads and trails on AFO-administered lands	902 miles	Unrestricted
BLM lands outside of WSAs	446,397 acres	Not specifically designated, but non-motorized travel allowed anywhere
BLM lands within WSAs	56,648 acres	Motorized travel 'Limited to Existing Roads and Trails'; non-motorized travel off existing roads and trails

2.16.2.1 Desired Future Condition

BLM resource specialists, trail enthusiasts, and other interested parties would collaborate to plan, design, and build, a network of trails for non-motorized use. This would be an ongoing process conducted throughout the life of this RMP. Trails would be suitable for walking/running, horseback riding, and mountain-biking. For the most part, they would incorporate return-trail design ("loop trails") to avoid back-tracking, thus making routes safer and more interesting. Thoughtful placement and sound construction would minimize erosion and maintenance. BLM-administered trails would connect with national forest and county trails wherever possible. Trail routing decisions would prioritize scenic vistas, diverse landscapes, and cultural features (e.g., trail traces, historic remnants, petroglyph sites, etc. in suitable locations where these occur).

2.16.2.2 Goal

Support community-based efforts to promote rural tourism and benefit local economies by creating a high-quality, non-motorized trail network. Trails would be designed, modified, or built according to applicable ROS and VRM classes. Trails would also vary in length and difficulty and cover a variety of diverse and scenic landscapes.

2.16.2.3 Objectives

Existing environmental assessments and trail plans would be used to complete trail projects already underway. Trail policies and procedures enumerated in this RMP will be used for future site selection and trail design. Route maps and literature of various kinds would be developed to stimulate interest and encourage use and enjoyment of the trail network.

2.16.2.4 Legislative, Regulatory, and Policy Direction

- DOI BLM, Priorities for Recreation and Visitor Services (May 2003)
- DOI BLM, H-1601-1 (Land Use Planning) (Mar. 2005)

2.16.2.5 Proposed Management Actions

More than 66 miles of new trails would be built (this could include conversion on portions of the 40-mile stretch of the abandoned Modoc Line railbed). The following projects could occur, subject to site-specific NEPA analysis:

- A collection of non-motorized trails would be built in the Pit River SRMA and in the Infernal Caverns/Rocky Prairie SRMA.
- Non-motorized cross-country travel would be emphasized in WSAs. New trails would be constructed within WSAs if and when necessary to protect resources and better serve visitors. Existing trails can and would be maintained, rebuilt or rerouted where necessary to protect resources or maintain trail serviceability and access.
- Basic, unimproved hiking trails (handicapped-accessible, where feasible) would be built to access areas identified in the Vista Peaks Management Plan.
- A walk-in trail (750 feet) would be built at Hershey/Poison Spring to access quality, cold-water fishing on Fitzhugh Creek.
- A two-mile circular trail would be built from Holbrook Reservoir to JOB Spring. The route would showcase scenic vistas, ecosystem processes and landscape rehabilitation.
- A four-mile hiking, birding, and horseback trail would be developed from Dry Creek Station to Nelson Corral Reservoir. The route would follow the existing livestock trail (with minor alterations) then join the Nelson Corral Road and the Likely Mountain Challenge Bike Route.
- A walk-in trail to Iverson Reservoir (750 feet) would be constructed along the south bank of Juniper Creek.
- Two handicapped-accessible trails would be built for fishing access and wildlife-viewing; one at Knox Gulch Reservoir, the other at Antelope Reservoir (1 mile in length at both locations).
- Development would also include unimproved trails to the summits of the following peaks (which offer superb scenic vistas):
    - McDonald Peak (3 miles)

  - Mahogany Peak (1 mile)
  - Sheep Mountain (1mile)

- Existing trails would be repaired, realigned, or extended—or new trails built—where necessary to reduce adverse impacts or user conflicts, or to conjoin and expand the trail network. For the most part, return-trail design ("loop trails") would be used to avoid back-tracking; thus making routes safer and more interesting. BLM-administered trails would connect with national forest and county trails wherever possible.
- Route maps and literature of various kinds would be developed to stimulate interest, and encourage use and enjoyment of the trail network.
- BLM would work with local communities and local and regional businesses (e.g., Clearwater Lodge and PG&E) to establish a series of walking, mountain-biking, and equestrian trails. Individual trails would be designed and built for primary uses such as fishing access, scenic vistas, access to historical or archaeological sites, and hiking for health.
- When necessary, legal access would be acquired from willing sellers or cooperators. Land or easement acquisition will be necessary where a BLM trail must cross private land in order to join another trail on BLM, national forest, or county lands.
- Trails would be of sufficient quality, and properly maintained, so that they attract visitors and produce economic benefits for local communities (while ensuring that natural and cultural resources are adequately protected). Trails would generally be available for any form of non-motorized travel, except where additional restrictions are specified.
- Way-finding signs and symbols would be placed and maintained, but only to the minimum necessary for clarity and safety.
- An interpretive trail (one-quarter mile) and site development package would be created for the Descent into Goose Lake.
- Cooperate with Lassen National Forest (under an existing MOU) for maintenance of the Pacific Crest Trail. Other actions would include directional signing or symbols for three mountain bike routes (the minimum necessary for clarity and safety).
- Develop a seven-mile (non-motorized) interpretive trail to the Infernal Caverns Overlook (which provides a panorama of the historic battleground). On-site interpretation would include details of the battle and additional information on area wildlife, geology, and scenery.
- Develop a one-mile birding and hiking trail at the Pit River campground that highlights riparian and upland habitats.
- Provide walk-in (or horseback) access to Delta Lake from Bayley Reservoir during the seasonal road closure.
- Reserve a two-mile section of the Williams Ranch Trail for non-motorized use. (This portion has exceptional, birding and wildlife-viewing.) .

2.16.3 Motorized and Non-Motorized Boating

Planning area waters (lakes, reservoirs, and rivers listed in the summary table) would be available for appropriate public uses. On some waters, motorized propulsion or certain types of watercraft would be prohibited. On others, certain engine types would be proscribed or power limitations imposed. Restrictions are necessary to ensure that boating activities are appropriate for the particular body of water. Such limitations protect wildlife and wildlife habitats and ensure variety-of-opportunity in boat-dependent

and other aquatic recreation. They may be necessary for public safety or to minimize user conflicts. As a general rule, regulation is only necessary on heavily-used waters; for this reason, boating on other waters is unrestricted.

The use of watercraft for fishing and whitewater sports is increasing statewide. Permits are now required for commercial use of the Pit River associated with the Pit River Campground. One commercial permit has been issued annually for the past eight years. However, drought conditions and flow-regime alterations in other watersheds have created a shortage of suitable waters. As a result, commercial queries and applications have increased dramatically. This has brought the issue of guiding permits to the forefront of recreational concerns.

BLM has always sought to assist local communities in maintaining economic viability by promoting rural tourism—including motorized boating. However, BLM also has a mandate to preserve the scenic and aesthetic qualities cherished by fishermen, hunters, river runners, and others who seek peace and natural beauty in aquatic recreation. On certain reservoirs, recreational boating is very popular. Craft range from silent (non-motorized) canoes, kayaks, and rowboats to low-powered boats used mostly for fishing and hunting. However, fast and noisy jet-skis, powerful runabouts, and waterskiing boats are also popular on these waters.

Not infrequently, this leads to conflict between individuals and user groups regarding appropriate watercraft. The bottom line is that public safety must be maintained, natural resources protected, and a variety of quality recreational opportunities preserved.

2.16.3.1 Desired Future Condition

Boating regulations for the Pit River and selected reservoirs would define and impose certain restrictions governing use of public waterways for recreation and BLM administrative activities. Restrictions would apply to heavily used waters for activities such as whitewater rafting and kayaking, power-boating and waterskiing, fishing, and hunting. Regulations would allow or facilitate these and other aquatic pursuits in appropriate locations and in a non-discriminatory manner and impose restrictions where these are necessary. Certain waters or areas would be reserved for non-motorized or low-powered boating (according to the ROS classification and quality recreation and fishing opportunities), to maintain the peace and aesthetics valued by so many, or where needed to protect wildlife or other resources. A range of high-quality, aquatic recreation opportunities (commercial and non-commercial) would be facilitated—where necessary through restrictions or prohibitions. Where this is unnecessary, boating and other uses would be unrestricted.

2.16.3.2 Goal

Provide high-quality aquatic recreation for a diversity of user groups while encouraging safety, minimizing conflict, and protecting wildlife and other resources through boating regulations that are appropriate, fair, and effective.

2.16.3.3 Objectives

- Assess the need for boating and waterway regulation throughout the planning area. Formulate logical, consistent, and non-discriminatory restrictions where these are required.
- Ensure that recreational quality and access are maintained for whitewater and recreational boating, fishing, hunting, wildlife viewing and other suitable activities.

- Allow modification of boating and waterway restrictions where needed to improve access or protect natural or cultural resources.

2.16.3.4 Legislative, Regulatory, and Policy Direction

- 43 CFR 8340 (Off-Road Vehicles) (1979)
- BLM Handbook H-8550-1 (Interim Management Policy for Lands Under Wilderness Review), Rel.8-17 (July 1995)
- DOI BLM, Priorities for Recreation and Visitor Services (May 2003)
- DOI BLM, H-1601-1 (Land Use Planning) (Mar. 2005)

2.16.3.5 Proposed Management Actions

- Motorized boating will be prohibited on certain segments of the Pit River (i.e., a 16-mile stretch in the Pit River SRMA). Boating would also have motor limitations on portions Delta Lake, Moon Lake, and the Nelson Corral, and Bayley Reservoirs (all in the Infernal Caverns/Rocky Prairie SRMA).
- A special recreation permit would be required for commercial sport-fishing and whitewater rafting in the lower Pit River Canyon (from Fall River Mills to the bridge on Highway 299). Boating must be non-motorized and the permit holder may engage in one or both activities.
- Commercial and non-commercial boating in the Pit River Canyon WSA (13 miles) must be non-motorized.
- Where motorized boating is limited, the following definitions are recognized and applicable:
  - *"Small outboards"* means small four-cycle gasoline engines or electric trolling motors.
  - *"Personal watercraft"* means boats powered by water-jet (also known as "jet-skis" or "wave-runners"); these craft are forbidden except where expressly allowed.
- Motorized boating would be unrestricted on West Valley Reservoir.

On Delta Lake and the Nelson Corral Reservoir (in the Infernal Caverns/Rocky Prairie SRMA) only electric trolling motors would be allowed. Propulsion on Bayley Reservoir would be limited to small outboards (i.e., 4-cycle engines [restriction to be phased in by 2012], electric trolling motors, or non-motorized craft) because of concerns over repeated disturbance and stress to wildlife concentrations, damage to wildlife habitats and riparian vegetation from wave action, and increased water pollution from large engines. Moon Lake would allow all types of engines for use, except *"personal watercraft."* The use of personal watercraft would not be allowed, except on West Valley Reservoir.

Three annual permits would be issued for commercial whitewater rafting and/or sport-fishing on the Pit River segment between Fall River Mills and Highway 299. Throughout the Pit River SRMA (which includes Upper and Lower Pit River), boating would be non-motorized (and the number of commercial recreation permits limited) to decrease disturbance of vulnerable wildlife, preserve riparian areas, and protect the wilderness character of the Pit River.

Table 2.16-2 Annual Guiding Permits Issued for Pit River Waterways[1/]

Commercial Permit Areas	Permits (No.) and Appropriate Uses
Lower Pit River Canyon and downstream	3 – White-water boating and/or fishing

[1/] Permit numbers are the total permits available for the Pit River, from Fall River Mills to SR 299 Bridge.

2.16.4 Motorized and Non-Motorized Snow Travel

Several fairly extensive, higher-elevation areas receive deep and reliable snowfall. In these locations, good to excellent snow-based recreation is available.

2.16.4.1 Desired Future Condition

The planning area would include selected areas (chosen on the basis of deep and reliable snowfall) where a network of snow trails (i.e., snowed-in roads) would be managed for snow-based recreation.

All areas would be managed for motorized travel (i.e., snowmobiling—although means of travel would be unrestricted), while some of the areas would be identified for non-motorized recreation (e.g., cross-country skiing and snowshoeing), according to the applicable ROS class. Non-motorized restrictions would apply were necessary to protect vulnerable wildlife (e.g., wintering ungulates), preserve natural or cultural resources

2.16.4.2 Goal

Identify areas for snow travel that will facilitate high-quality recreational experiences. Ensure that valued resources are protected, safe travel encouraged, and user conflicts minimized.

2.16.4.3 Objectives

Designate suitable portions of the Nelson Corral high country and Dead Horse Loop area (about 17,000 acres in total) for motorized and non-motorized snow travel. The route system may be modified where necessary to improve access or protect resources.

2.16.4.4 Legislative, Regulatory, and Policy Direction

- 43 CFR 8340 (Off-Road Vehicles) (June 1979)
- BLM Handbook H-8550-1 (Interim Management Policy for Lands Under Wilderness Review), Rel.8-17 (July 1995)
- BLM Priorities for Recreation and Visitor Services (May 2003)
- BLM Handbook H-1601-1 (Land Use Planning) (Mar. 2005)

2.16.4.5 Proposed Management Actions

There would be no restrictions on motorized snow travel to the Nelson Corral high country or the Dead Horse Loop area.

2.16.5 Road Maintenance

2.16.5.1 Goal

Ensure that an adequate network of roads and trails is maintained for public use, permitted and authorized activities, and administrative purposes.

2.16.5.2 Objectives

Maintain roads according to a prioritized schedule or transportation plan. BLM best management practices (BMPs) must be used for all road-building, including modification or maintenance of existing roads. Improperly situated or poorly designed roads that are responsible for chronic resource damage would be closed or relocated.

Close roads where unauthorized and persistent abuse has resulted in substantial degradation of natural or cultural resources (according to guidelines adopted by the Northeast California RAC in 2000 [Appendix C]).

2.16.5.3 Proposed Management Actions

The AFO would continue regular maintenance on 28 miles of currently prioritized roads to provide safe and adequate access for recreation, permitted uses, and BLM administrative activities. Meanwhile, a formal transportation plan would be developed to supersede current management and coordinate road construction and maintenance activities with the fire protection program, juniper-abatement activities, and access improvements in SRMAs.

Until this (transportation) plan is implemented, the following roads would be maintained (although subject to alteration for various contingencies):

1. Cinder Cone (7 miles)
2. Tule Access (12 miles)
3. Knox Mountain (3 miles)
4. Nelson Corral (5 miles)
5. Antelope Reservoir (1 mile)

If funding is available, construction of a stock trail adjacent to the Tule Mountain Access Road would be implemented, subject to site-specific NEPA analysis.

2.17 Vegetation

The vegetation resource includes terrestrial and aquatic plant communities, special status plants, noxious weeds, and other invasive species. There are 32 distinct vegetation types identified and mapped in the AFO management area. Sagebrush-steppe communities are the dominant native vegetation. Post-settlement encroachment of sagebrush-steppe communities by western juniper (i.e., juniper < 180 years old) has significantly altered the composition and function of these communities. (Refer to Map VEG-1 for a comprehensive list of vegetation types and their distribution in the planning area.)

The dominant vegetation alliances for the AFO planning area are:

Sagebrush-steppe	48%
Sagebrush-steppe/western juniper	21%
Annual grasses and forbs	8%
Conifers	7%
Old growth western juniper	7%
Mixed chaparral	5%
Riparian and wetland	2%
Woodlands	2%

Vegetation management is organized into five sections with management alternatives presented for each:

1. ***Native plant communities***: this includes shrub, shrub-steppe, western juniper and other woodland plant communities.
2. ***Rare plant communities***: This is further divided into three sub-sections, namely; *quaking aspen*, *curlleaf mountain-mahogany* and *oak woodland* communities.
3. ***Riparian and wetland communities***
4. ***Special status plants***
5. ***Noxious weeds and other invasive species***

2.17.1 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976), as amended
- The Public Rangelands Improvement Act (1978)
- The Endangered Species Act (1973), as amended, (16 U.S.C 1531 et seq.)
- BLM Manual 4180--Rangeland (Land) Health Standards
- BLM Manual Supplement, California State Office Handbook H-1745--Native Plant Materials Handbook, release CA 1-243, (09/13/01)
- BLM Manual 1745--Introduction, Transplantation, Augmentation, and Re-establishment of Fish, Wildlife, and Plants

- Master MOU between the California Department of Fish and Game and the USDI-Bureau of Land Management

2.17.2 Native Plant Communities

2.17.2.1 Desired Future Condition

Native plant communities would exist in a diversity of plant associations—including multiple-aged stands of trees and shrubs as well as healthy understory vegetation, along with native and other desirable perennial grasses. Vegetation would demonstrate health and vigor, and be reproductively successful. The shrub overstory would be present in a variety of spatial arrangements and sizes across landscapes that include large contiguous blocks, islands, and corridors. Old growth western juniper would be healthy, vigorous and free of exotic annual grasses. Plant communities not meeting desired future conditions would show an upward trend in vigor and structural diversity. Plant cover and productivity would be present in sufficient quantities to satisfy the needs of wildlife, special status plants, and livestock.

Disturbance is reintroduced into vegetation communities to maintain or replace shrub canopies and to maintain health and vigor of the herbaceous understory. In those ecosystems that developed with fire, prescribed and AMR wildland fire would be utilized, within management constraints, to maintain healthy vegetation over the life of the plan. Other maintenance or restoration methods include grazing management, use of approved herbicides, brush beating and crushing (including mastication), seeding, and rehabilitation following wildfire (erosion control and natural and artificial reseeding with appropriate seed mixes).

2.17.2.2 Goal

Protect and enhance native plants and plant communities and provide for their continued existence, natural functioning, and successful reproduction. Restore degraded landscapes and decadent shrublands. Manage shrub communities to maintain or improve ecological conditions so as to make significant progress toward the desired future condition by fulfilling resource management objectives.

2.17.2.3 Objectives

- Classify plant alliances/associations not presently described (e.g., Wyoming big sagebrush and medusahead), refine descriptions of existing alliances, and improve the mapping of existing alliances/associations.
- Describe and classify all rare plant communities (as designated by the CDFG) as well as plant communities considered high priority by the AFO.
- Assess the distribution and density of rare plant communities, threats to their continued existence, and designate ACECs and/or RNA.
- Rehabilitate or restore shrub and shrub/grassland communities that are not meeting desired future condition due to invasion by western juniper, other decadent woody species, and exotic annual grasses or noxious weeds/undesirable species.
- Rehabilitate juniper woodlands (in contrast to sagebrush communities being invaded by western juniper) to maintain a mixed age class with a cover of no more than 25%.

2.17.2.4 Proposed Management Actions

Incorporate recommendations developed in the *Sagebrush Steppe Restoration Strategy* to manage juniper encroachment across the field office area.

Use prescribed fire as the preferred method for rehabilitation of plant communities; however; mechanical and manual methods would also be important. Prescribed fire and wildland fire use would be utilized to maintain healthy vegetation within ecosystems that have evolved with fire. Simulate natural disturbance processes through other methods, such as thinning and other mechanical and hand treatments, in order to restore shrub communities by stimulating seeding and sprouting.

Decisions to resume livestock grazing on areas that have been mechanically treated or burned by wild or prescribed fire would be based on assessment of monitoring data. Generally, grazing would not resume for a minimum of two growing seasons. However, mechanically treated areas may be assessed for potential resumption of livestock grazing following one growing season of rest.

Definitive mapping of about 38,000 acres of western juniper would continue in order to define the full extent of old growth. Old growth stands would be protected from timber harvesting and firewood cutting. Vegetation treatments would be designed to maintain and enhance old growth stands. Post-settlement juniper (i.e., less than 180 years old) that is contributing to undesirable fuel loads would be selectively removed. Academic research into the genetics of old growth woodlands would be encouraged.

Undisturbed, “pristine”, or otherwise late seral/climax stands of old growth juniper would be subject to an EA before any flat rock collecting is permitted. Extremely cobbly and very stony-type ecological sites with old growth juniper would not be included in flat rock collection permits.

Develop a “normal year fire rehabilitation plan” for the AFO.

Seeding for ES&R following wildfires, rangeland improvement projects, or efforts to enhance livestock forage would be conducted with a suitable mixture of seed from locally evolved native forbs and grasses and desirable non-local and introduced species. The precise mixture would be determined on a site-specific basis. It would consider the probability of success, risks associated with failure, and other considerations. A locally gathered native seed cache would be created to facilitate seeding projects.

Restore sagebrush communities on sites that have potential and where ecosystem fragmentation can be prevented. Incorporate guidelines from the sage-grouse conservation strategy in vegetation treatments and habitat restoration projects conducted in sage-grouse habitats.

Restoration, rehabilitation, or enhancement of plant communities by vegetation manipulation or fire would be based on current vegetation classifications and mapping. Sagebrush-steppe communities, in particular, would be mapped and classified so that management actions could target specific plant communities.

Classification and mapping would be conducted on 50 to 5,000 acres annually, focusing on native plant communities of local concern, rare plant communities, and special status plants. Currently mapped sagebrush and juniper communities would be further defined to aid in juniper management, sagebrush restoration efforts, sage-grouse conservation strategies, and the achievement of wildlife habitat goals. Lichen surveys would be conducted in old-growth juniper and low sage communities with rocky soils. If a decorative flat rock sale is proposed, the proponent is responsible for completing the required survey (as per existing BLM stipulations.)

Management actions would protect unique and special habitats; for example, old growth pine would be preserved as a seed source and protected from timber harvesting. Old growth trees would not be removed unless diseased or insect-infested.

Four new ACECs, with a total area of 26,021 acres, would be designated also as RNAs to protect vulnerable plant communities of local interest. These are the proposed Timbered Crater, Mount Dome, Old Growth Juniper, and Mountain Peaks ACECs. Use restrictions would apply to preserve protected resources, as listed in Table 2.11-4.

Restoration of plant communities dominated by invasive juniper and/or decadent shrubs would be a high priority and treated according to Table 2.17-1.

Table 2.17-1 Proposed Annual Restoration Treatments for Sagebrush Sites Encroached by Western Juniper

Treatment Method	Treated Area (acres/year)
Prescribed fire/WFU	75–10,000
Manual	50–5,000
Biological	75–2,000
Chemical	50–2,000
Mechanical	75–10,000
Seeding with competitive species	50–10,000

Stands of sagebrush, bitterbrush, ceanothus chaparral, Brewer's oak, skunkbush sumac, and birchleaf mountain-mahogany would be protected and maintained. Vegetation manipulation projects would direct vegetation toward desired future conditions and enhance forage/browse production for livestock and wildlife. Soil and water resources would be enhanced. Management actions would specifically aid the health and diversity of understory vegetation for the above-stated plant communities. Prescribed burns would be conducted in patches so as to create a mosaic of age classes in birchleaf mountain-mahogany stands, especially in the Fall River watershed.

On 10 to 500 acres annually, management actions, as described below, would be taken to create healthy, multi-aged stands of bitterbrush. Fuel loads would be reduced in this vegetation community to reduce the likelihood of high-intensity wildfires, and stands as identified by an interdisciplinary team would be excluded from late-season livestock grazing. Degraded or decadent stands would be rehabilitated and bitterbrush would be seeded in areas previously occupied by this species, or newly suitable areas. Seeding in burned areas would be done in the first year following wildfire. Exclosure fencing would be used to exclude livestock and deer for three to five years.

Livestock grazing strategies would be modified or created to protect microbial crusts and achieve a natural mixture of grasses, forbs, and shrubs. Grazing strategies in playas dominated by silver sagebrush would support the dominance of Nevada bluegrass.

Plant communities at risk from frequent fires or invasion by noxious weeds or invasive species, or from type-conversion to an early seral stage, would be seeded with native annual and perennial vegetation having the potential to out-compete or resist these negative trends. Desirable, non-native species may be used when better adapted to out-compete plant communities dominated by exotic annuals. In Wyoming sagebrush, mountain big sagebrush, and low sagebrush plant communities, perennial grasses would be seeded where these communities are invaded by annual grasses and also as an aid in the formation of microbial crusts.

In ceanothus mixed chaparral communities invaded by annual grasses (i.e., cheatgrass, Japanese brome, or medusahead), a combination of treatments would be implemented, including crushing, drill-planting competing native grasses and forbs, and prescribed fire. Proactive and aggressive eradication of recently established exotic annual grasses would be carried out on the Big Tablelands of Siskiyou County.

A local native seed cache would be developed in which locally gathered native seed would be collected from different "seed collections zones" within the management area. Collected seed would be grown locally for use in emergency fire stabilization and rehabilitation efforts, vegetation restoration, mining reclamation and livestock forage seeding projects.

Present non-native seeding projects where vegetation is in good to excellent condition would be managed to improve structural and species diversity, and better forage production. Non-native seeding projects in poor to fair condition would be managed to restore vigor and improve forage production in addition to improving species diversity.

Seeding projects in very poor condition due to invasion by cheatgrass or other noxious weeds or invasive species, (particularly star thistle) would be aggressively treated and converted to native grasses.

Aggressive restoration methods would generally be employed in seriously degraded plant communities (e.g., Wyoming big sagebrush dominated by medusahead.) Treatment procedures in this case would involve the following step-by-process: 1) Reduce medusahead (using grass-specific herbicides, nitrogen sequestration, prescribed fire, and inoculation with microbes and/or mycorrhizal fungi), 2) Seed affected lands with desirable grasses and forbs that can aggressively compete with medusahead, 3) Maintain the health and vigor of these seedings for a sufficient time, 4) Seed again with locally gathered, native species.

Firebreaks (20 to 25 feet in width) composed of fire-resistant vegetation would be established to protect shrub communities invaded by annual grasses (principally cheatgrass and medusahead.) In particular, up to 36 miles of firebreaks would be established on the lower bench of the Likely Tablelands. Additional firebreaks (up to 30 miles) would be constructed in the McDonald Mountain area, in the Westside, Juniper Creek, and Moon Springs Grazing Allotments, in Dixie Valley and the Beaver Creek areas, and in Oregon oak woodlands invaded by medusahead.

Closure to motor vehicles would be seriously considered in areas where OHV traffic is responsible for significant increases in infestation by annual grasses and noxious weeds. Two such areas are the mixed ceanothus chaparral communities of the Fall River watershed and the big sagebrush/desert peach associations near Alturas, CA.

2.17.3 Riparian and Wetland Plant Communities

Riparian plant communities are vital for proper hydrologic function, wildlife habitat, and for recreational purposes. Wetland and riparian plant communities found in the AFO management area include wet meadows (grass/sedge/rush), tule-cattail-sedge wetlands, willows, quaking aspen, and willow-quaking aspen. All of these plant associations are prevalent in the management area with the exception of tule-cattail-sedge communities. These are locally rare and generally found in slow-moving streams, inundated meadows, and silted livestock reservoirs.

There are 67 miles of perennial streams in the management area, of which 44 miles have been assessed for PFC—15 miles are not in PFC of which 13 are FAR and 2 miles (Crooks Canyon) are unknown. Also, there are 66 acres of natural springs in the AFO management area; 38 acres are in PFC and 22 acres are FAR. See Map WATER-1 for Riparian Functional Assessment Ratings.

Of the 300 acres of meadows and wetlands that have been assessed, 254 acres are in PFC and 46 acres are FAR. Miles of ephemeral and intermittent streams are unknown. In addition, not all springs and small meadows (less than one acre) have been inventoried and assessed.

Because many riparian and wetland areas have not historically been given equal weight with upland vegetation in activity plans and in landscape-level planning, these areas must now be specially managed for the recovery and restoration of riparian and wetland plant communities. Many have been severely impacted by livestock and other uses of public lands. Meadows have dried or have lower water tables. Many perennial grass and forb communities have been converted to expanses of silver sagebrush or to mountain big sagebrush/rabbitbrush communities. Some silver sagebrush/Nevada bluegrass communities have been converted to associations dominated by big sagebrush, exotic annual and perennial forbs, or exotic perennial grasses and rushes. Small (but important) springs and seeps (some of which could be fen bogs) have been severely damaged by livestock.

Heavy concentration of animals has resulted in hoof penetration of springs, where large hummocks now dominate the micro-topography. As a result, springs and seeps have been effectively drained and converted to upland vegetation. Roads through or adjacent to meadows and springs have altered the local hydrology, diverted sub-surface water, and caused erosion.

2.17.3.1 Desired Future Condition

Riparian and wetland areas would be in PFC; this means that erosion is controlled, stream banks stabilized, incised channels healed, shade-water is present where it would naturally occur, sediments are filtered, and suitable habitat is provided for wildlife, fish, and other aquatic species. Riparian plant communities would be dominated by healthy, native species that are vigorously reproductive and characterized by dense root masses. Woody riparian communities would be characterized by stands of native species in a variety of age classes, with abundant canopy volume and herbaceous ground cover.

2.17.3.2 Goal

Improve, restore, and/or maintain riparian vegetation, especially in terms of habitat diversity and hydrologic function to achieve healthy and abundantly productive riparian areas and wetlands.

2.17.3.3 Objectives

Establish site-specific riparian management objectives based on riparian ecological site inventory assessments or by classification of existing plant communities. Assess PFC in conjunction with the ecological status of the riparian area. Prescribe riparian/wetland management treatments based on site-specific physical, biological, and chemical condition and area potential.

2.17.3.4 Proposed Management Actions

Concurrent with assessment of PFC, existing or potential natural community would be determined for all riparian and wetland sites, according to guidelines specified in Riparian Area Management, Greenline-Riparian-Wetland Monitoring, Technical Reference 1737-8, (1993.) An ecological site inventory would also be conducted for riparian-wetland sites as specified in Riparian Area Management, *Procedures for Ecological Site Inventory—with Special Reference to Riparian-Wetland Sites*, (Steve Leonard, et al; BLM Technical Reference 1737-7, 1992.) Once the ecological potential of the riparian community is determined, specific riparian management objectives would be established.

Implement measures to make progress toward achieving PFC on 15 miles of streams, 22 acres of springs, and 46 acres of wetlands known not to be in riparian PFC. Additional riparian areas or streams segments identified (in the future) as not in compliance with land health standards would be included in restorative measures.

Livestock grazing would only continue in plant communities or on sites where grazing is compatible with the attainment of PFC and other riparian and wetland objectives. Sensitive sites known to be important for native fisheries, wildlife habitat, and other beneficial uses would be protected or excluded from commodity uses. Emphasis would be on the restoration of natural springs and riparian communities to their potential natural community (if known) or to the desired plant community.

As specific plans are developed, such as AMPs, livestock exclusion fencing would be constructed in areas that are FAR and in areas where the vegetation is in early seral plant communities. This would be accomplished through construction and maintenance of 500 acres of additional exclosures. These would also incorporate and overlap exclosures protecting important wildlife habitat and archaeological sites.

Spring sources classified as FAR or 'Not Functioning' would be protected by exclosure fencing to prevent trampling by livestock and wild horses. New water developments may be constructed only if they would not compromise special status species, adversely affect stream function, or degrade riparian plant communities to an early seral stage. No new water developments would be permitted in intact playas, lakebeds, and in plant communities dominated by silver sagebrush.

Coordinated resource management decisions would be encouraged for site-specific planning. The goal is to incorporate sustainable use of existing riparian/wetland areas, maintain wildlife habitat, and provide forage for livestock—where this is practical. Grazing utilization levels would be monitored to determine optimum grazing periods and times of rest in riparian areas.

BMPs typically selected to improve riparian and wetlands sites would include:

- Treat or remove undesirable woody upland vegetation using mechanical or manual methods, or prescribed fire.
- Rest burned areas and juniper treatment sites from livestock grazing for two growing seasons (or less if resource conditions warrant.)
- Reduce livestock use in riparian and wetland areas by improving livestock distribution (e.g., alter grazing system, herding) and construction of riparian pastures.
- Construct livestock water developments outside riparian and wetland area, and/or use water-gap fencing.
- Intensive planting of woody riparian vegetation would be conducted in willow-dominated communities.
- Install in-stream structures to control erosion and create suitable aquatic habitats.
- Plant native grasses in upland areas.

Bio-engineering projects would include intensive planting of woody vegetation along stream banks plus other forms of (riparian) vegetation manipulation and stream bank stabilization structures – such as placing downed juniper for erosion control. Such treatments would be conducted on 25 miles of perennial, intermittent, and ephemeral streams.

Invasive western juniper and undesirable woody vegetation would be removed from riparian areas, using a combination of treatment methods such as those described under native plant communities in Section 2.17.2.

Roads found to have an adverse impact on riparian areas would be properly maintained, re-routed, eliminated, and/or rehabilitated to reduce impacts.

Livestock salting sites would be located ¼ mile from riparian areas to discourage damage by livestock.

Riparian management would be conducted on a watershed basis, using an ecosystem approach. Interested landowners and other interested parties including affected tribes would be involved. Interdisciplinary teams would be used to inventory, monitor, and evaluate management of riparian/wetland areas, including fen bogs.

Inventory, delineation, and assessment of streams, springs, and meadows/wetlands would be completed. Inventory and subsequent mapping would include ephemeral and intermittent streams. Determination would be made as to which meadows/wetlands are fen bogs. All newly identified streams, springs, fen bogs, and meadows/wetlands would be mapped and incorporated into the present GIS database.

Roads through Little Buck Meadows and Big Buck Meadows would be re-routed around existing (riparian) pasture fencing and the old road would be rehabilitated with native herbaceous vegetation.

2.17.4 Rare and Unique Plant Communities: Quaking Aspen, Curlleaf Mountain Mahogany, and Oak Woodlands

2.17.4.1 Desired Future Condition

Rare and unique plant communities, particularly oak woodlands and stands of quaking aspen and curlleaf mountain mahogany, would be healthy and found throughout their historic ranges. Plants would demonstrate diversity in age-class and structure, and would be vigorous and reproductively successful. They would provide suitable forage and habitats for wildlife and show a tendency to spread into suitable but unoccupied habitats.

2.17.4.2 Goal

Protect, maintain, restore, and enhance rare and unique plant communities to achieve multi-aged stands that are healthy, structurally diverse, and reproductively successful. Rejuvenate older stands and enhance seedling recruitment.

2.17.4.3 Objectives

Protect all remaining quaking aspen, curlleaf mountain mahogany, Oregon white oak, and blue oak stands. Expand area occupied by existing stands, and achieve mixed age-classes over the life of this RMP. Establish programs and treatments to increase recruitment and seedling and sapling survival, and achieve a healthy and diverse understory. Increase knowledge of fire history and its effects on plants and soils in or to approximate the effects of a natural fire régime.

2.17.4.4 Proposed Management Actions

Use the aspen delineation project protocol (Bartos and Campbell, 1998) to classify remaining stands that have not been mapped. Assess soils in aspen stands for use in developing management objectives.

A natural disturbance regime would be approximated in quaking aspen stands using a combination of treatments, including prescribed fire, manual cutting, mechanical removal, root-ripping, and herbicides. Stands would be individually assessed and treated based on browsing impacts, encroachment of shrubs and conifers, the presence or absence of "suckering", and the wetness or dryness of the site. Treatment priority would be as follows: 1) non-regenerative clones, 2) mixed aspen/conifer communities, 3) mixed sagebrush/aspen communities, and 4) (successfully) regenerative clones.

Prescribed burns within rare and unique plant communities would strictly adhere to burn plan objectives. Fuel loading, fuel types, fuel moisture content (live and dead), and prevailing weather conditions (especially drought) would be carefully considered prior to a prescribed burn. During rehabilitation treatments, retain old-growth juniper and other conifers greater than 12 inches DBH.

Silvaglyphs (historical carvings and drawings) would be protected during treatment procedures. Livestock would be excluded from non-regenerative aspen and selected curlleaf mountain mahogany stands. Stands would be protected from livestock and wildlife use until aspen saplings are six feet tall. Locate livestock salting sites at least ¼ mile away from aspen groves.

Curlleaf mountain mahogany would be inventoried to assess seral stage, biologic integrity, and associated species. Management actions would be planned and conducted on the basis of seral stage.
Treat stands of curlleaf mountain mahogany according to the following priority: 1) decadent stands without seedlings, 2) stands invaded by conifers, 3) younger stands with (relatively) recent conifer invasion, 4) stands invaded by cheatgrass or other noxious weeds, and 5) stands heavily used by ungulates.

Priority treatment would be initiated in curlleaf mountain mahogany stands at risk of conversion to conifers. In juniper/curlleaf mountain mahogany and eastside pine/curlleaf mountain mahogany associations dominated by *pre-settlement* juniper, treatment would aim to achieve a conifer canopy cover of 25% or less.

Control noxious weeds and other invasive species in and adjacent to stands of curlleaf mountain mahogany prior to initiating treatment procedures.

Protect previously burned curlleaf mountain mahogany from wildlife until saplings are sufficiently mature to withstand browsing. This would be accomplished using temporary fencing or piling slash from cut, dead mahogany trees or using slash from nearby conifers that are cut.

Oak woodlands would be inventoried to assess biological integrity, fuel loading (conifers and understory shrubs), and invasion by exotic annual grasses.

Develop 'Desired Future Condition' specifically for Oregon white oak and blue oak associations. Treatment of oak woodlands would include prescribed fire (light to moderate intensity) and removal of invasive juniper and high-density pine by manual (chain saw) or mechanical (equipment such as fellerbunchers) methods.

Manage select stands of California black oak for a seral stage including conifers. Control saplings to favor establishment of merchantable pine timber.

Management treatments for oak woodlands would depend on recruitment success in individual stands. Treatments would be conducted where no seedlings or saplings are present and in stands at risk from high-intensity wildfires.

Regeneration of aspen stands would be accomplished by cutting dead or dying aspen trees, removing conifers from aspen stands using manual methods such as chain saws, "pushing over" mature trees, ripping of root systems, burning, herbicide application, and protection from browsing. Where thinning or browsing control do not result in suckering, mid to old-aged aspen stands would be bulldozed or the soil ripped. Mature trees would be pushed over with a bulldozer. Ripping around stems or the perimeter of stands (one pass with a bulldozer) would stimulate suckering in older stands. Quaking aspen would be introduced on sites with the potential to support this species.

Temporary fencing would be used to protect 300 acres of aspen stands from livestock grazing, and permanent fencing would protect an additional 200 acres, over the life of this RMP. Livestock grazing would be managed to minimize damage to suckers in aspen clones by changing the class of livestock use (i.e., dry cows rather than cow-calf pairs.)

In aspen stands burned by wildland or prescribed fire and greater than ½ acre in size, a minimum of two years rest from livestock grazing would be required. Post-fire recovery criteria (e.g., sapling height, wildlife use, or sapling density) would be used to determine when livestock grazing could be resumed. Improvement of decadent and young stands of curlleaf mountain mahogany would be conducted through shearing or selective bulldozing. Bulldozing, possibly combined with ripping, would be used to thin or remove old trees in small randomly placed and randomly shaped openings. Stand rejuvenation would involve thinning, leaving 40 to 60 clumps per acre. Pruning would be used to remove dead and decadent trees, open stands to enhance seedling survival, increase deer forage, and create mixed age-classes. Pruning would mostly be conducted on younger trees in spring or early fall. Mechanical treatments or prescribed fire would be used for maintenance of pruned stands. In mahogany stands dominated by conifers due to fire suppression, fuel loads may be too high for prescribed fire. Restoration on these sites would involve mechanical or manual removal of conifers (chain saws or shearing equipment) to reduce the threat of stand-replacing (high-intensity) fires.

Treatments would be designed to remove invasive conifers, create mixed-age stands, and generally rejuvenate these plant associations according to Table 2.17-2.

Table 2.17-2 Proposed Annual Vegetation Treatments for Woodland Communities

Plant Community	Primary Treatment Method(s)	Treatment Area (acres/year)
Quaking aspen	Prescribed fire, mechanical, chemical	5–100
Curlleaf mountain mahogany	Prescribed fire, WFU,manual, mechanical, chemical	10–1,000
Oak woodlands	Prescribed fire, WFU, manual, mechanical	10–5,000

Changes in livestock grazing strategies (season of use, distribution, class of livestock, etc.) would be implemented to reduce browsing pressure on curlleaf mountain mahogany and oak woodlands. Livestock would not be permitted to graze or seek shade in early seral stage mountain mahogany stands. This would be accomplished by improving livestock distribution and providing shade in adjacent plant communities such as post-settlement juniper. Browsing by livestock and deer would be limited to 50–60% of current annual growth to maintain productivity and a vigorous, shrubby growth pattern.

Light- to moderate-intensity fires would be prescribed for California black oak and Oregon white oak woodlands dominated by young trees. Stands with dead trees would be burned to create small openings.

Consumptive use of dead-and-downed oak would not be allowed, except to clear dead trees within 66 feet of open roads and in the WUI.

2.18 Noxious Weeds and Invasive Species

Alien invasive and noxious plants have been present in (what is now) the U.S. since the earliest days of European settlement, but have increased exponentially in the last half-century. Due to the vulnerable nature of native ecosystems, invasive plants have become a major threat to economic productivity and to the survival of native species and ecosystems. Displacement of native plant communities by alien species which are frequently unpalatable or toxic can be devastating to rangelands and other landscapes and to the activities for which they are managed. This section addresses both weeds that are legally defined as "noxious" and other invasive plants.

The state of California has identified more than 130 invasive, noxious plants that threaten croplands, rangelands, forests, and waterways. There are undoubtedly many others yet to be located and identified. It is clear that many invasive plants readily adapt to local conditions and rapidly disperse using a variety of methods. We can expect this trend to continue, and even worsen (Gimp et al, 2004.)

The Alturas integrated weed management (IWM) control program is designed to address the noxious weed problem in a dynamic manner. Problems include increasing numbers of rapidly reproducing alien species with different physiological characteristics (see Map VEG-2). Changing technologies and conditions of infestation also contribute to the spread and proliferation of weeds. Weed infestations change annually because of new introductions, the spread of existing infestations, and as a result of prior-year management activities and other factors. For these reasons, site-specific reviews of known locations are conducted annually prior to the initiation of weed treatment procedures. The noxious weed problem is currently managed in partnership with local working groups and adjacent weed management control programs, as well as with county, state, and federal agencies.

FLPMA and the Public Rangelands Improvement Act direct BLM to "…manage public lands according to the principles of multiple-use and sustained yield…" and "…manage the public lands to prevent unnecessary degradation…so they become as productive as feasible." The introduction and spread of noxious weeds and undesirable plants contributes to loss of rangeland productivity, increases soil erosion, reduces numbers of native plant species and their structural diversity, contributes to the loss of wildlife habitat, and in certain instances poses a threat to human health. The "Carlson-Foley Act" (Public Law 90-583) and the Federal Noxious Weed Act (Public Law 93-629) direct weed control procedures on public lands. Protection of natural resources depends on educating people about the devastating impacts of noxious weeds and actions agencies and individuals can take to prevent weeds from becoming established and proliferating, as well as methods of destroying existing infestations.

2.18.1 Desired Future Condition

The present condition of terrestrial and aquatic ecosystems reflects local economic conditions, widely held social values, and the effects of technology. Local economic and social values for biodiversity are tangibly presented in BLM's S&Gs. Description of the desired future condition is intended to describe attainment of the biodiversity standard for rangeland health described in these S&Gs.

The desired future condition is the attainment and maintenance of viable, healthy and diverse populations of native—and desirable non-native—plant species on a landscape free from noxious weed and other invasive species infestation. Where noxious weeds have been resistant to eradication, they will be contained and infestations reduced to an acceptable level (e.g., cheatgrass and medusahead sites.)

2.18.2 Goal

Minimize the likelihood of introducing new species of noxious weeds and other invasive species and, where this has already occurred, prevent weeds from becoming established. In areas where noxious weeds are established, maintain areas where infestations have been adequately controlled. Institute measures to substantially decrease the area and density of infestation where weeds have not passed an ecological threshold for site rehabilitation (e.g., cheatgrass and medusahead.)

2.18.3 Objectives

Apply recognized and proven IWM practices throughout the planning area to control the introduction and proliferation of noxious weeds and other undesirable invasive plants. The area and density of established populations will be reduced to acceptable levels. Maintain plant communities in such manner as to remain free of noxious weeds wherever possible. Where weeds are prevalent over a large area, use broad-scale IWM strategies to control infestations.

When control measures are completed, follow up with monitoring and re-evaluation at suitable intervals. Surveys and inventories for new infestations would be conducted throughout the growing season on a yearly schedule, covering the management area on a three-year rotation. When making plans for vegetation management, incorporate procedures for the early detection of non-native and highly aggressive species, such as cheatgrass, medusahead, and other non-native annual grasses.

Decrease and contain weed infestations in designated wilderness or WSAs within the life of this PRMP using the best combination of treatments consistent with "minimum tool" requirements and IWM principles and practices. Reinforce existing partnerships and cooperation with adjacent weed management areas.

2.18.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976) as amended through Sept., 1999, (Public Law 94-579)
- Public Rangelands Improvement Act (1978)
- Food, Drug and Cosmetic Act (1938) and the Miller Amendment
- Carson-Foley Act (1968), (PL 90-583)
- The Federal Insecticide, Fungicide and Rodenticide Act (1972) as amended (1988)
- Federal Noxious Weed Act (1974) and amendment Sec 15 (Nov. 28, 1990) (PL 93-629)
- Executive Order 13112 – Invasive Species, section 2 (1)(ii)(iii)(v)(vi) (1999)
- Partners Against Weeds – An Action Plan for the Bureau of Land Management (Jan. 1996)
- BLM Manual 9011 and Handbook H-9011-1
- BLM Manual 9014
- BLM Manual 9015
- California Food and Agriculture Code: sections 403, 482, 5021, 5041 and 5405
- Bureau of Land Management Pesticide Applicators Certification Program

2.18.5 Proposed Management Actions

Preventing the introduction and establishment of noxious weeds and control of infestations would remain a priority. The AFO would use an integrated pest management approach, of which the IWM program is a part. This includes education and preventive measures plus physical, biological, chemical, and cultural treatments. The IWM program would be conducted in cooperation with the California Department of Food and Agriculture (CDFA); Modoc, Lassen, Shasta, Siskiyou and other nearby counties; affected private landowners and permittees; and various federal agencies and interested parties including affected Indian tribes. Qualified AFO personnel would provide education (including community education events) on the prevention and treatment of noxious weed infestations to BLM personnel and local community organizations and individuals according to the AFO prevention schedule.

Periodic inventories would be used to detect new infestations and monitor the condition of existing infestations. Prioritize noxious weed inventories in plant communities that are critical for wildlife habitat, in plant communities that are at risk, in high-use areas, and at recreation sites.

The use of certified noxious weed-free seed, hay, straw, and mulch is mandatory throughout the management area. Stipulations will be attached to use permits and emergency stabilization and rehabilitation plans to reduce the spread of noxious weeds through contaminated seed, hay, straw, and mulch.

Higher priority and a broader scope would be given to the inventory and control of noxious weeds. Areas that are less disturbed and more remote, or sites not previously inventoried, would be included in the weed management program. Inventories would be increased in areas where large projects are implemented – such as clearing of western juniper. The early detection of new infestations throughout the management area would be emphasized together with rapid response and control of *all* new infestations. However, aggressive control measures on "hot spots" (i.e., disturbed areas), such as roadsides, ROWs, livestock reservoirs, livestock trailing routes, and recreation sites would have the highest priority.

Treatments will focus on restoration of sites to native plant communities. Restoration of sites with compromised plant communities and/or sites where previous control efforts have had limited success would have the highest priority for control measures. Treated sites would be monitored to determine treatment effectiveness and impacts on non-target vegetation. Native species, or desirable non-native species, would be used to restore sites to their ecological potential.

Current science and research findings would be emphasized through increased cooperation with university agricultural extension programs, county agricultural departments, CDFA, and various federal agencies (including research conducted by BLM.) Areas of special interest would include new technologies in IWM (e.g., control of exotic annual grasses, restoration of sagebrush communities converted to annual grasslands.) Another area of interest would be investigations into use of the herbicide Plateau™ (imazapic) in conjunction with prescribed fire, nitrogen sequestration, and seeding native grasses as a treatment package for sites infested with medusahead and annual brome. These treatments would be part of restoration efforts in low sagebrush and Wyoming big sagebrush plant associations infested with or type-converted to medusahead grass.

Education efforts would be expanded to include public education and outreach programs outside the AFO planning area. This would be done to prevent or minimize the spread of noxious weeds into the management area. Public education within this and other weed management areas would also be increased by other means.

Plant communities at risk from frequent fires or invasion by noxious weeds or invasive species, or from type-conversion to an early seral stage, would be seeded with native annual and perennial vegetation having the potential to out-compete or resist these negative trends. Desirable, non-native species may be used when better adapted to out-compete plant communities dominated by exotic annuals. In Wyoming sagebrush, mountain big sagebrush, and low sagebrush plant communities, perennial grasses would be seeded where these communities are invaded by annual grasses and also as an aid in the formation of microbial crusts.

In ceanothus mixed chaparral communities invaded by annual grasses (i.e., cheatgrass, Japanese brome, or medusahead), a combination of treatments would be implemented, including crushing, drill-planting competing native grasses and forbs, and prescribed fire. Proactive and aggressive eradication of recently established exotic annual grasses would be carried out on the Big Tablelands of Siskiyou County.

Aggressive restoration methods would generally be employed in seriously degraded plant communities (e.g., Wyoming big sagebrush dominated by medusahead.) Treatment procedures in this case would involve the following step-by-process: 1) Reduce medusahead (using grass-specific herbicides, nitrogen sequestration, prescribed fire, and inoculation with microbes and/or mycorrhizal fungi), 2) Seed affected lands with desirable grasses and forbs that can aggressively compete with medusahead, 3) Maintain the health and vigor of these seedings for a sufficient time, 4) Seed again with locally gathered, native species.

Firebreaks (20 to 25 feet in width) composed of fire-resistant vegetation would be established to protect shrub communities invaded by annual grasses (principally cheatgrass and medusahead.) In particular, up to 36 miles of firebreaks would be established on the lower bench of the Likely Tablelands. Additional firebreaks (up to 30 miles) would be constructed in the McDonald Mountain area, in the Westside, Juniper Creek, and Moon Springs Grazing Allotments, in Dixie Valley and the Beaver Creek areas, and in Oregon oak woodlands invaded by medusahead.

Closure to motor vehicles would be seriously considered in areas where OHV traffic is responsible for significant increases in infestation by annual grasses and noxious weeds. Two such areas are the mixed ceanothus chaparral communities of the Fall River watershed and the big sagebrush/desert peach associations near Alturas, CA.

2.19 Special Status Plants

There are 54 known occurrences of special status plants, which includes 12 species, on lands administered by the AFO (see Map VEG-3). There are an additional ten species of special status plants which are suspected to occur on BLM administered lands; two of these species occur on adjacent private lands and four of them occur on adjacent Forest Service lands. Only eight of the suspected species have potential habitat that occurs on BLM.

Current risks to these species include grazing and trampling by livestock and wild horses, OHV damage, fire suppression, mining, flat rock removal, invasive and exotic plant species, and soil erosion.

2.19.1 Desired Future Condition

Populations and habitats of rare plant species – and associated plant communities – will be stable or improved in vigor and distribution throughout the AFO management area.

2.19.2 Goal

Manage public lands to maintain, restore, or enhance populations and habitats of special status plants. Priority for management treatment would be: (1) federally listed endangered or threatened species, (2) federal proposed species, (3) federal candidate species; (4) state-listed species, (5) BLM sensitive species, and (6) BLM special interest species.

2.19.3 Objectives

The reproductive viability of all species of special status plants will be maintained. Known occurrences/populations will be monitored to determine the health of the plants and associated plant communities. BLM will continue to survey for the presence of additional occurrences/populations of special status plants. Management guidelines will be developed for significant occurrences or known populations of special status plants and their associated habitats.

A modified grazing strategy or other suitable treatments would be developed under an integrated resource management plan, AMP, habitat management plan, or BMPs. A biological evaluation would provide baseline information for resource objectives developed for a special status plant, its habitat, and associated plant communities.

2.19.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy Management Act, Public Law 94-579 (Oct. 21, 1976, as amended through Sept., 1999);
- Endangered Species Act of 1973 (16 U.S.C 1531 et seq.), as amended;
- Public Rangelands Improvement Act (1978);
- BLM Manual 6840 – Special Status Species Management, Release 6-121, (Jan. 19, 2001);
- Departmental Manual 632.1.1–1.6, Endangered Species Management;
- BLM Manual Supplement, California State Office, 6840.06 – Special Status Plant Management, Release 6-24 (Mar. 25, 1996);

- BLM Manual Supplement, California State Office, H-6840-1– Special Status Plant Management, Release 6-25 (April 15, 1996);
- BLM Manual Supplement, California State Office Handbook H-1745–Native Plant Materials Handbook, Release CA 1-243, (Sept. 13, 2001).
- MOU between USDA Forest Service; USFWS, BLM, National Park Service, and National Marine Fisheries Service (1994)
- Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (July, 2000)

2.19.5 Proposed Management Actions

Management would concentrate on providing habitat conditions suitable for the requirements of individual species. Conservation agreements or species management guidelines would be developed and implemented. BLM would ensure that other management actions do not contribute to the decline of a special status plant species.

All project proposals will be reviewed prior to implementation to ensure compliance with special status plant policies. Project proposals will incorporate recommendations of the California special status plant policy (CA BLM Manual Supplement H-6840-1, Special Status Plant Management) in order to avoid actions that would contribute to the listing of any species under the Endangered Species Act.

Prior to project implementation, surveys would be conducted for special status plants and their characteristic habitats (whether occupied or not.) Surveys would be conducted at the appropriate time of year, usually during flowering)—in order to locate and more positively identify special status plants. This may involve surveys in subsequent years.

Continue monitoring the "Green Place" vernal pool which is critical habitat for slender orcutt grass, *Orcuttia tenuis* (federally listed as threatened): monitoring is conducted jointly with Lassen National Forest for all vernal pools in northeastern Shasta County. Monitoring will also continue in the Ash Valley ACEC/RNA.

Work with Lassen and Modoc National Forests and BLM Eagle Lake Field Office to write a Conservation Strategy for slender Orcutt grass. The new strategy will replace the existing Species Management Guide.

Coordinate with USFWS to conduct grazing studies on habitat (both BLM and private lands) on slender Orcutt grass habitat.

Restoration and/or enhancement of populations and habitats would be conducted in areas where this is biologically sound and likely to succeed. Maintenance would be the goal where populations and habitats are at or near potential.

The following measures would be implemented for the recovery and conservation of special status plants:

- Analyze existing data and identify gaps in information.
- Organize data from inventories, monitoring, and management information using a standardized database.
- Determine actions and funding necessary to conserve, recover, and maintain special status plants.

- Conduct surveys for all special status and special interest plants—and their critical habitats—known or suspected to occur on BLM-administered lands.
- Ensure that management actions necessary to protect, conserve, and recover special status plants are implemented, monitored, and documented.
- Acquire lands (from willing sellers) where populations of special status plants are not currently protected.
- Populations of special status plants will be maintained on areas of five acres or less.
- Manage special interest plants (i.e., California Native Plant Society, List 2 and List 4 plants) so as to prevent the necessity of future listing as special status species.

Long-term monitoring would be conducted using permanent vegetation transects read according to the method chosen. Visual reconnaissance would be used to obtain general information on the habitats of special status plants. Individual special status plant species populations and habitats would be monitored annually or bi-annually and a CDFG native species field survey form filled out.

No more than a 20% reduction (threshold level) in population would be tolerated in a location containing more than 500 individual plants on an area greater than one acre (0.4 hectare.) When individual numbers or the area is less than the threshold level, a biological evaluation would be prepared to determine if the proposed action would result in loss of viability for the species. For widely distributed species, habitat elimination may be increased to 25% for that species. For a species of limited distribution or a species widely distributed in the AFO, but limited in other BLM field offices or on other federal lands, no more than 5% disposal of habitats containing that species would be permitted. Small and isolated parcels (160 acres or less) would not be available for disposal if a species only occurs on those lands and disposal would result in elimination of the species or cause listing of the species under the Endangerd Species Act.

Where a special status species has a conservation strategy, management prescriptions or standards and guidelines contained therein would be followed. If a special status plant or its habitat declines beyond the thresholds defined above, all management actions suspected of contributing to the decline of the species or its occupied habitat would be terminated. If a conservation strategy for a special status species does not exist, a biological evaluation would be prepared to determine likely effects on the special status plant and a monitoring program would be implemented.

Document and map the Alturas volcanic gravel plant community (i.e., plant association) on the Westside, North Graves, South Graves and Neer grazing allotments. Fence (20 acres) the volcanic gravel plant community on the Westside Allotment (which has failed to meet rangeland health standards) to protect it from unregulated OHV damage and livestock trampling (three special status plants and one special interest plant are presently impacted.)

OHVs would be ‘Limited to Designated Routes’ in the Ash Valley ACEC/RNA and the Westside grazing allotment to protect special status plants. All primitive 4WD trails and OHV tracks would be closed and rehabilitated to restore and protect special status plant populations.

Establish a long-term monitoring plot for the soldier meadows cinquefoil (*Potentilla basaltica*, a federal candidate species) in the Ash Valley ACEC/RNA. This species was newly discovered on the AFO management area in 2003 and studies are needed to determine the effects of livestock grazing. Because only 50 plants have been located on an area of approximately ¼ acre, BLM must ensure these plans are not inadvertently extirpated by management actions.

If data suggest a decline in numbers or reproductive viability, livestock would be excluded by means of fencing. Establish a grazing season and minimum stubble heights for the meadow system containing this species.

The effects of firewood cutting would be monitored in *Lupinus uncialis* habitats; known habitats include the North Graves, South Graves, and Westside grazing allotments. In any case, cutting would not be permitted until after Astragalus seed has matured and scattered. If monitoring shows a decline in Lilliput lupine due to firewood cutting and associated OHV use, habitats subjected to this damage will be 'Closed' to firewood cutting.

Establish monitoring for *Mimulus evanescens* at Moll Reservoir to study livestock trampling effects. Grazing at the reservoir could be limited until after Mimulus seed has matured, in order to allow natural reseeding to take place. Coordinate with Modoc National Forest and the Big Valley Ranger District. (The Modoc National Forest administers grazing lands surrounding Moll Reservoir.) Juniper reduction projects would be allowed with site-specific mitigation. (Studies are currently underway in the South Graves allotment to assess the effects of juniper removal on occupied and unoccupied Astragalus habitat.) Proposed mechanical treatment would be monitored by a botanist during project implementation. Initiate new research into the effects of fire on various special status plants, since little is known. Meanwhile, continue studying the effects of fire on *Ivesia paniculata* in the Ash Valley ACEC.

Cooperate with university researchers to determine which species of *Lomatium (hendersonii or roseanum*) is found on AFO-administered lands.

Conduct prescribed burns in ecotones where eastside pine/western juniper meets curl-leaf mountain mahogany in occupied and suitable unoccupied habitat for Baker's globemallow. Research is needed to determine whether prescribed burns under site-specific resource and ecological guidelines would enhance habitat. (This BLM and USDA Forest Service "special interest or watch species" is thought to require hot fires for regeneration.)

2.20 Visual Resource Management

The AFO management area contains landscapes of great beauty and diversity. There are hillside forests of pine and fir, extensive sagebrush-steppe, lava fields, and deep river canyons. Visual contrasts are striking—especially in fall when the vivid yellows, oranges, and reds of aspen, oak, and redbud lend added seasonal beauty. There are four WSAs. These contain many interesting volcanic features, such as cinder cones and lava plateaus. The WSAs also contain extensive riparian vegetation; this supports thriving wildlife populations. There are a number of exceptional roadside vista points. The most popular (west of Fall River Mills) provides a spectacular panorama, from which two historic roads (i.e., the Winters Toll Road at Pit River Falls and the military road to Fort Crook) may also be viewed.

Visual resources are the characteristic natural (land, water, and vegetation) and man-made features that typify landscapes. BLM uses a VRM system to assess scenic qualities and plan, guide or set limits on development and management activities. Existing scenic qualities, the likelihood of development, sensitivity to the effects of (proposed) development or management activities, and viewing distance are all considered in the classification process. BLM uses a visual contrast rating system to systematically analyze (using the basic design elements of form, line, color, and texture) and quantify expected visual impacts. The overall potential impact on the subject landscape may then be assessed and an appropriate VRM class (from I through IV) assigned.

VRM classes, and basic management strategies, are as follows:

Class I: The primary objective is to preserve the character of the existing landscape. Change is basically limited to natural forces, although management activities are permitted if unobtrusive and very limited in scale.

Class II: The objective is to preserve the character of the existing landscape. Management activities may be evident, but must not attract the attention of the casual observer. Visual change must be harmonious (i.e., must repeat the basic elements of form, line, color, and texture that characterize the natural features of the subject landscape), relatively unobtrusive, and limited in scale.

Class III: The objective is partial preservation of the existing landscape character. The level of change must be moderate. Development and/or management activities may attract attention, but must not dominate the view of the casual observer. Visual change must be harmonious (i.e., attentive to the basic design elements).

Class IV: Major modification of the existing landscape is permissible. The level of change may be high and development and/or management activities may dominate the view. However, visual impact must also be minimized through careful location, minimal disturbance, and harmonious development (i.e., attention to the basic design elements).

2.20.1 Desired Future Condition

The scenic beauty of planning area landscapes will have been preserved for present and future generations. Much of the area will exist in its current visual condition. Skillful management and ongoing attention to visual appearances will continue to improve other areas. Development may also exist in Class IV areas that significantly alter present visual appearances; however, any such development will also be relatively harmonious with the surrounding landscape.

2.20.2 Goal

Development of all kinds, management activities, and recreational events will remain consistent with established VRM class criteria throughout the planning area.

2.20.3 Objectives

Designate (BLM) visual resource management classes for all lands under the jurisdiction of the Alturas Field Office. Utilize the applicable VRM class criteria to preserve and enhance scenic quality for present and future generations.

2.20.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976)
- BLM Manual 8400 (Visual Resource Management) (1984)
- BLM Manual Handbook H-8410-1 (Visual Resource Management Inventory) (1976)
- BLM Manual Handbook H-8431-1 (Visual Resource Contrast Rating) (1986)
- BLM Manual 1616 (Prescribed Resource Management Planning Actions) (1984)
- BLM Manual 1620 (Supplemental Program Guidance) (1986)
- BLM Manual 1621 (Supplemental Guidance for Environmental Resources) (1986)
- California Environmental Quality Act (1970)
- Tablelands Integrated Resource Management Plan (June 1999)
- Pacific Crest Trail Agreement; USDA-Forest Service, Lassen National Forest and USDI-BLM
- Comprehensive Land Use and Management Plan for State and Federally-Managed Lands in Modoc County (May 1995)
- California regulations governing Ahjumawi Lava Springs State Park
- California regulations governing Ash Creek Wildlife Management Area
- Comprehensive Management and Use Plan, California National Historic Trail and Pony Express National Historic Trail; DOI National Park Service (1998)
- Emigrant Trails Scenic Byway Plan, RC&D, Alturas, California (2003)
- Mount Dome Planning Unit Environmental Impact Statement (1980)
- DOI, Management Policy and Guidelines for Lands under Wilderness Review (Dec. 1979)

2.20.5 Proposed Management Actions

VRM classes would be designated as listed below (in Table 2.20.1) and as shown on Map VRM-1. All proposed actions must consider the importance of visual resources and must minimize the impacts the project may have on these values. While performing an environmental analysis for projects, the visual contrast rating system would be utilized as a guide to analyze potential visual impacts of the proposal. Projects would be designed to mitigate impacts and must conform to the assigned VRM class objective.

Table 2.20-1 Visual Resource Management Classes

VRM Class	Size (acres)
Class I (Applies to WSAs) [1/]	56,648
Class II	157,177
Class III	104,006
Class IV	185,214
Total (all classes)	503,045

[1/] VRM Class I objectives apply for all WSAs in the AFO 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.

Developments, land alterations, and vegetation treatments for all resource areas, and those actions conducted under permit (e.g., utility corridors and infrastructure) will be designed, built, or accomplished in a manner that will minimize visual intrusions and preserve scenic qualities, especially when viewed from towns (or nearby residential areas), high-use travel routes, and popular recreation areas (e.g., fishing streams and reservoirs, historic trails, archaeological and interpretive sites, and local, state, and national parks).

The Wilderness IMP requires Class I management for all WSAs. However, should a WSA be denied wilderness status (by Congress), the area would revert to its original (underlying) VRM class, unless reclassified due to inclusion in another special management area (e.g., an ACEC, or WSR). ACECs, rivers that are "eligible" or "suitable" as WSRs, historic trails, or other specially designated areas will normally be managed under VRM Class II criteria. VRM classes are illustrated on Map VRM-1.

VRM classifications will be used to create visual buffer zones (at least three miles in depth) around popular recreation areas and on either side of major travel routes. However, within these zones, areas that are not visible from recreation sites or major roads would not be held to as high a standard.

A general, but comprehensive brochure of "Premier Peaks, Panoramas, & Vistas" will be developed for visitor use according to ROS designations. An assortment of other brochures, containing detailed information on recreational opportunities associated with specific mountain peaks or scenic vistas will also be published and distributed. These brochures will feature McDonald Mountain, Tule Mountain, Widow Peak, Likely Mountain, Sheep Mountain, Mahogany Mountain, Cold Springs Mountain, Overlook Ridge, Haney Mountain, Rimrock Overlook, Whitinger Mountain, Anderson Mountain, Hogback Ridge, Three Peaks, and (possibly) other locations.

2.21 Water Quality and Hydrologic Function

Water quality is analyzed and discussed with respect to water quality indicators and bodies of water listed as "impaired". Primary indicators of water quality are: water temperature, nutrient levels, fecal coliform count, turbidity, sediment load, dissolved oxygen, and stream channel condition. These indicators are based upon standards and guidelines discussed in Section 4.22.

Generally speaking, bodies of water in the AFO management area do not meet state water quality standards with respect to temperature levels during summer and early fall. Livestock grazing, combined with high ambient air temperature, are thought to be the major contributing factors. BLM also has no control, and little influence, over grazing practices on private lands at the head of watersheds that subsequently flow through BLM-administered lands. Livestock impacts on stream banks and riparian vegetation play a significant role in lowering water quality and elevating water temperatures.

The only body of water listed as "impaired" (as defined under Section 303(d) of the Clean Water Act) in the AFO management area is the main channel of the Pit River from the town of Alturas to Shasta Lake. The river is impaired due to high nutrient levels, low dissolved oxygen, and high temperature. BLM does not manage a significant portion of lands adjacent to the Pit River, however; it does manage a large amount of land adjacent to its tributaries. Despite this, many tributaries also pass through significant stretches of private land before entering the Pit River. See Map WATER-1 for Water Quality Assessment Ratings and Map WATER-2 for Watershed Boundaries.

2.21.1 Desired Future Condition

Target values for hydrologic function and water quality are discussed in BLM's S&Gs. This document describes the 'Desired Future Condition'. It is intended to define measurable standards for the achievement of a quality water resource and addresses the health of stream and riparian ecosystems. Achievement of water quality standards (as defined in the S&Gs) is expected within 20 to 50 years, if objectives are achieved.

In order to achieve the 'Desired Future Conditon', hydrologic function and water quality must conform to parameters defined in the S&Gs for all beneficial present and potential uses. State law defines beneficial uses of California waters which must be protected from degradation to include—but are not limited to—"...domestic, municipal, agricultural, and industrial supplies; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves." [Water Code Section 13050 (f)] More generally, water quality on all natural bodies of water must meet state standards in order to achieve stable and productive riparian and aquatic ecosystems. For bodies of water that are not "waters of the state" (e.g., some stock ponds, waterfowl developments, guzzlers, etc.), water quality must be suitable for the beneficial uses for which they were developed. Upland, riparian, and aquatic ecosystems must achieve acceptable water quality standards so that they are sufficiently stable and productive for identified beneficial uses.

Soils will support healthy, native riparian and wetland vegetation to allow for water percolation, filtration, and storage. The structure and diversity of riparian and wetland vegetation will be such that erosion is controlled, stream banks are stabilized, incised channels are healed, and waters are shaded so that sediments are filtered, floodplains can develop, energy is dissipated, floodwaters are delayed, and groundwater is recharged appropriate to the climate, geology, and landform. Improvement will occur in stream channel integrity and the processes which have created riparian and aquatic systems.

Watersheds will have the stability to capture, store, and safely release water during normal seasonal flooding, i.e., streams must be capable of handling the discharge without significant damage to the watershed. Most, if not all, riparian and wetland areas will be in PFC and meet water quality and hydrologic function goals and objectives. Human use of natural resources will be such that water quality meets specified standards and is cool, clear, and clean. A year-round supply of water is sufficient to meet reasonable demands of fisheries, wildlife, livestock, and other beneficial uses.

2.21.2 Goal

Ensure that hydrologic function in streams, wetlands, springs, and uplands is natural and proper; state water quality standards are achieved, and the needs of beneficial uses are met.

2.21.3 Objectives

On a priority basis, take action to improve hydrologic function and/or water quality in areas not meeting state standards – especially where hydrologic function and/or water quality problems are major factors inhibiting the success of other resource programs. Ensure that hydrologic function and water quality are preserved in areas where standards have been met. Continue management efforts in coordination with the Pit River Watershed Alliance, local River Center, and Central Modoc Resource Conservation District.

Actions will be guided by the following objectives from the S&Gs:

- "Maintain the physical, biological, and chemical integrity of waters flowing across or underlying the lands it [BLM] 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."
- "[BLM must] 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 state or regional water quality control boards in California or the Environmental Protection Agency [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 non-degradation policies 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 State's water quality administrative agencies and the EPA to establish appropriate beneficial uses for public waters, establish appropriate numeric targets for 303(d)-listed water bodies, and implement applicable requirements to ensure that water quality on public lands meets objectives for the designated beneficial uses of this 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."

2.21.4 Legislative, Regulatory, and Policy Direction

- Approved Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands (2000).

  This includes the water quality health standard, which states that: "Water will have characteristics suitable for existing or potential beneficial uses. Surface and groundwater will comply with the objectives of the Clean Water Act and other applicable water quality requirements—including fulfillment of California and Nevada State standards—excepting approved variances".

- BLM Water Rights Policy:
  - BLM Water Rights Policy: Instruction Memorandum CA-2000-014 - "Interim Water Rights Policy for Public Lands in Nevada Administered by BLM-California" (December, 1999)
  - BLM Handbook H-7250, Water Rights and California Supplement H-7250-1, California Water Rights Procedures
- BLM Manual, Section 7200 - Water Resources Management
- BLM Manual, Section 7240 - Water Quality
- Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management (2000)
- President's Clean Water Action Plan (1998)
- MOU between the DOI BLM and the California Water Resources Control Board (1993)
- Lahontan Water Quality Control Board Basin Plan (2004)
- Central Valley Water Quality Control Board Basin Plan (2004)
- Nevada Administrative Code—Water Quality Standards
- USDA Forest Service & BLM protocols for addressing 303(d)-listed waters
- Executive Order 12088 - Federal Compliance with Pollution Control Standards (1978)
- Executive Order 11988 - Floodplain Management (1977)
- Executive Order 11990 - Protection of Wetlands (1977)

2.21.5 Proposed Management Actions

Implement measures to make progress toward achieving PFC on 15 miles of streams, 22 acres of springs, and 46 acres of wetlands known not to be in riparian PFC (see Map WATER-1). Additional riparian areas or streams segments identified (in the future) as not in compliance with land health standards would be included in restorative measures. Prioritize restoration treatments to improve hydrologic function and water quality through natural recovery, improved livestock grazing strategies, and in-stream structures.

Implement measures to make progress toward achieving state water quality standards and the needs of beneficial users on 17 miles of streams known not to be in compliance. Additional riparian areas or streams segments identified (in the future) as not in compliance with State standards and beneficial use-needs shall be included in restorative measures.

2.5 miles (2 miles on Cedar Creek and 0.5 miles on Dry Creek) are known to have overlapping problems with water quality and riparian function. It is suspected there are additional overlapping water quality and riparian functional issues; however, site locations differ between the two types assessments and the linkage cannot be drawn. Moreover, a few sites exhibit PFC but still have water quality problems and so there is no overlap. Therefore, a total of approximately 30 stream miles are known to be in need of management for either riparian hydrologic function or water quality issues. An additional 1.5 miles of stream would be managed to limit livestock use due to designated critical habitat for Modoc Sucker on Ash Creek, Willow Creek, and potential critical habitat on Rush Creek (Refer to Section 2.24 "Wildlife" for details).

Amend basin plans to reflect suitable water quality standards for the AFO management area. Appropriate actions include cooperation with state water quality control regulatory agencies and participation in their triennial reviews.

All programs and activities having the potential to degrade water quality would include BMPs as an integral part of activity plans. BMPs would be chosen from various NEPA-approved documents including, but not limited to: Water Quality Management for National Forest System Lands in California Best Management Practices, (Sept 2002); Soil and Water Conservation Practices Handbook, USDA Forest Service Southwestern Region (FSH 2509.22 R-3 Transmittal), (effective 12/3/90); BLM AFO Tablelands Integrated Management Plan/Fitzhugh Creek Aquatic Habitat Management Plan, (June 1, 1999); California's Management Measures for Polluted Runoff, (Jan., 2000); The Practical Streambank Bioengineering Guide: Users Guide for Natural Streambank Stabilization Techniques in the Arid and Semi-Arid Great Basin and Intermountain West, USDA NRCS, (May, 1988); Streambank Soil Bioengineering Field Guide for Low Precipitation Areas, USDA NRCS, (Sept., 2002); Riparian Area Management, Riparian-Wetland Soils, Lisa Lewis, et al., Technical Reference 1737-19, (2003); Biological Soil Crusts: Ecology and Management, Jayne Belnap, et al., Technical Reference 1730-2, (2001).

Management actions with regard to grazing would include a range of actions, from implementing improvements to current grazing practices, to complete livestock exclusion where this is advisable. Current watershed uses of streams, riparian areas, and contributing uplands would continue, providing unimpeded progress is being made toward achieving state water quality standards, as well as riparian management objectives and riparian PFC.

As specific plans are developed—such as AMPs—they would incorporate suitable BMPs. Important BMPs would include protection of streams, wetlands, spring sources, and uplands from overgrazing by livestock through construction and maintenance of 500 acres of additional exclosures. These would also incorporate and overlap exclosures protecting important wildlife habitat and archaeological sites.

Bio-engineering projects would include intensive planting of woody vegetation along stream banks plus other forms of (riparian) vegetation manipulation and stream bank stabilization structures – such as placing downed juniper for erosion control. Such treatments would be conducted on 25 miles of perennial, intermittent, and ephemeral streams.

2.22 Water Supply

BLM employs many forms of water development in its resource management programs, especially in connection with livestock grazing. Surface water conditions have gradually changed over a period of many decades, primarily from historic livestock grazing and road-building activities. Relatively large irrigation dams have been built (under permit) on BLM-administered lands. Reservoirs are now the main instrument of hydrologic changes, and are important for livestock and irrigation; as well as for wildlife, recreation, and other purposes. Other hydrologic modifications include stock ponds, spring developments, and a few water diversions. These kinds of development are required for proper distribution of livestock (as well as wild horses and burros). However, many water developments are also designed to benefit wildlife. Some examples of the latter are wildlife guzzlers and various actions designed to enhance or reestablish riparian and wetland areas.

2.22.1 Desired Future Condition

Water supply (quantity and distribution) would be sufficient to meet beneficial uses and resource objectives in compliance with BLM land health standards. Major beneficial uses are livestock grazing, terrestrial and aquatic wildlife habitats, wild horses, and recreation. Where water supply is inadequate, distribution would be improved or new supplies developed.

2.22.2 Goal

Assure the availability of high-quality water to meet natural resource requirements and management needs.

2.22.3 Objectives

Determine in-stream flow requirements necessary to support healthy aquatic and riparian habitats. Acquire and maintain water rights needed to protect federal investments by ensuring an adequate and reliable water supply for BLM programs.

2.22.4 Legislative, Regulatory and Policy Direction

General Direction

- The Clean Water Act (1972), as amended
- Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing (July, 2000)

BLM Water Rights Policy for the AFO

- Instruction Memorandum no. CA-2000-014 - Interim Water Rights Policy for Public Lands in Nevada Administered by BLM-California (December, 1999)
- BLM Handbook H-7250 - Water Rights, and Supplement H-7250-1 - California Water Rights Procedures

2.22.5 Proposed Management Actions

- Manage and maintain water sources to ensure adequate water supply for the proper distribution of livestock and wild horses, and fulfill the needs of wildlife.
- Ensure that water sources are maintained for recreational and other activities.
- Selectively develop springs and protect riparian ecosystems.
- Projects that involve inter-basin transfer of water would be coordinated with local and regional governments.
- Assert BLM water rights on state waters (i.e., a body of water having a defined channel flowing off the property on which it is located) in order to protect the federal monetary investment in valued resources and infrastructure.
- Develop a reservoir management plan supporting wildlife and fisheries.
- Consider withdrawal of any water right permits and licenses on water sources that are not waters of the state.
- Apply to the State of California to acquire water rights now under state jurisdiction.
- Assert riparian rights in California on all perennial and important intermittent streams.
- The physical condition of stock ponds and reservoirs would be examined and inventoried on a regular basis to assure adequate and efficient storage of water.
- Emphasize the need to extend seasonal water availability for wildlife.
- Seventy-five new water developments of various kinds would be constructed.

2.23 Wild Horses and Burros

There are no burros within the AFO management area; however; there are two areas in which wild horses are found (see Map WHB-1). The first is the Emigrant HMA, which is a part of the Devil's Garden Wild Horse Territory (north of Alturas, CA.) The second is the Red Rock HMA near Macdoel, CA. The Emigrant HMA is 43,345 acres in size; however; only a small portion – BLM's "Strip Allotment", at 8,500 acres or 20% of this HMA – falls within the Bureau's administrative area. Since the BLM portion contains only about 38 horses, it is managed—along with the rest of the Emigrant HMA and the Devil's Garden Wild Horse Territory—by the USDA Forest Service under a 1980 MOU between the USDA Forest Service and BLM. BLM's only management involvement is to cooperate with the USDA Forest Service in periodic removal, adoption, and holding of animals from the Devil's Garden Wild Horse Territory to keep horse numbers within AMLs. Management actions that would increase or decrease the availability of forage such as changes in livestock numbers and/or season of use would be conducted by the Modoc National Forest. As BLM does not "manage" this herd, it is not considered in the PRMP.

The Red Rock HMA (CA-251) is much smaller, but is managed by BLM. It is 16,895 acres (12,475 acres under BLM jurisdiction and 4,420 acres in private hands). There are six grazing allotments within the HMA: Mahogany Mountain (#1316), Modoc Gulch (#1312), West Mahogany (#01323), No. Red Rock Lake (#01304), Big Tablelands (#01314), and Coyote Ridge (#01318).

The AML is 16 to 25 horses. Based on a 2003 aerial survey, the horse population of this HMA was estimated at 30-plus individuals. As a result, 12 horses were removed, leaving an estimated present population of 18-plus animals. Control of animal numbers is the principal management action. Also, horses are removed if they stray outside the boundaries of their HMA. Animal movement and distribution are controlled by fencing and the location of water sources; however; decisions regarding these tools are generally made through AMPs aimed at livestock management.

The need to gather animals is apparent when monitoring indicates that populations exceed AML criteria. Horse gathers will be supported by the NEPA process subsequent to this RMP. As previously mentioned, excess horses are gathered to prevent resource degradation and to safeguard the health of individual herd members. Generally, gathering is scheduled every three to five years depending on reproductive rates, death rates, funding, public concern, and other management considerations. Gathering is done outside the normal February-through-June breeding and foaling season. Usually, horses are gathered with the objective of reducing numbers to the lower end of the AML. This avoids the need for frequent and expensive gathers and the disruption of the herds. Excess animals are usually transported to the Litchfield Wild Horse Corral near Litchfield, CA for adoption by the public, but horses may go to other adoption sites throughout the U.S. Animals that are gathered are then assessed and either returned to the HMA or designated excess and placed into the adoption program or long-term holding.

2.23.1 Desired Future Condition

The area encompassed by the present Red Rock HMA will be maintained in a stable, ecologically healthy condition with respect to soils, vegetation, wildlife, and other resources with wild horses at the AML.

2.23.2 Goal

Manage wild horses at appropriate management levels within the established HMA.

2.23.3 Objectives

Ensure a thriving natural ecological balance between soils, vegetation, wildlife, livestock, and other valued resources by improving accessibility to the HMA to facilitate maintaining the Red Rock herd at the proper AML.

2.23.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976)
- Wild Free-Roaming Horse and Burro Act (1971)
- Public Rangelands Improvement Act (1978)
- Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management (1999)
- MOU, (Supplemental) between DOI BLM and USDA Forest Service ("…for the purpose of identifying joint responsibilities and instituting close cooperation toward the implementation and administration of the 1971 Wild Free-Roaming Horse and Burro Act," regarding management of the Emigrant HMA) (Mar., 1979)
- Red Rock Lake Herd Management Area Plan (1989)
- USDA Forest Service, Modoc National Forest, Land and Resource Management Plan (1991)
- Instruction Memorandum no. 2002-095, DOI BLM "Gather Policy and Selective Removal Criteria for Wild Horses" (February, 2002)

2.23.5 Proposed Management Actions

AFO would continue to protect and manage wild horses within the Red Rock Lakes HMA (16,895 acres) at the established AML of 16 to 25 horses. AML would be adjusted as required, based on the monitoring of vegetative and attainment of land health standards. Herd monitoring and data collection (aerial and/or ground monitoring) would be done at three-year intervals. Horses would be periodically removed to maintain the appropriate management level.

General management decisions regarding livestock and wild horses would be based on policy and response to practical problems and assessed needs. In order to manage wild horse and livestock forage allocation more equitably, access to the HMA may be improved in order to facilitate gathers and manage the Red Rock herd numbers within the proper AML.

Public education regarding the wild horse and burro program would be maintained. This would include printed materials (such as posters advertising adoptions), wild horse clinics, and participation in the National Wild Horse Show in Reno, NV. Additionally, public outreach activities would be pursued through county fairs, local children's fairs, and tours and adoptions held at the wild horse facility near Litchfield, CA.

BLM's Stip Allotment—which is part of the Devil's Garden HMA—would continue to be managed in cooperation with the USDA Forest Service under a 1980 MOU.

2.24 Wildlife And Fisheries

The larger species of wildlife are among the more visible and valued resources managed by BLM. Since the health and abundance of species populations are closely linked to resource condition—which is greatly influenced by human activities—management issues are often complex. For this reason, wildlife management is addressed under the following seven groups:

- Federally listed wildlife
- State-listed and BLM sensitive wildlife
- Wild ungulates
- Sagebrush ecosystems and sagebrush-obligate wildlife
- Other native terrestrial wildlife
- Native and non-native fish and other aquatic species
- Non-native wildlife

BLM is charged with protecting and maintaining wildlife habitats for public land it administers; however, the CDFG bears responsibility for wildlife populations. Because wildlife is reliant on the resources it administers, BLM must work closely with this agency for the benefit of wildlife populations. Population manipulation (including hunting and fishing regulations), and species introductions and removals are under the authority of state wildlife agencies. BLM cooperates with state wildlife agencies to facilitate their species management objectives, insofar as these agencies support multiple-use management and other BLM policies.

The AFO will aggressively tackle the extensive, and sometimes severe, habitat degradation that has occurred over the past century as a result of historic land use practices. This has resulted in destruction and extensive degradation of sagebrush habitats, encroachment by invasive western juniper, proliferation of noxious weeds (primarily cheatgrass and medusahead), and excessive accumulation of forest and woodland fuels. Particularly in regard to sagebrush ecosystems, the AFO will work diligently to achieve landscape-level restoration, in cooperation with other land management agencies (principally, adjacent BLM field offices and national forests). The intention is to achieve a regional restoration of this critical, and much-degraded, biome. This will require coordinated, interagency management of wildlife habitats. BLM's S&Gs will guide these efforts. A balanced, holistic approach is favored. This avoids the extremes of fixation on economic returns or Endangered Species Act-listing status, while honoring both. Projects will restore native vegetation and greatly improve structural and age-class diversity in shrub and understory vegetation. Management will embrace a three-tiered approach to ecosystem restoration:

1. Remaining intact habitats that retain viable wildlife populations will be preserved by maintaining natural ecosystems in a fully functional condition. This requires adequate protection from destructive influences and a "managed disturbance" regime that approximates the dynamic forces sustaining health native ecosystems.
2. Degraded habitats that are most easily restored—and isolated, intact habitats that can be reconnected—will be prioritized for restoration.

3. Interagency and community-based planning and coordinated action will gradually restore heavily degraded habitats through treatments that will restore large areas—especially sagebrush ecosystems—over time. Remnant wildlife populations within heavily degraded sagebrush habitats may require emergency action to restore biodiversity and create functional habitats. Such actions may include reestablishing native plants or establishing intermediate transition vegetation (to displace exotics), various forms of habitat manipulation and/or protective measures to prevent further losses (e.g., creating green strips to protect remnant habitats from catastrophic wildfires).

2.24.1 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (1976), as amended (1984)
- The Endangered Species Act (1973), as amended (Federal Register 64:128 / Tuesday, July 6, 1999).
- The Sikes Act (1960), as amended (2000)
- The National Environmental Policy Act (1969)
- 43 CFR 4180 (Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration) (1995)
- The Migratory Bird Treaty Act (1918), as amended (1989)
- The Bald and Golden Eagle Protection Act (1940), as amended (1978)
- Secretarial Order No. 3206 (American Indian Tribal Rites, Federal–Tribal Trust Responsibilities, and the Endangered Species Act), (1997)
- Executive Order 11987 (Exotic Organisms), (May 1997)
- Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) (January 2001)
- California Endangered Species Act (1985)
- Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (2000)
- BLM Departmental Manual 235.1.1.A (General Program Delegation)
- BLM Departmental Manual 632.1.1-1.6 (Endangered Species Management)
- BLM Manual 6840 (Special Status Species Management)
- BLM Manual 6600 (Fish, Wildlife, and Special Status Plant Resources--Inventory and Monitoring)
- BLM Manual 6525 (Wildlife Programs Related to the Sikes Act)
- BLM Manual 1745 (Introduction, Transplantation, Augmentation, and Reestablishment of Fish, Wildlife and Plants)
- Master MOU between the DOI BLM and the CDFG
- MOU between the DOI BLM and the USFWS, DOI National Park Service, USDA Forest Service, and the National Marine Fisheries Service (1994)
- Partners in Flight, Western Working Group; “Birds in a Sagebrush Sea” (1990)
- BLM Nevada’s “Migratory Bird Best Management Practices for the Sagebrush Biome” (2004)

- California Partners in Flight and the Riparian Habitat Joint Venture: "Riparian Bird Conservation Plan" (2004)
- USFWS: Pacific Bald Eagle Recovery Plan (1986)

Section 102.8 of FLPMA requires that federal lands be managed to protect the environment and its ecosystems, where feasible under natural conditions. FLPMA also places fish and wildlife management on a par with traditional land uses and requires that a portion of grazing fees be spent for "range betterment." This means that habitats of terrestrial and aquatic wildlife must be adequately protected, enhanced, and maintained *on lands where livestock grazing occurs*. It also requires due consideration for preserving fish and wildlife habitats prior to any land exchanges.

Compliance with the Endangered Species Act involves a dual mandate. Land management agencies must use their authority to conduct programs that directly benefit endangered and threatened species, while simultaneously ensuring that other resource actions conducted, authorized, or funded by the agency do not jeopardize the continued existence of an endangered or threatened species. If the managing agency determines that a proposed action may affect a (federally) listed species or identified critical habitat, consultation with the USFWS is mandatory prior to any action.

Corollary to this is concern for special status species (i.e., state-listed and BLM sensitive species). Such species are limited in distribution, population, or habitat, and may be at risk in some geographical areas. Where evidence suggests that land use activities are adversely affecting a special status species not (currently) listed as threatened or endangered (by the federal government), it is in the public interest to prevent the possibility of future listing by proactive restoration and/or preservation of species habitats. BLM land health standards (43 CFR 4180) require that habitats of species protected under the Endangered Species Act (endangered, threatened, or candidate), as well as other special status species, be restored and properly maintained. While this is a difficult, long-term proposition, significant, sustained progress must be made toward this end. Restoration and maintenance of critical wildlife habitats may also be the preferred course of action where wildlife habitat is of unusually high-quality or uniquely important for a particular species.

BLM Manual 6840 (Management of Special Status Species) requires that state-listed species receive the same level of protection afforded to Endangered Species Act candidate species or the level of protection provided by state law—whichever would most effectively conserve the species. The protection afforded to Endangered Species Act candidate species is also the minimum level of protection for BLM sensitive species.

2.24.2 Group 1. Federally Listed Species

The following federally listed or candidate species, are of concern in the AFO planning area:

- **Bald eagle** (*Haliaeetus leucocephalus*)—the species is listed as 'threatened.' The management area is known to have two roosting areas and as many as 15 active nesting territories. There are also complete home ranges that include nesting, roosting, and foraging habitats.
- **Northern spotted owl** *(Strix occidentalis caurina)*—the subspecies is listed as 'threatened.' Although adults have been documented on Widow Peak, nests have not been located and the management area lies outside the known range of this species.
- **Modoc sucker** *(Catostomus microps)*—the species is listed as 'endangered.' There is potential habitat, but none appears to be occupied by this species. See Map WILD-1, "Occupied and Designated Critical Habitat for Modoc Sucker."

- **Shortnose sucker** *(Chasmistes brevirostris)*—the species is listed as 'endangered.' There is some potential habitat, but none appears to be occupied by this species.
- **Lost River sucker** *(Deltistes luxatus)*—the species is listed as 'endangered.' There is some potential habitat, but none appears to be occupied by this species.
- **Shasta crayfish** *(Pacifastacus fortis)*—the species is listed as 'endangered.' It is found in the Pit River, but known habitat is very small.
- **Yellow-billed cuckoo** *(Coccyzus americanus)*—the species is a candidate for listing. Surveys conducted by the Point Reyes Bird Observatory (2002 and 2003) failed to reveal any of these birds in the management area. Potential habitats include many cottonwood groves along the Pit River, as well as Cedar and Fitzhugh Creeks; unfortunately, their degraded condition cannot support the species.
- **Oregon spotted frog** *(Rana pretiosa)*—the species is a candidate for listing. Surveys conducted by the USDA Forest Service, universities, and private entities have failed to find this species in the management area.

2.24.2.1 Desired Future Condition

Habitats of federally listed (endangered, threatened, or candidate) wildlife would be protected, restored, and maintained so that healthy, stable populations occupy available species habitats.

2.24.2.2 Goal

Habitats of federally listed (endangered, threatened, or candidate) wildlife will be protected, restored, and maintained so that species populations increase in size and stability, and occupy available habitats. By so doing, the need for special management and protection will be reduced or eliminated.

2.24.2.3 Objectives

Endangered and threatened species, and their critical habitats, will be managed under regional conservation strategies, recovery plans, and habitat management plans, according to reasonable and prudent measures based on plan and project-level opinion. The mandate for these actions is provided in Sections 7(a) (1) and 7(a) (2) of the Endangerd Species Act and BLM Manual 6840.

2.24.2.4 Proposed Management Actions for Group 1

Bald eagle: Conduct annual nesting surveys to count individual birds and monitor reproductive success. Mid-winter population surveys will also be conducted annually, in conjunction with interested parties in Big Valley, the upper Pit River Valley, and the eastern shore of Goose Lake. Seasonal protective measures and buffer zones will also be implemented (Table 2.24-3). Habitat management plans will be developed for the Conrad Ranch and Timbered Crater nesting areas, and the Juniper Creek roosting site. In occupied bald eagle habitat, thinning and prescribed fire may be used to improve habitat conditions. In some locations, timber operations and woodcutters may be required to leave some large-diameter trees as potential nesting sites.

Shasta crayfish: Cooperate with state and federal agencies to locate additional populations and/or habitats on AFO-administered lands. Implement appropriate conservation measures for any newly discovered populations or habitats, using an action plan developed from the current Shasta crayfish recovery plan. Ensure that existing exclosure fencing is properly maintained so that it continues to

provide effective protection at springs occupied by this species. Regularly monitor known sites and add any newly acquired habitat to the action plan.

Modoc sucker: Potential habitat for this species is managed under the Modoc Sucker Recovery and Action Plans. Under these plans, Dutch Flat Creek has been fenced to exclude livestock from potential habitat. Inventories will continue to identify critical and suitable habitats and search for unknown populations. Suitable habitats will be periodically monitored to detect undiscovered populations or reoccupation by this species. All identified habitats on BLM-administered lands will be managed for optimum riparian function. A partnership will be maintained with the USDA Forest Service, CDFG, the USFWS, the Pit River Watershed Alliance, and private landowners to continue these efforts, and to encourage maintenance of suitable habitats on public and private lands. BLM will attempt to acquire any suitable habitat (from willing owners) that may be found on private lands.

Shortnose and Lost River suckers: The AFO will cooperate with state and federal agencies in conducting inventories to identify critical and suitable habitats, and search for populations on BLM-administered lands. Suitable habitats will be periodically monitored to detect undiscovered populations. An action plan will be developed (based on draft recovery plans for the shortnose and Lost River suckers) and conservation measures implemented if a population of either species is discovered.

Northern spotted owl: The AFO is outside the area circumscribed by the Northwest Forest Plan (a federal recovery plan encompassing the known habitat of this subspecies). Since neither a population, nor potential habitat, has been found in the management area, the AFO has not developed a recovery plan for this species. However, if a population or suitable habitat area were discovered, BLM would review present and future actions that may affect this species (in consultation with USFWS) and a local recovery plan would be developed.

Yellow-billed cuckoo and Oregon spotted frog: Though the management area contains potential (but badly degraded) habitat for the yellow-billed cuckoo and potential habitat for the Oregon spotted frog, repeated surveys have not revealed populations of either species. However, if a population (of either species) is discovered, a thorough inventory would be conducted, and conservation and action plans would be developed.

2.24.3 Group 2. State-Listed And BLM Sensitive Species

The following state-listed or BLM sensitive species are of concern in the AFO planning area:

California-listed species:

- Swainson's hawk *(Buteo swainsoni)*
- Bank swallow *(Riparia riparia)*
- Willow flycatcher *(Empidonax traillii)*
- Great gray owl *(Strix nebulosa)*
- Greater sandhill crane *(Grus canadensis tabida)*
- Sierra Nevada red fox *(Vulpes vulpes necator)*
- California wolverine *(Gulo gulo luteus)*

BLM sensitive species:

- Golden eagle *(Aquila chrysaetos)*

- Ferruginous hawk *(Buteo regalis)*
- California spotted owl *(Strix occidentalis occidentalis)*
- Tri-colored blackbird *(Agelaius tricolor)*
- Northern sagebrush lizard *(Sceloporus graciosus graciosus)*
- Pacific fisher *(Martes pennanti pacifica)*
- Southwestern river otter *(Lutra canadensis sonora)*
- Juniper titmouse *(Baeolophus griseus)*
- Fringed myotis *(Myotis thysandodes)*
- Long-eared myotis *(Myotis evotis)*
- Small-footed myotis *(Myotis ciliolabrum)*
- Long-legged myotis *(Myotis volans)*
- Yuma myotis *(Myotis yumanensis)*
- Pallid bat *(Antrozous pallidus)*
- Townsend's western big-eared bat *(Plecotus townsendii)*
- Greater sage-grouse (Centrocercus urophasianus) 1/
- Burrowing owl (Athene cunicularia) 1/

1/ These species are addressed in the "Sagebrush Ecosystems and Sagebrush-obligate Species" subsection.

2.24.3.1 Desired Future Condition

Habitats of state-listed and BLM sensitive wildlife would be protected, restored, and maintained so that healthy and stable populations occupy available species habitats.

2.24.3.2 Goal

Habitats of state-listed and BLM sensitive wildlife will be protected, restored, and maintained so that species populations increase in size and stability, and occupy available habitats. By so doing, there would be no need for future protection under the Endangered Species Act, and the (current) need for special protection and management would be reduced or eliminated.

2.24.3.3 Objectives

Critical habitats of state-listed and BLM sensitive wildlife will be managed under the provisions of 43 CFR 4180 (Part 24), BLM Manual 6840, the California Endangered Species Act, and other relevant state laws. A variety of recovery plans, conservation plans, habitat management plans, and conservation strategies will guide efforts to protect and improve species habitats.

Management actions will incorporate BLM BMPs and employ species-specific treatments.

There have been few surveys for state-listed and BLM sensitive species in the management area. However, surveys have been conducted for Swainson's hawk and ferruginous hawk. In the 1980s and 1990s, sightings and nests were documented in Modoc, Siskiyou, and Lassen Counties.

Surveys were also conducted (in 2000 and 2003) for the willow flycatcher; however, none were found. Other than this, local information on state-listed and BLM sensitive species is sparse. Available data for the AFO planning area are insufficient to indicate the presence or absence of species, or to reveal population trends for species thus far identified.

2.24.3.4 Proposed Management Actions for Group 2

The AFO will maintain an active partnership with CDFG, USFWS, USDA Forest Service, and other conservation partners to determine the status of state-listed and BLM sensitive species. Surveys for each state-listed and BLM sensitive species (other than those already inventoried) will determine species presence or absence, identify habitat (year-round or seasonal), and determine distribution and abundance. Data will be recorded on a GIS database (developed in cooperation with these partners), and action plans will be developed. When a population of any (special status) species is discovered, an interdisciplinary implementation plan will be developed according to the following procedure: (a) involve recognized experts; (b) review the species literature, as well as local studies and information; (c) formulate a list of potential actions and; (d) develop an implementation strategy. Implement seasonal protection measures and buffer zones, as suitable, for permitted activities when identified (see Table 2.24-3).

Restore critical habitats of state-listed and BLM sensitive species in degraded sagebrush associations. Implement measures from "Partners in Flight," "Birds in a Sagebrush Sea," and other applicable regional conservation plans. Collaborate with managing partners, private landowners, and other stakeholders to strategize and implement specific treatments. Cooperate with the CDFG (and other partners) to systematically monitor sage-grouse populations.

Specific measures to preserve or restore habitats of special status species include:

- Monitor the effects of landscape-level juniper removal to ensure that populations and habitats of special-status species are not degraded or destroyed.
- Restrict seasonal access to bank swallow nesting areas where human activities are detrimental to nesting.
- Restore riparian vegetation, especially deciduous shrubs, to benefit willow flycatchers (and other riparian wildlife).
- Ensure that meadow vegetation in greater sandhill crane nesting habitat remains at full height (i.e., is not grazed) during their breeding and nesting season (March to May).
- Enhance riparian and wetland habitats (especially cattails and tules) important to tri-colored blackbirds.

2.24.4 Group 3. Ungulates

Species addressed in this resource group are:

- mule and black-tailed deer (*Odocoileus hemionus*),
- pronghorn (*Antilocapra americana*),
- Rocky Mountain elk (*Cervus elaphus nelsoni*), and
- California bighorn sheep (*Ovis canadensis californiana*).

2.24.4.1 Desired Future Condition

The management area would provide sufficient year-round habitat (especially wintering and fawning/kidding areas) for the needs of wild ungulates and other big game. Deer and pronghorn, in particular, would be healthy and numerous. Vegetation—especially riparian areas and special habitats (e.g., aspen, mountain mahogany, bitterbrush, and oak woodlands)—would provide quality habitats of sufficient diversity (structure and age-class), health, and size to meet the seasonal requirements of these animals in all use areas.

2.24.4.2 Goal

Provide sufficient year-round habitat for the needs of wild ungulates and other big game. Ensure that vegetation, soil, and water resources—plus recreation—are managed in such a way that wild ungulate habitats are preserved, restored, enhanced, and maintained in healthy condition.

2.24.4.3 Objectives

The AFO will cooperate with CDFG to amend and update habitat management plans, when appropriate. A GIS database will be maintained, to identify important habitats and key seasonal use areas. Habitats for these ungulates will be managed to achieve desired conditions according to ecological site potential.

Mule/black-tailed deer seasonal use habitats are found throughout the management area (Map WILD-3). Spring, summer, and fall habitats encompass a landscape that is 55% foraging areas, 25% fawning and fawn-rearing areas, and 20% security/thermal cover. Winter habitats are 55% foraging areas, 25-30% thermal cover, and 15-20% security cover (Leckenby et al. 1982). Restoration of degraded bitterbrush is a priority because it is an important habitat type and relatively easy to treat. Fawning habitats are also priority treatment areas.

Pronghorn seasonal use habitats occur throughout the management area (Map WILD-4). Rangelands most favored by pronghorn contain a living vegetation component of 40% (or more) with a diversity of species in each forage class (i.e., grasses, forbs, and shrubs). Furthermore, an average plant height of 15 inches (38.1 cm) is clearly favored over vegetation that exceeds 30 inches (76.2 cm) (Yoakum 2004). Habitat improvement projects will focus on creating a diversity of treated and untreated mosaics.

Elk are a sporadic but (judging by incidental reports) increasing presence in the planning area. However, there are no resident populations. If a population does become established (i.e., a year-round presence with identified seasonal use areas), BLM will work with the CDFG to develop a coordinated habitat management plan.

2.24.4.4 Proposed Management Actions for Group 3

- Management plans and actions for all resource areas must support BLM land health standards. With respect to the wildlife resource, Standard 5 (biodiversity) has the greatest practical significance. This standard requires that:
    - Wildlife habitats must include seral stages, structural diversity, and (habitat) patch-size capable of supporting diverse and viable wildlife populations.
    - Variety in vegetation age class must be present for most species of wildlife.
    - Vegetation must be sufficiently vigorous to maintain desirable (wildlife) population levels, and ensure adequate reproduction and recruitment of plants and animals when favorable events occur.

  - Habitat areas must be of sufficient overall size to support diverse and viable populations and must also be sufficiently interconnected with other, similar habitat areas to ensure genetic exchange between populations.
  - Non-native plants and animals must not exceed acceptable levels.

- Update information on the GIS database for big-game and amend habitat management plans in consultation with CDFG—especially in regard to deer and pronghorn.
- Livestock grazing must be managed so that it does not degrade ecosystems. AMPs will be reassessed and (where necessary) updated to reflect realistic AUMs and reasonable seasonal use parameters. This will prevent overuse and maintain healthy vegetation. Grazing practices that degrade key wildlife habitats and alter the natural vegetation will be avoided. An especially important area is the eastern portion of the Likely Tablelands
- Existing livestock exclosures will be maintained to protect important ungulate habitat. Current meadow and riparian habitat enhancement projects will continue, and an additional 500 acres of riparian habitats will be fenced. Permanent fencing will protect 200 acres of high-risk aspen and 300 additional acres will be protected with temporary fencing. Natural springs that fail to meet land health standards will also be fenced. Other habitat areas that are especially vulnerable to livestock grazing—particularly meadows and wetlands—will also be fenced where need is apparent. All fencing will be built and maintained to BLM-approved wildlife fencing specifications (to minimize injury and permit freedom of movement to wildlife). .
- Artificial water sources (guzzlers) must be properly maintained (responsibility for maintenance will be identified in implementation plans) and additional sources will be added in habitats that are important for big game (and other wildlife) where natural sources have been depleted or water is otherwise limited. Water must be left in cattle troughs (regardless of whether it is used by livestock) from June through October to provide water for wild ungulates (and other wildlife).
- Invasive juniper will be eliminated or substantially reduced where encroachment has affected the carrying capacity of wild ungulate habitats. Rehabilitation will require a combination of treatments, such as prescribed fire, mechanical treatments, and seeding, to create favorable canopy cover and forage/cover ratios (Table 2.24-1).
- Management efforts will also focus on producing healthy shrubs and trees in priority wild ungulate habitats by improving structural and age-class diversity in bitterbrush, mountain-mahogany, aspen, oak woodlands, and sagebrush-steppe habitats. Additional important habitat areas would be identified for deer and pronghorn. Habitat improvement projects would specifically target critical deer habitats on 128,000 acres and critical pronghorn habitats on 60,145 acres. An additional 130,000 acres of low sagebrush, and other high-quality pronghorn habitats, would also be improved (Maps WILD-3 and WILD-4).
- Major emphasis will be placed on eliminating or controlling (where elimination is not feasible) exotic annual grasses—particularly cheatgrass and medusahead—and other noxious weeds using IWM protocols so that native plant associations are restored in important big-game habitats.
- Locally gathered native seed and/or plants will usually be used for seeding and planting areas burned by wild or prescribed fire, juniper treatment areas and other disturbed areas. However, non-local native seed may be used when local seed is unavailable. For some uses, under certain circumstances, non-native seed or plants may also be employed.
- The AFO will acquire lands (from willing) owners or cooperators in priority habitats and other key areas (e.g., springs, meadows, and riparian areas) that would benefit deer and pronghorn.

Table 2.24-1 Juniper Management Strategy for Wildlife Habitat

Management Area		Desired Ratio: Forage/Cover[1/]	Desired Canopy Cover[2/]	Management Focus
1	Likely Tablelands	99/1	Old growth	Sage-grouse and big game
2	Tule Mountain	75/25	Less than 20%	Wildlife diversity
3	McDonald Mountain	90/10	Old growth	Sage-grouse and sagebrush-steppe
4	Likely Mountain	70/30	Less than 20%	Big game and biodiversity
5	Rocky Prairie	85/15	Old growth	Sage-grouse and sagebrush-steppe
6	Adin	95/5	Old growth	Sagebrush-steppe
7	Butte Creek	80/20	Old growth	Big -game
8	Sheep Valley	70/30	Less than 20%	Big game and biodiversity
9	Fall River[3/]	80/20	Old growth	Big game and shrubland health
10	Juniper Creek	70/30	Less than 10%	Big game
11	Widow Mt./Baldy Mt.	80/20	Old growth	Big game and biodiversity
12	Timbered Crater	60/40	Less than 20%	Biodiversity
13	Mount Dome/Sheep Mt.	80/20	Old growth juniper	Big game
14	Scanlan Butte/Carr Butte	100/0	None	Big game and sagebrush-steppe
15	Alturas Rim	60/40	Less than 20%	Scenic and biodiversity
16	East of Highway 395	90/10	Old growth	Sage-grouse and pronghorn

[1/] Desired Ratio: Forage/Cover = percent wildlife foraging area versus juniper cover. For example; if a hypothetical unit contains 1,000 acres of juniper-covered land, and the desired forage-to-cover ratio is 60/40, then juniper would be treated to achieve the desired canopy cover.

[2/] Desired Canopy Cover = percent of area left with juniper on site. For example; if juniper cover in a hypothetical unit is 30%, and the desired canopy cover is 15%, then the stand would be thinned by half to achieve a 15% canopy cover. "Old growth" signifies a site where juniper is naturally dominant and cutting or thinning is not indicated.

[3/] Old growth juniper will be left in WSAs and in large, lava-covered areas.

- California bighorn sheep (a species native to the planning area) may naturally re-occupy former habitats. Reintroduction—natural or artificial—is favored. In any case, the AFO will cooperate with CDFG to reintroduce this species and to develop a management plan prior to any reintroduction effort. Badly degraded habitats in historic bighorn range would be restored or improved prior to any reintroduction attempt.
- If Rocky Mountain elk reestablish themselves, BLM will coordinate with CDFG and other interested parties—including livestock operators—to develop and implement a management plan.
- AFO recreation specialists will coordinate with CDFG and sportsman's groups to solve hunter access problems, improve camping, and develop "special hunt" opportunities.
- Roads and trails will be seasonally 'Closed' to OHVs in the following big game wintering areas: Likely Tablelands (12/1 thru 4/15), Barnes Grade (11/15 thru 4/15), and Day Bench (11/15 thru 4/15). OHV travel designations and closures that are designed to protect big game habitats are presented in Table 2.24-2.

Table 2.24-2 Travel Designations and Closures to Protect Big-Game Habitats

OHV Travel Designations	Area (acres)
'Open'	0
'Limited to Existing Roads and Trails'	4,260
'Limited to Designated Routes'	74,000
'Closed'	860

2.24.5 Group 4. Sagebrush Ecosystems and Sagebrush-Obligate/Associated Species

This group focuses on the management of the sagebrush ecosystem to provide habitats for populations of native wildlife that depend on it (for at least some of their habitat needs), specifically sage-grouse, sage sparrow, and (potentially) pygmy rabbit.

2.24.5.1 Desired Future Condition

Sagebrush ecosystems would be restored and fully functional in a regional context, not just in the AFO planning area. Encroachment by invasive western juniper would be arrested and reversed, and substantial progress would be evident in combating exotic annual grasses and other noxious weeds. Sagebrush habitats would be diverse in structure and age class. Understory vegetation would be abundant and robust. Sagebrush-obligate wildlife would increase and prosper according to the potential of local shrubland ecosystems.

2.24.5.2 Goal

Restore and maintain sagebrush ecosystems that are important for sagebrush-obligate wildlife. Ensure that sagebrush habitats are sufficiently healthy and diverse to provide year-round sustenance, water, and cover (security and thermal).

2.24.5.3 Objectives

In order to fulfill the year-round requirements of sage-grouse and other sagebrush-dependent or associated wildlife, sagebrush plant associations and wildlife habitats must be sufficiently diverse in height, density, age class, and patch size, and also contain healthy and equally diverse understory vegetation.

Core areas of critical habitat must be maintained (or created) in large contiguous blocks; however, they must also interconnect in a variety of irregular arrangements (e.g., islands, corridors, and quasi-mosaic patterns) over extended areas. Management planning and actions will focus on species that are currently at risk (i.e., sage-grouse, pygmy rabbit, burrowing owl, and certain plants), as recognized nationally and regionally, and at the state and local level.

2.24.5.4 Proposed Management Actions for Group 4

Management plans and actions for all resource areas must support BLM land health standards. With respect to the wildlife resource, Standard 5 (biodiversity) has the greatest practical significance. This standard requires that:

- Wildlife habitats must include seral stages, structural diversity, and (habitat) patch size capable of supporting diverse and viable wildlife populations.

- Variety in vegetation age class must be present for most species of wildlife.
- Vegetation must be sufficiently vigorous to maintain desirable (wildlife) population levels, and ensure adequate reproduction and recruitment of plants and animals when favorable events occur.
- Habitat areas must be of sufficient overall size to support diverse and viable populations and must also be sufficiently interconnected with other, similar habitat areas to ensure genetic exchange between populations.
- Non-native plants and animals must not exceed acceptable levels.

Species-specific management for sagebrush-obligate wildlife would be as follows:

- **Sage-grouse:** Specific conservation measures have been developed for local sage-grouse populations and habitats; i.e., "Conservation Strategies for Sage-grouse and Sagebrush Ecosystems in the Buffalo-Skedaddle, Likely Tablelands/Rocky Prairie, and Devil's Garden/Clear Lake Population Management Units." The actions specified in this plan will be implemented, and some populations will be augmented following habitat rehabilitation.
- **Burrowing owl:** The planning area will be inventoried for suitable and occupied habitats, and population size will be estimated. (Habitat recognition and assessment parameters will also be refined and standardized for future use.) A conservation strategy will be developed to protect burrows and other seasonal habitats (occupied and potential) and a list of BMPs developed to guide resource management actions. Supportive measures such as artificial burrows, water developments, prey enhancement schemes, etc. will also be considered.
- **Pygmy rabbit:** The planning area will be inventoried for suitable and occupied habitats, and population size will be estimated. (Habitat recognition and assessment parameters will also be refined and standardized for future use.) A conservation strategy will be developed to protect occupied and potential habitats and a list of BMPs developed to guide resource management actions.
- **Other sagebrush-obligate or associated wildlife:** A general survey would reveal the presence, distribution, and abundance of other sagebrush-associated wildlife. Particular attention will be paid to habitat utilization and demographic trends. The information will be used in local, regional, and national strategic planning for sagebrush-obligate wildlife. All pertinent legal authority, especially Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), will be used to justify species-specific range assessments and site-specific conservation measures for all sagebrush-obligate wildlife.

Seasonal protective measures and buffer zones (Table 2.24-3) would be implemented for permitted activities when identified.

Livestock grazing would be managed so that it does not destroy understory vegetation and otherwise degrade sagebrush ecosystems. AMPs will be reassessed and (where necessary) updated to reflect realistic AUMs and reasonable seasonal use parameters. This will prevent overuse and maintain healthy vegetation. Grazing practices that degrade key wildlife habitats and alter the natural vegetation will be avoided.

A substantial amount of habitat improvement will focus on reducing invasive juniper. Prescribed fire and a combination of other treatments will be used to reduce invasive juniper, regenerate understory vegetation, and create species, structural, and age-class diversity in degraded sagebrush associations. Desired canopy cover and forage/cover ratios for sagebrush habitats degraded by invasive juniper are presented in Table 2.24-2.

Sagebrush habitats that contain a thriving component of native understory vegetation will be identified and maintained by allowing—or simulating (e.g., prescribed fire)—natural disturbance processes. Mismanaged grazing and other practices that convert sagebrush habitats to non-native grassland (or to agricultural land) will be avoided. Activities that contribute to (further) fragmentation of sagebrush habitats will be actively discouraged.

Unfortunately, many sagebrush-steppe habitats are heavily degraded. These require emergency action and long-term treatment to control exotic grasses, weeds, and invasive plants, plus action to reduce shrubland fuels, reestablish native species, and regenerate senescent sagebrush. Prescribed fire, and other fuel and vegetation treatments, will be used to restore degraded sagebrush and reduce the likelihood of catastrophic wildfires.

Green strip vegetation will also be planted in priority habitats (to reduce fire intensity and control its spread).

Major emphasis will be placed on eliminating or controlling (where elimination is not feasible) exotic annual grasses, particularly cheatgrass and medusahead, and other noxious weeds using IWM protocols so that native sagebrush-steppe plant associations can (eventually) be restored.

Locally gathered native seed and/or plants will usually be used for seeding and planting areas burned by wild or prescribed fire, juniper treatment areas, and other disturbed areas. However, non-local native seed may be used when local seed is unavailable. For some uses, under certain circumstances, non-native seed or plants may also be employed.

Habitats and populations of sagebrush-associated wildlife will be carefully monitored. Particular attention will be paid to habitat utilization and demographic trends. This information will be used in local, regional, and national strategic planning for sagebrush-obligate wildlife.

2.24.6 Group 5. Other Native Wildlife Species

The major species groups covered in this group are:

- terrestrial mammals,
- raptors,
- migratory birds (neo-tropical migrants),
- waterfowl and shorebirds,
- upland game birds, and
- bats.

Most of the species, or groups of species, addressed in this group had little or no protective measures relating directly to them or their habitats, in previous land use plans. However, several species known or suspected to occur in the field office management area are now on the BLM sensitive species list or are state-listed (these species are addressed in a previous management group).

2.24.6.1 Desired Future Condition

AFO-administered lands would satisfy the standards and guidelines for livestock grazing and fulfill BLM land health standards. Local habitats would be sufficient to sustain healthy populations of all resident and seasonal wildlife according to the nature, ecological potential, and abundance of species habitats native to the planning area.

2.24.6.2 Goal

Protect, restore, and maintain naturally occurring habitats for all species of resident and seasonal native terrestrial wildlife.

2.24.6.3 Objectives

Naturally occurring habitats for all wildlife species native to the planning area will be managed in such a way that food, water, thermal and escape cover, and reproductive territory is readily available and in satisfactory condition to meet the year-round (or seasonal) requirements of native terrestrial wildlife.

2.24.6.4 Proposed Management Actions for Group 5

- Management plans and actions for all resource areas must support BLM land health standards. With respect to the wildlife resource, Standard 5 (biodiversity) has the greatest practical significance. This standard requires that:
    - Wildlife habitats must include seral stages, structural diversity, and (habitat) patch size capable of supporting diverse and viable wildlife populations.
    - Variety in vegetation age class must be present for most species of wildlife.
    - Vegetation must be sufficiently vigorous to maintain desirable (wildlife) population levels, and ensure adequate reproduction and recruitment of plants and animals when favorable events occur.
    - Habitat areas must be of sufficient overall size to support diverse and viable populations and must also be sufficiently interconnected with other, similar habitat areas to ensure genetic exchange between populations.
    - Non-native plants and animals must not exceed acceptable levels.
- Management of critical habitats for other native terrestrial wildlife will follow current conservation plans, BMPs, and MOUs with other agencies. Important conservation plans include "Partners in Flight," "Birds in a Sagebrush Sea," and NV-BLM's "Migratory Bird Best Management Practices for the Sagebrush Biome" and the "Nevada Bat Conservation Plan." A variety of habitat improvement projects (associated with this and other subsections and other resource areas) will directly or indirectly benefit native terrestrial wildlife.
- Rehabilitate habitats through juniper reduction projects, modified grazing regimes, riparian fencing and habitat enhancement, and seeding/planting of perennial and annual species. Native and non-native shrubs, forbs, grasses and seeds would be utilized to provide multiple use opportunities. Good foraging habitat would be protected from catastrophic fire by implementing specific fuels treatment methods. Green strip firebreaks would be constructed to reduce fire impact on important habitats.
- Livestock grazing must be managed so that it does not degrade ecosystems. AMPs will be reassessed and (where necessary) updated to reflect realistic AUMs and seasonal use parameters. This will prevent overuse and maintain healthy vegetation. Grazing practices that degrade key wildlife habitats and alter the natural vegetation will be avoided.

- Existing livestock exclosures will be maintained to protect important vegetation. Current meadow and riparian habitat enhancement projects will continue, and an additional 500 acres of riparian habitats will be fenced. Permanent fencing will protect 200 acres of high-risk aspen and 300 additional acres will be protected with temporary fencing. Natural springs that fail to meet land health standards will also be fenced. Other habitats that are especially vulnerable to grazing—particularly meadows and wetlands—will be fenced where need is apparent.
- Artificial water sources (guzzlers) must be properly maintained (responsibility for maintenance will be identified in implementation plans) and additional sources will be added in habitats that are important for upland game birds (and other wildlife) where natural sources have been depleted or water is otherwise limited. Water must be left in cattle troughs (regardless of whether it is used by livestock) from June through October to provide water for native wildlife.
- Special habitats would be managed to maintain or enhance biodiversity and sustain healthy multi-aged stands of aspen, mountain mahogany, oak woodlands, bitterbrush, riparian and wetland areas, springs, and a variety of mountain shrub communities.
- Major emphasis will be placed on eliminating or controlling (where elimination is not feasible) noxious weeds and undesirable invasive plants. IWM and juniper-reduction programs will help restore native plant associations for the benefit of native wildlife.
- Brush piles will be built to provide cover for upland game birds and small mammals near water sources and in other suitable area. These will be augmented or replaced when necessary.
- Populations of upland game birds and other native wildlife may be augmented or reestablished (in coordination with CDFG) where this is likely to be beneficial, as described in BLM Manual 1745 (Introduction, Transplantation, Augmentation, and Reestablishment of Fish, Wildlife, and Plants).
- Table 2.24-3 lists birds (and one bat) that are exceptionally vulnerable to disturbance from permitted activities in specific locations at certain times of the year. Most are not federal or CA-listed or BLM sensitive species, but all require distance buffers or other seasonal protective measures to prevent excessive disruption of breeding, roosting, or hibernation. The annual nest-monitoring program will be expanded to evaluate the success of these measures.
- Waterfowl nesting islands will be maintained on 12 reservoirs, and new islands constructed on 26 reservoirs. Up to 19 reservoirs will be fenced to protect waterfowl habitats (this will only withdraw 500 acres from livestock use). Exclosure fencing will also be used to protect other special habitats. (Refer to Maps WILD-2A and 2B, and Table 2.24-4.)

Table 2.24-3 Seasonal Restrictions and Distance Buffers for Wildlife[1/]

Species	Locations	Distances	Dates
Bald eagle	nests	¼ mile non-los, ½ mile los, 1 mile blasting	Jan. 1–Aug. 31
	winter roosts	½ mile	Dec. 1–Apr. 1
Golden eagle	nests	¼ mile non-los, ½ mile los	Feb. 1–Aug. 31
Northern goshawk	nests	¼ mile occupied, ½ mile previous year nest	Mar. 1–Aug. 31
Cooper's hawk	nests	¼ mile	Mar. 1–Aug. 31
Sharp-shinned hawk	nests	¼ mile	Mar. 1–Aug. 31
Ferruginous hawk	nests	¼ mile non-los, ½ mile los	Mar. 1–Aug. 1
Red-tailed hawk	nests	¼ mile	Mar. 1–Aug. 31
Swainson's hawk	nests	¼ mile non-los, ½ mile los	Apr. 15–Aug. 15
Peregrine falcon	nests	1 mile	Jan. 1–Aug. 15
Prairie falcon	nests	¼ mile non-los, ½ mile los	Mar. 15–Aug. 15
Osprey	nests	¼ mile	Mar. 1–Aug. 31
Burrowing owl	nests	¼ mile	Mar. 1–Aug. 31
Flammulated owl	nests	¼ mile	Apr. 1–Sept. 30
Great gray owl	nests	¼ mile	Mar. 1–July 31
Great blue heron	nests	660 feet non-los, ¼ mile los	Mar. 15–July 15
Greater sandhill crane	nests	¼ mile	April 1–July 1
Townsend's big-eared bat	nurseries hibernaculae	n/a n/a	Apr. 15–Oct. 31 Nov. 1–Apr. 15

[1/] These are typical restrictions and general guidelines--specific dates and distances may vary depending on the nature of the proposed permitted activity, local breeding chronology, and yearly local weather patterns.

Note: los = line-of-site

Table 2.24-4 Waterfowl Management Areas and Proposed Actions

	Reservoir	Existing Nest Islands	Build New Islands	Islands Require Maintenance	Existing Fences	Build Island Fences	Build Reservoir Fences
1	Nelson Corral	X	X	X			X
2	Bayley	X		Unknown		X	X
3	Graven	X		Unknown		X	
4	Lower Roberts		X			X	
5	Little Juniper[1/]	X	X	X		X	
6	Payne	X	X	X		X	
7	French	X		X		X	X
8	Danhauser	X	X	X		X	
9	Dobe Swale	X			X	X	
10	Iverson		X			X	
11	Juniper Lake		X			X	X
12	Snider	X	X	X		X	X
13	Van Sickle	X	X	X		X	
14	Coyote		X			X	
15	Moon		X			X	
16	Williams Ponds				X		X
17	WFKVL		X			X	X
18	Rimrock		X			X	X
19	West Valley						X[2/]
20	Said Valley		X			X	
21	Antelope		X		X		
22	Knox Gulch		X		X		
23	Red Rocks	Goose	X		Unknown	X	X
24	Wild horse		X		Unknown	X	X
25	Bonner Ravine		X			X	
26	Mud	Goose	X			X	X
27	Kelly		X			X	X
28	Sec 22		X			X	X
29	Catfish		X			X	X
30	Buckhorn		X			X	X
31	Cow Lake		X			X	X
32	Bowman						X
33	Blue Door Flat		X			X	X

[1/] Coordinate with CDFG and Alturas Farms to ensure that water is sufficiently deep and persistent for successful waterfowl nesting.

[2/] Only the northeast corner of the reservoir would be fenced to exclude livestock.

2.24.7 Group 6. Native and Non-Native Fish and Other Aquatic Species

Native fish include redband trout, mountain whitefish, tui chub, Tahoe sucker, mountain sucker, speckled dace, and Paiute sculpin. Non-native fish include brown trout, rainbow trout, brook trout, and a variety of warm-water game and non-game fish.

2.24.7.1 Desired Future Condition

Ecosystem conditions in aquatic and riparian habitats would satisfy BLM standards for livestock grazing, riparian PFC, and BLM land health standards. Therefore, springs, streams, lakes, and reservoirs would support thriving populations of native (and desirable non-native) fish and other aquatic species. Quality public fishing would be readily available, and reasonable public access would be assured.

2.24.7.2 Goal

Aquatic ecosystems (and associated riparian and wetland habitats) will be restored, enhanced, and protected from degradation, so that native (and desirable non-native) fish and other aquatic species will thrive.

2.24.7.3 Objectives

Systematically inventory the macroscopic life of streams and natural springs. Identify as to species (or species group), document, and assess the need for special management. Ensure that all streams and fish-bearing springs are rehabilitated and protected (from renewed degradation), so that suitable habitats for native fish and other aquatic species are sustained. Attention will be focused on restoring and protecting habitats of native redband trout; management actions will increase populations and reintroduce this native fish in suitable locations throughout its former range. Where appropriate to support recreational fishing (primarily reservoirs), habitats will also be improved for non-native game fish. These and other activities regarding recreational fishing and management of native and non-native fish populations will be coordinated with state wildlife agencies.

2.24.7.4 Proposed Management Actions for Group 6

- Management plans and actions for all resource areas must support BLM land health standards. With respect to native fish and aquatic ecosystems, Standards 2 (streams) and 4 (riparian areas and wetlands) have the greatest practical significance. These standards require that:
    - Standard 2: All streams and fish-bearing springs must be managed to recover and maintain habitats for native fish. Gravel bars and other coarse-textured stream deposits must be successfully colonized and stabilized with woody riparian plants. Streambank vegetation must be vigorous and diverse, mostly perennial, and able to protect streambanks from erosion during high-flow events. Stream surfaces must be generously shaded, so that waters remain (relatively) cool in summer and winter icing is minimized.
    - Standard 4: Riparian vegetation must be vigorous, mostly perennial (and largely woody), diverse (in terms of species, structure, and age-class) and appropriate for the site. Riparian vegetation and large woody debris must also be well-anchored and robust to withstanding high-flow events and protect streambanks and shorelines. Erosion resulting from human activities must be negligible.

- Management plans and actions for all resource areas must employ BMPs and maintain PFC of riparian and aquatic ecosystems. However, uses and activities would generally be allowed if they do not interfere with steady, significant progress toward BLM land health standards and State water-quality standards.
- Many springs and streams are not in PFC. Those that have been identified thus far—and others as identified—will be rehabilitated by altering grazing practices, fencing, re-vegetation and other site-specific measures to protect and restore native vegetation, stabilize streambanks, create shade, and benefit native fish and other aquatic life.
- Systematically inventory the macroscopic life of springs, riparian areas, wetlands, and streams. Identify as to species (or species group), document, and assess need for special management.
- Implement a regularly scheduled program of riparian and streamside monitoring using macro-invertebrate sampling, streamside vegetation assessment, and other measures to detect riparian trends, and assess water quality and hydrologic function.
- Maintain currently established dams and reservoirs to provide a safe environment for public activities.
- Livestock grazing must be managed so that it does not degrade springs, riparian vegetation, wetlands, streams—and habitats of native fish. AMPs will be reassessed and (where necessary) updated to reflect realistic AUMs and seasonal use parameters. This will prevent overuse and maintain healthy vegetation, stable embankments, and adequate water quality.
- Explore the present capacity of planning area waterways to support native fish and (in suitable waters) non-native gamefish. The potential of these waterways—when properly rehabilitated—for natural dispersal, successful reintroduction (or augmentation), and maintenance of healthy fish stocks will be assessed. Native fish will be prioritized in most cold-water streams. The most attention will focus on restoring native redband trout; management actions will restore degraded habitats, improve water quality, increase populations, and reintroduce this native subspecies in suitable locations throughout its former range. (This and other actions regarding introductions or augmentations—and issues related to sportfishing—will be coordinated with CDFG and must be in accord with their management plans.)
- Stream rehabilitation and habitat improvements will include injection of clean spawning gravels and placement of root wads, boulders, or other natural structures in suitable locations. Artificial structures will also be employed for habitat improvement in streams and reservoirs (e.g., artificial nest cavities, water circulation systems, fish bypass structures, etc.).
- Various habitat improvements for warm-water fish will be made at the following reservoirs: Iverson, Lower Roberts, Coyote, Romero, Little Juniper, Knox Gulch, Popcorn #1, Antelope, West Valley and Moon Reservoirs. Minimum pool depths will be established and enforced at these reservoirs to ensure that fish stocks survive low-water periods. New reservoirs, developed for economic reasons, will also provide additional waters for fishing and other recreational activities.
- Public fishing will be allowed on all waters, unless special restrictions are necessary (as determined by BLM or CDFG). BLM will work with CDFG to develop diversified fishing opportunities. This will include waters that only contain native fish, catch-and-release areas, and fly-fishing only areas. Current fishing access points will be maintained, and additional access will be developed where needed. BLM will coordinate with county fish and game commissions and local sportsman's groups to determine management priorities and enhance recreational fishing opportunities.

2.24.8 Group 7. Non-Native Species

The AFO provides habitat for a variety of desirable non-native species, including chukar, turkey, brown trout, and brook trout. There are also several undesirable wildlife populations that may compete with habitat elements for native wildlife. Some of these include starling, brown-headed cowbird, and bullfrog.

2.24.8.1 Desired Future Condition

Populations of desirable non-native wildlife (i.e., game species) will be healthy and abundant within their current area of distribution. Populations of undesirable non-native wildlife and feral animals will be gone, or adequately controlled where elimination is not feasible.

2.24.8.2 Goal

Manage habitats of desirable non-native wildlife (e.g., chukar partridge, turkey, brown trout, and brook trout) to maintain healthy and abundant populations within current (species) range and eliminate (or control) undesirable non-native wildlife and feral animals.

2.24.8.3 Objectives

Evaluate introduction and augmentation proposals for (desirable) non-native wildlife according to habitat management plans and BLM policy (the likelihood of range extension must be low). Coordinate any such action, or other issues concerning desirable non-native wildlife, with state wildlife agencies (under existing MOUs). Eliminate or control (where elimination is not feasible) undesirable non-native wildlife and feral animals.

2.24.8.4 Proposed Management Actions for Group 7

- Management plans and actions for non-native wildlife must follow BLM Manual 1745 (Introduction, Transplantation, Augmentation, and Reestablishment of Fish, Wildlife, and Plants). Section .06 (A) requires use of native species; unless (through the NEPA process) it is determined that:
    - Suitable native species are not available.
    - The biological diversity of the (proposed) species management area would not be diminished.
    - The exotic or naturalized species can be confined to the (proposed) species management area.
    - Analysis of the ecological site inventory indicates that present conditions would not support reestablishing a native species that was formerly present in the (proposed) species management area.
    - Resource management objectives cannot be approximated with a native species.
- Although undesirable non-native wildlife and feral animals would normally be eliminated, BLM Manual 1745 does permits exceptions. Section .06 (F) of the manual allows exemption for any wild or feral species specifically protected by federal or state law, under terms imposed by these entities.
- Eliminate or (where elimination is not feasible) control populations of undesirable non-native wildlife (both exotic and invasive) and feral animals to protect habitats and benefit populations of native wildlife as specified in current conservation plans, BMPs, and MOUs with other agencies. Important plans in this regard include "Partners in Flight," "Birds in a Sagebrush Sea," and NV-BLM's "Migratory Bird Best Management Practices for the Sagebrush Biome" and the "Nevada Bat Conservation Plan."

ALTERNATIVES SUMMARY TABLE

AIR QUALITY

Management Common to All Alternatives:

- All prescribed fire projects would be completed in accordance with the Clean Air Act and would comply with all federal, state, and local air pollution requirements.
- Prescribed fire projects and wildland fire use will be timed and/or managed to comply with federal, state, and local particulate matter standards.
- An approved prescribed fire burn plan would be in place prior to the ignition of any prescribed fire, and adhered to throughout the project.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Manage prescribed fires to reduce impacts to air quality (acres/year)	50–5,000	500–10,000	500–25,000	75–7,500	75–10,000

CULTURAL & PALEONTOLOGICAL RESOURCES

Goal #1- Preserve and Protect

Management Common to All Alternatives:

- Consult with Native American tribes regarding culturally significant areas, including TCPs and culturally significant economic resources.
- Regularly patrol and monitor cultural and paleontological sites to prevent illegal artifact and fossil collecting. Evaluate enforcement success.
- The BLM–CA SHPO Protocol Agreement will be implemented.
- All livestock grazing allotments will be evaluated for cultural and paleontological sites according to an existing schedule between the AFO and the CA SHPO.
- Additional, more intensive, cultural resource surveys will focus on Category 1 grazing allotments.
- Yankee Jim Ranch will be nominated to the NRHP.
- Cultural resource data will be maintained in GIS format.
- All archaeological sites will be evaluated and placed into use categories according to DOI IB No. 2002-101.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Propose archaeological ACECs (number/acres)	0	1 proposed 3,200 acres	3 proposed 5,350 acres	1 proposed 1,400 acres	1 proposed 1,400 acres
Propose cultural interpretive sites (number/acres)	0	12 proposed 20.5 acres	3 proposed 7.5 acres	0	3 proposed 7.5 acres

CULTURAL & PALEONTOLOGICAL RESOURCES (continued)					
Goal #1- Preserve and Protect (continued)					
Develop CRMPs for interpretive sites, SRMAs, NRHP districts, and TCPs	3 exist: Tule Mountain, Juniper Creek, and Mount Dome. Develop new CRMP only when a problem is identified	Develop for all TCPs and NRHP districts	Develop for all interpretive sites and SRMAs	3 exist: Tule Mountain, Juniper Creek, and Mount Dome. Develop new CRMP only when a problem is identified	Develop for Rocky Prairie/ South Graves, Tule Mountain, Likely Tablelands/ Yankee Jim Ranch, and Beaver Creek, and three interpretive sites.
Exclosure fences would be used (in consultation with permittees and tribes) to protect important cultural sites from damage by OHVs and livestock (acres)	0	0	3,750	200	**2,750**
Apply OHV restrictions to culturally sensitive areas	1 area 'Limited to Designated Routes': Nelson Springs (60 acres.)	Close high-sensitivity areas only as recommended by sensitivity model	Close 3 areas (3,554 acres) OHVs 'Limited to Existing Roads and Trails' in 4 areas	OHVs 'Limited to Existing or Designated Routes' in all areas	OHVs 'Limited to Existing or Designated Routes' in all areas
Survey and protect paleontological sites	No	Yes, survey and protect currently recognized sites; No inventory, survey, or protection of new sites	Survey and protect all sites; Inventory new sites	No	Survey and protect all sites; Inventory new areas within geologically suitable soils
Goal # 2 – Survey and Inventory					
Management Common to All Alternatives: • Categorize all lands managed by the AFO according to high, medium or low cultural sensitivity ratings. • Consult with Native American tribes regarding culturally significant areas. • Evaluate the effects of juniper harvest on areas of "light lithic scatter".					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Use sensitivity model to structure surveys	No	Yes	No	No	Yes

CULTURAL & PALEONTOLOGICAL RESOURCES (continued)					
Goal #3 - Education and Interpretation					
Management Common to All Alternatives: • All interpretive sites will be developed in consultation and partnership with Native American tribes and individuals. • Site stewards will be actively recruited.					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Develop new educational publications	No	Yes, general in nature and applicable to all cultural sites	Yes, site-specific for 3 proposed cultural sites	No	Yes, general in nature and applicable to all cultural sites except for interpretive sites which would be site specific
Develop new interpretive sites (number)	0	12	3	0	3
Goal #4 – Consult with Native American Tribes					
Management Common to All Alternatives: • Consultation with Native American tribes would be documented. • All identified and qualifying TCPs would be managed for Native American use but will remain under federal management and ownership.					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Identify and protect potential TCPs and culturally significant economic resource sites	No	Yes, all TCPs	Yes, but only within 8 SRMAs	No	Yes, all TCPs

ENERGY AND MINERALS

Management Common to All Alternatives:

- WSAs are 'Closed' to mineral leasing, saleable mineral activities, and renewable energy development pending Congressional action on wilderness status.
- When not proposed for withdrawal, WSAs are 'Open' to exploration and development of locatable minerals. However, use would be limited to activities that do not require reclamation, unless the operation had established "grandfathered" uses or valid existing rights on or before October 21, 1976.
- Acquired lands would be managed according to the purpose of acquisition and/or by management practices on adjacent lands. For instance, the 640 acres of mining mitigation lands in Section 2 T36N R9E (to be acquired from Lassen Gold), would be recommended for mineral withdrawal.
- Mineral and energy activities will be monitored to ensure compliance with stipulations, terms and conditions, and reclamation plans.
- Adequate remedial action will be taken when abandoned mine hazards are identified.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
LEASABLE MINERALS					
'Open' to leasing (acres)	446,397	445,997	400,022	438,675	445,997
'Closed' to mineral leasing (acres)	56,648	57,048	103,023	64,370	57,048
LOCATABLE MINERALS					
'Open' to locatable minerals (acres)	501,723	500,545	418,326	495,323	470,052
'Closed' (withdrawn) to locatable minerals (acres)	1,322	2,500	84,719	7,722	32,993
SALEABLE MINERALS					
'Open' to mineral material pit establishment (acres)	446,397	445,997	124,447	438,675	435,385
'Closed' to mineral material pit establishment (acres)	56,648	57,048	378,598	64,370	67,660
'Open' to flat rock collection (acres)	422,241	445,997	0	438,675	435,385
'Closed' to flat rock collection (acres)	80,804	57,048	503,045	64,370	67,660
RENEWABLE ENERGY					
'Open' to renewable energy development (acres)	446,397	445,997	124,447	438,675	435,385
'Closed' to renewable energy development (acres)	56,648	57,048	378,598	64,370	67,660

FIRE MANAGEMENT

Management Common to All Alternatives:

Wildland Fire Management:

- When fire intensity levels are severe, aggressive initial attack and full suppression is the AMR, especially in the WUI.
- When fire intensity levels are low, response actions will be determined by resource management objectives for the area – typically containment.
- Suppression efforts in initial attack may include engines, aircraft, retardant, and heavy equipment. Use of heavy equipment will be avoided in ACECs, RNAs, WSAs, and known NRHP-eligible sites. Such use requires line officer approval.
- Local resources, contractors, and personnel will be used as much as possible in suppression efforts.

Risk Mitigation and Education:

- Educational programs will be given in local schools concerning fire prevention as well as the natural role of fire in the ecosystem.
- BLM representative(s) will attend local fire safety council meetings to present programs on the risks of fuel accumulation and wildland fire, as well as information on basic fire ecology and its beneficial role in local ecosystems.
- Hazard assessment and identification of high-risk areas will be ongoing. Once identified, fuel mitigation projects will be formulated.
- Local volunteer fire departments will receive yearly assistance and safety training, and will be issued equipment as funding permits.
- BLM fire managers will work with local communities to develop community wildfire protection plans.

Fire Rehabilitation:

- Hay, straw, mulch, and seed used for emergency stabilization and rehabilitation projects must be certified noxious weed free.
- Areas burned by wildland fire will be rested from livestock grazing for a minimum of two growing seasons.

Management Actions AMR:	No Action	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
WFU (acres/year)	0	69,000	222,000	16,998	16,998
Full range of AMR suppression options used (acres/year)	0	434,045	281,045	486,047	486,047
Mandatory full suppression (acres/year)	503,045	0	0	0	0
Develop locally gathered native seed caches	No	Yes	Yes; limit re-seeding to native species	No	Yes
Prioritize post-fire rehabilitation, stabilization, and restoration actions based on the following objectives:	Rehabilitate to support ecosystem health	Maximize production of commodity resources	Rehabilitate to enhance natural restoration processes	Rehabilitate to support ecosystem health and commodity resources	Rehabilitate to support ecosystem health

FIRE MANAGEMENT (continued)					
Select types of plants used for post-fire ES&R	Native perennials	Native and non-native annuals and perennials	Locally-grown native perennials	Native and non-native perennials	Native and non-native annuals and perennials
Allow post-wildfire timber salvage	Yes, with stipulations	Yes, with stipulations	No	Yes, with stipulations	Yes, with stipulations

FORESTRY

Management Common to All Alternatives:

- Forestlands will be managed for multiple-use objectives using appropriate silviculture practices.
- Forty percent of commercial timberlands would be managed as late-succession forests. Substantial late-succession forests would also be maintained on low-site forestlands.
- A combination of treatments--including prescribed fire--would be used to accomplish resource objectives on 13,800 acres of commercial and low-site forests.
- Commercial forestland on Mount Dome would be managed as a bald eagle roosting area where no timber harvesting would be allowed.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize forest activities based on selected management objectives	Employ mechanical harvesting of commercial timber and reforestation efforts at a modest level	Produce and harvest the highest sustainable volume of timber	Create and maintain healthy forests	Apply over-story removal and commercial thinning on high-site forestlands	Create and maintain healthy forests; Produce and harvest a sustainable volume of timber
Implement timber production and mechanical harvest of commercial and low-site forestlands (acres)	500	13,800	0	4,800	12,000
Implement fuels reduction and stand improvement through a combination of prescribed fire, manual, chemical (herbicide and pesticide),and biologic treatments (acres)	100	13,800	13,800	13,800	13,800
Implement reforestation efforts (acres)	500	8,000	6,000	4,800	8,000
Construct permanent roads for timber management and harvesting activities (miles)	2	20	0	30	10
Construct temporary roads for timber management and harvesting activities (miles)	10	100	0	20	50

FUELS MANAGEMENT

Management Common to All Alternatives:

- Treatment of excessive fuels within the WUI is the highest priority: methods will include mechanical, prescribed fire, chemical, and biological alternatives.
- Hazardous fuels reduction plans, project locations, and treatment actions will be determined through resource specialist input, RAMS software, and local community protection requirements.
- Plans and projects will reduce fuels over a wide area, with priority given to degraded forest and rangeland (especially where encroached by western juniper), important wildlife habitats, and important archaeological or historic sites.
- Projects will mimic naturally occurring wildfire effects for the purpose of restoring plant communities and approximating the biological diversity of naturally occurring local ecosystems.
- Prescribed fire will be integral to fuels reduction efforts. Its use will be based on community protection requirements, resource specialist input, and approved burn plans. Burn plans will be designed and approved on a project-specific basis by qualified resource specialists.
- Classes will be given at local schools regarding fire protection and hazard reduction, and the natural role of fire in the ecosystem. BLM will present in-depth programs on these topics at local fire safety council meetings.
- Hazardous fuels reduction projects will be implemented by BLM fuel module crews and/or contract hand crews.

Management Actions	No Action	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement hazardous fuels reduction treatments using various methods:					
• **Prescribed fire (acres/year)**	50–5,000	500–10,000	500–25,000	75–7,500	75–10,000
• **Mechanical treatment (acres/year)**	50–100	100–25,000	100–5,000	75–2,500	75–10,000
• **Biological treatment (acres/year)**	0	50–1,000	100–2,000	75–1,250	0–1,250
• **Chemical treatments (acres/year)**	0	50–1,000	50–4,000	50–500	50–2,000

LANDS AND REALTY

Management Common to All Alternatives:

- The Alturas LTAP would serve as the basis for future land tenure adjustment actions.
- A list of priority land tenure adjustments derived from the LTAP and this RMP would serve as the basis for action. This list would be reviewed and updated annually.
- Under the LTAP, newly acquired parcels would initially be managed in a manner similar to adjacent parcels—unless the site-specific analysis and decision record for the exchange specifies a different management prescription. In particular; Section 2, T36N, R9E, MDM is approved for donation from Lassen Gold, Inc. It would be managed to preserve wetlands and is recommended for mineral withdrawal.
- Access would be secured to public lands, resources, and facilities. Roads may be constructed around private lands where access is needed and easement acquisition is not feasible.
- Access easements will be acquired from willing sellers or partners.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement the Alturas Land Tenure Adjustment Plan of 2002	Implement as written	Implement and modify to include conservation easement projects	Implement and modify to partially convert Madeline disposal area to a retention/ acquisition area	Implement as written	Implement and modify to include conservation easement projects and the Madeline retention/ acquisition area proposal
Locatable Minerals					
'Open' to locatable minerals (acres)	501,723	500,545	418,326	495,323	470,052
'Recommended for Withdrawal' for locatable minerals (acres)	1,322	2,500	84,719	7,722	32,993

LANDS AND REALTY (continued)

RIGHTS-OF-WAY

Management Common to All Alternatives:

- Current linear ROWs and communication sites would be authorized, providing continued compliance with the terms and conditions of grants or permits.
- New utility lines or communication sites would be excluded in all WSAs (56,648 total acres), the Ash Valley ACEC (1,322 acres), and the Baker Cypress Natural Area (1,448 acres within the Timbered Crater ACEC/WSA.)
- Preservation of fish and wildlife habitat, management requirements of sensitive species, and protection of cultural or paleontological resources would limit or modify locations of ROWs and other land use authorizations.
- The use of existing utility corridors and communication sites would be encouraged where space is available and this is otherwise feasible.
- Additional utility corridors may be designated as future needs dictate, subject to on-site environmental reviews and clearances, in accordance with The West-wide Energy Corridor PEIS, 2005.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Identify lands potentially available for new telecommunication sites and utility ROWs (acres)	445,065	445,065	0	445,065	435,385
Manage special designations as ROW exclusion areas (acres)[1/] [1/] **Total acres of ACECs include only those portions outside of respective WSAs, to avoid duplication of the same acres.**	WSAs, Ash Valley ACEC, Baker Cypress Natural Area 57,980	WSAs, Ash Valley ACEC, Baker Cypress Natural Area 57,980	All ACECs and WSAs, and proposed Lower Pit River WSR corridor 95,849	WSAs, Ash Valley ACEC, Baker Cypress Natural Area 57,980	All ACECs and WSAs, and proposed Lower Pit River WSR corridor 67,660
Allow maximum utility corridor width (feet)	250	500	0	500	500

LIVESTOCK GRAZING

Management Common to All Alternatives:

- Manage allotments to adhere to the standards set out in the 2000 S&Gs.
- Implement range improvements as they benefit wildlife, watersheds and livestock producers, including but not limited to fencing, gates, cattleguards, water developments, pipelines, and vegetation treatments and limited road construction.
- Decisions to resume livestock grazing on areas that have been mechanically treated or burned by wild or prescribed fire would be based on assessment of monitoring data. Generally, grazing would not resume for a minimum of two growing seasons. However, mechanically treated areas may be assessed for potential resumption of livestock grazing following one growing season of rest.
- Maintain the long-term health and productivity of the rangelands when dealing with drought conditions and issues by implementing the BLM Drought Management Policy for Alturas and Surprise Field Offices.
- Adjust grazing systems and timing as necessary for sensitive wildlife species and archeological concerns.
- When a permit is voluntarily retired, consider utilizing the allotment as a forage reserve.
- Livestock salting would not be allowed within ¼ mile of springs, meadows, NRHP-quality archaeological sites, streams, and aspen areas. Location of salting stations would be determined by BLM in consultation with livestock permittees.
- Utilization of key species (grasses, forbs, and shrubs) on native rangelands would not exceed moderate (40%-60%) levels. On allotments not meeting or making progress toward meeting land health standards due to current levels of livestock forage utilization, Guideline 16 of the S&Gs (30 to 40%) would be implemented.
- Exclude livestock from non-regenerating aspen stands until saplings reach a minimum height of six feet.

Management Actions	No Action	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Public lands available for grazing (acres)	457,519	456,919	448,719	457,519	454,649
Public lands unavailable for grazing (acres)	45,526	46,126	54,326	45,526	48,396
Authorized annual AUMs **[1/]Active AUMs – Portion of total grazing preference for which grazing use is authorized.** **[2/]Actual Use – Portion of active AUMs actually utilized by grazing permittees in a particular year.**	54,881 active AUMs [1/] 27,000 AUMs authorized for actual use [2/]	95,000 active AUMs Authorized for actual use 47,000 AUMs	54,881 active AUMs 18,294 AUMs authorized for actual use (15% decrease) authorized in any one year)	54,881 active AUMs 27,000 AUMs authorized for actual use	54,881 active AUMs 27,000 AUMs authorized for actual use
Construct and/or maintain livestock exclosures in riparian/wetland areas to protect early seral stage plant communities and those 'Functioning at Risk'	No	Yes; emphasize temporary fencing	Yes; fence areas not meeting PFC	No	Yes, 500 acres
Exclude livestock from aspen stands using:					
• **Permanent fencing (acres)**	0	100	500	50	200
• **Temporary fencing (acres)**	0	400	0	200	300
Exclude livestock from aspen stands larger than ½ acre for 2 years following fire	No	No	Yes	No	Yes

RECREATION & VISITOR SERVICES

Management Common to All Alternatives:

- Manage lands not designated as SRMAs, WSAs, or ACECs as ERMA.
- Any recreational use of ACECs, including commercial and non-commercial uses authorized under special recreation permits, will be evaluated and permitted, modified, or prohibited as needed to protect ACEC values.
- Issue special recreation permits to meet demand while ensuring the protection of natural and cultural resources and operating within reasonable public safety parameters.
- Recreational camping would be limited to 14 consecutive days at a single location and 28 days per calendar year, for all three (Alturas, Surprise, and Eagle Lake) field office management areas taken as a whole.
- Seasonally limit, geographically restrict, or prohibit if necessary, activities which create health or safety hazards for public land users in and near developed recreational sites, high-use recreational fisheries, and areas of concentrated activity.
- Suitable VRM classes would be assigned to maintain high-quality scenic buffer zones for SRMAs and all recreational projects, as well as high-use travel routes, throughout the management area.
- Acquire (from PG&E) segments of the Pit River (13 total miles) that support significant cold and warm water fisheries. Also acquire a 5-mile stretch of Hat Creek (also from PG&E) to preserve world-class trout fishing.

Management Actions	No Action	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Designate SRMAs	None	Infernal Cavers/Rocky Prairie and Pit River SRMAs	Infernal Cavers/Rocky Prairie and Pit River SRMAs	Infernal Cavers/Rocky Prairie and Pit River SRMAs	Infernal Cavers/Rocky Prairie and Pit River SRMAs
Develop improved parking areas in recreational sites (number)	0	7–9	3–5	5–6	7–9

RECREATION OPPORTUNITY SPECTRUM

Management Common to All Alternatives:

- All management actions for WSAs, including those which form part of an ACEC, are governed by the Interim Management Policy for Lands under Wilderness Review.
- Roads may be closed by reason of plan maintenance if they are producing adverse ecological impacts.
- Area sizes were obtained from GIS mapping. After the record of decision is signed, final area sizes will be accurately determined by on-the-ground GPS inventories modified according to new designations and resource constraints.
- The San Francisco State University visitor survey will be used to help formulate Recreation Opportunity Spectrum designations.
- Scenic qualities will be maintained at the present level, as supported by the recent survey of local residents and visitors.
- Corridors will be established along existing roads and trails in RN, SPM, and SPNM areas of sufficient width to permit road maintenance, vehicle pull-offs, and camping use.
- Roads throughout the planning unit may be closed during the winter and early spring to prevent damage to roads and the resource base.
- OHV travel will be 'Limited to Existing Roads and Trails', unless otherwise designated.
- Information and education will be provided to off-highway enthusiasts concerning awareness and sensitivity to proper use of public lands.
- Once the record of decision is signed, maps will be prepared for all areas with OHV designations, and roads will be posted as directed in the PRMP/FEIS.

Management Actions		No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
ROS Class Designations:						
'Primitive'	**(acres)**	46,784	39,429	75,143	33,860	55,594
SPNM	**(acres)**	64,972	23,172	82,942	148,766	63,472
SPM	**(acres)**	283,949	211,159	244,061	219,520	273,539
RN	**(acres)**	107,340	229.285	100,899	100,899	110,440

SOIL RESOURCES

Management Common to All Alternatives:

- Implement measures to affect the recovery of 10,154 acres of degraded upland soils.
- Management activities and other uses of perennial and important intermittent drainages will be minimized where such activities would adversely affect watershed processes or function.
- Programs and activities will be managed to ensure no net loss of soil productivity.
- Management programs on sites where undesirable invasive plants and/or noxious weeds are a problem will incorporate measures to ensure the continued health and stability of soils together with treatment régimes for control of invasive plants or weeds.
- Prevent damage to high shrink-swell soils by limiting compacting activities (e.g., grazing, OHV use, maintenance activities) to periods when soils are sufficiently dry to resist compaction.

SOIL RESOURCES (continued)					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Employ active bioengineering methods (i.e., juniper scattering) in upland areas to protect soils from erosion (acres)	100	6000	1000	0	200
Construct exclosures around degraded or sensitive soils (acres)	0	10,154 (temporary)	10,154 (permanent)	0	Evaluated on case-by-case basis
Apply sediment intrusion buffer zones around sensitive resources (radius, in feet)	50	50	≥ 50	30 - 50	50
SPECIAL DESIGNATIONS					
AREAS OF CRITICAL ENVIRONMENTAL CONCERN					
Management Common to All Alternatives: • Maintained the (existing) Ash Valley ACEC/RNA (1,322 acres) and Baker the Cypress Natural Area (1,448 acres). • Management for any portion of an ACEC within a WSA would be governed by the Wilderness IMP until such time as Congress makes a determination regarding wilderness designation. • Visual resource management for portions of an ACEC within a WSA is Class I. Otherwise, ACECs would be managed as VRM Class II. • Recreational activities in ACECs—including commercial and non-commercial uses authorized under special recreation permits—would be evaluated, modified, permitted, or prohibited, as appropriate to preserve the resources and values for which the ACEC was created. • Livestock grazing would be managed according to permit stipulations, AMPs, and ACEC management plans. • Noxious weeds would be aggressively controlled in ACECs.					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Designate ACECs: (acres)					
• **Pit River Canyon**	0	6,703	6,703	0	0
• **Lava**	0	10,770	10,770	0	0
• **Timbered Crater**	0	17,896	17,896	0	17,896
• **Emigrant Trails**	0	0	9,924	5,000	1,750
• **Mountain Peaks**	0	0	3,500	0	3,500
• **Old Growth Juniper**	0	0	3,115	0	3,115
• **Mount Dome**	0	1,510	1,510	0	1,510
• **Juniper Creek**	0	0	1,182	0	0
• **Beaver Creek**	0	0	972	0	0
• **Likely Tablelands/Yankee Jim/Fitzhugh Creek**	0	3,200	27,435	1,400	1,400
• **Total acres**	0	40,079	83,007	6,400	29,171
Manage ACECs as ROW exclusion zones	Ash Valley ACEC	Ash Valley ACEC	All ACECs	Ash Valley ACEC	All ACECs

SPECIAL DESIGNATIONS (continued)

NATIONAL HISTORIC TRAILS

Management Common to All Alternatives:

- Provide recreational opportunities focused on national historic emigrant trails.
- Build an interpretive package at "Descent into Goose Lake" including a 0.25 mile interpretive trail, picnic tables, waterless toilet, parking area, and a 1.0-mile access trail for viewing trail traces.
- Work with Sierra Pacific Power and the BLM California State Office to acquire fee title to a portion of land associated with the Battle of the Infernal Caverns.
- Protect and maintain approximately 29 miles of national historic emigrant trails.
- Acquire sites and trails of historic significance from willing sellers.
- Develop a "Historic Sites Scenic Byway" with off-site interpretive locations, in cooperation with county, state, federal, and private entities.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Develop recreation development packages for sites of historic significance (number)	2	9-11	4	5	7-8
Designate an Emigrant Trails ACEC to protect National Historic Trails (acres)	0	0	9,924	5,000	1,750

SCENIC BYWAYS

Management Common to All Alternatives:

- New designations of scenic byways would be considered providing they are consistent with OHV designations and address resource concerns.

Management Actions Designate proposed scenic byways: (miles)	No Action Alternative	Alternative 1. Economic	Alternative 2. Ecosystem	Alternative 3. Traditional	Preferred Alternative
• **U.S. Highway 395 - Alturas to Reno**	0	190	0	0	190
• **State Highway 139 - Canby to Susanville**	0	90	0	0	90
• **State Highway 299 - Adin to Redding**	0	130	0	0	130
• **State Highway 139/ Canby to U.S. Highway 395-Nevada-State-Line**	0	0	0	170	170
• **Total miles of designated scenic byways**	0	410	0	170	580
Designate Clarks Valley Road Driving Route (miles)	0	21	0	0	21

SPECIAL DESIGNATIONS (continued)

WILD AND SCENIC RIVERS

Management Common to All Alternatives:

- Strict interim protection would be provided for rivers that are eligible and administratively suitable for WSR determination.
- Upper Pit River Canyon and Lower Horse Creek WSR study areas are in the Pit River Canyon WSA and are managed under the terms of the Wilderness IMP. Therefore, they would be managed as VRM Class I, 'Closed' to mineral extraction, and OHVs would be 'Limited to Existing Roads and Trails'. (OHVs in the Lower Pit River Canyon WSR Study Area would also be 'Limited to Existing Roads and Trails'.)
- WSR study areas would be managed as ROS class 'Primitive'.
- Lower Pit River Canyon would be designated VRM Class II, and Upper Pit River Canyon and Lower Horse Creek would revert to Class II if denied wilderness status by Congress.
- Suitable interpretation of prehistoric and historic resources (including portions of Lassen National Historic Emigrant Trail) would be implemented.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Recommend portions of the Upper Pit River Canyon as suitable for designation as a 'wild' river (miles)	0	13	13	0	13
Recommend portions of the Lower Horse Creek Canyon as suitable for designation as a 'wild' river (miles)	0	3 — 'Recreational'	3	0	3
Recommend portions of the Lower Pit River Canyon as suitable for designation as a 'scenic' river (miles)	0	2.5 — 'Recreational'	2.5	0	2.5
Lower Pit River Canyon WSR	Open to mineral extraction	Closed to mineral extraction with variance for recreational mining	Closed to mineral extraction	Open to mineral extraction	Closed to mineral extraction

SPECIAL DESIGNATIONS (continued)
WILDERNESS STUDY AREAS
Management Common to All Alternatives: • Four WSAs and one ISA would be governed by the Wilderness IMP until such time as Congress makes a determination regarding wilderness designation. These include Pit River Canyon WSA (10,984 acres), Lava WSA (10,770 acres), Timbered Crater WSA and Baker Cypress ISA (17,896 acres), and Tule Mountain WSA (16,998 acres). • Resource objectives for WSAs generally have priority over other management objectives under the wilderness IMP. However, when a WSA overlaps another special management area (e.g., an ACEC, SRMA, etc.), the more restrictive management prescription would apply. In the AFO management area, three proposed ACECs and one RNA are incorporated within, coincide with, or overlap three WSAs, and one ISA is found within a WSA. • Any WSA denied wilderness status by Congress would be managed according to RMP direction governing adjacent lands at the time of release. • If denied wilderness status, a WSA would return to its originally inventoried VRM class, unless reclassified due to overlap with a special management area. • To date, all lands acquired adjacent to or within WSAs have been assessed for wilderness characteristics. None of these lands fulfill the wilderness criteria. Any future acquisition possessing wilderness characteristics would be included in the adjacent WSA where its wilderness character would be protected. • For WSAs evaluated under Section 202 of FLPMA, existing and new mining operations under the 1872 mining law would be regulated under 43 CFR 3802 to prevent unnecessary or undue degradation of these lands – not to prevent impairment of wilderness suitability. All other activities will be managed under the Wilderness IMP. • According to the Wilderness IMP; the use of mechanized and motorized transportation (including mountain bicycles, ATVs, and motorcycles), will only be allowed on existing roads and trails or within 'Open' areas designated prior to the passage of FLPMA (Oct., 1976.) • All proposals for uses and/or facilities within WSAs will be reviewed to determine if the proposal meets the non-impairment criteria. • The "minimum tool" concept will be applied to all approved activities in WSAs.

TRAVEL MANAGEMENT

Management Common to All Alternatives:

- All OHV travel in the AFO management area would be 'Limited to Existing Roads and Trails' year-round, except where other designations are specifically assigned (e.g., 'Open', 'Closed,' 'Seasonally Closed',' or 'Limited to Designated Routes'). (See text for definitions.)
- Organized OHV events would only be allowed on designated routes in approved locations or in OHV management areas.
- Exceptions for off-road travel and seasonal road closures include, but are not limited to the following authorized or permitted activities: woodcutting in designated firewood-gathering areas, noxious weed eradication, flat rock collecting in designated areas, ranching activities, scientific studies, BLM administrative activities, private property access, and big game retrieval.
- Management actions for portions of ACECs associated with WSAs and the WSA itself are governed by the Wilderness IMP.
- The ROS will be employed to provide the following range of travel classifications and settings: 'Primitive', SPNM, SPM, and RN.
- The present travel restriction on the Nelson Corral Reservoir Road (i.e., 'Limited to Existing Roads and Trails' for six weeks only) would be expanded to a year-round 'Limited to Existing Roads and Trails' designation.
- Where existing roads are having an adverse ecological impact, they may be 'Closed' (on a temporary or permanent basis) through plan maintenance in accordance with Northeast California RAC Guidelines for OHVs (Appendix C).
- The Cinder Cone OHV management area would be 'Open' to OHV travel year-round on a designated area of 80 acres.
- The Pit River Canyon (10,984 acres), Tule Mountain (16,998 acres), and Lava (10,770 acres) WSAs would be designated 'Limited to Existing Roads and Trails' to maintain their pristine natural character. OHV travel is permanently 'Closed' around vernal pools (20 acres) in the Lava WSA to protect the Boggs Lake hedge-hyssop (a special status plant.).
- The following travel designations would apply for all alternatives: Coyote Ridge—'Limited to Designated Routes' on 2500 acres, and Fitzhugh Creek—660 acres 'Closed.'
- A trail would be designated for non-motorized access to Delta Lake from Bayley Reservoir during annual spring closure of the Delta Lake Road.
- Land acquired after approval and implementation of this RMP would receive the same designation as surrounding or adjacent areas. However, if acquired land has sensitive resources, it would receive a designation that protects those resources.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Assign OHV use designations: (acres)					
• **'Open'**	441,077	80	80	80	80
• **'Limited to Existing or Designated Routes'**	41,982	502,285	472,768	502,285	498,340
• **'Closed'**	19,986	660	30,197	660	4,625

TRAVEL MANAGEMENT (continued)					
Implement OHV travel designations: (acres) **(Note: The following is a list of the most notable routes and their designations; it is not a complete listing of all OHV designations.)**					
Roads and Trails in the Mount Dome Area					
Bryant Mountain	Open (2,300) Limited to Designated (1,700)	Limited to Existing (4,000)	Limited to Designated (4,000)	Limited to Existing (4,000)	Limited to Existing (4,000)
Roads and Trails in the Mount Dome Area (continued)					
Mahogany Mountain	Open (6,000)	Limited to Existing (6,000)	Limited to Designated (6,000)	Limited to Existing (6,000)	Limited to Designated (6,000)
Bloody Point	Open (240)	Limited to Existing (240)	Limited to Designated (240)	Limited to Existing (240)	Limited to Existing (240)
Mount Dome – Tablelands	Limited to Existing (1,500)	Limited to Existing (1,500)	Limited to Designated (1,500)	Limited to Existing (1,500)	Limited to Designated (1,500)
Roads and Trails in Proposed Areas of Environmental Concern					
Old Growth Juniper ACEC (3,115 acres, in total) • **Ticker Spring section:**	Open (1,090)	Limited to Existing (1,090)	Limited to Designated (1,090)	Limited to Existing (1,090)	Limited to Designated (1,090)
• **Sheep Valley section:**	Open (1,675) Closed (350)	Limited to Existing (2,025)	Closed (2,025)	Limited to Designated (2,025)	Closed (2,025)
Beaver Creek ACEC	Open (972)	Limited to Existing (972)	Closed (972)	Limited to Designated (972)	Limited to Designated (972)
Juniper Creek ACEC	Open (1,182)	Limited to Existing (1,182)	Closed (1,182)	Limited to Designated (1,182)	Limited to Designated (1,182)
Timbered Crater ACEC/WSA (& Baker Cypress Natural Area)	Closed (17,896)	Limited to Existing (17,896)	Closed (17,896)	Limited to Existing (17,896)	Limited to Designated (17,896)

TRAVEL MANAGEMENT (continued)					
Roads and Trails in Proposed Areas of Environmental Concern (continued)					
Fitzhugh Creek	Open (1,800)	Limited to Designated 4/16-11/30 (1,800)	Closed (1,800)	Limited to Designated (1,800)	Fitzhugh creek closure includes (1,800) setback on rims
Likely Tablelands/ Yankee Jim/ Fitzhugh Creek ACEC	Closed (660) Fitzhugh Creek, and (200) of meadows on Yankee Jim Ranch (see measures common to all alternatives)	Limited to Designated 4/16-11/30 (26,800) Closed 12/1-4/15 (26,800)	Closed (3,200)	Yankee Jim Ranch (1,400) Limited to Designated	Yankee Jim Ranch Closed 12/1-4/15 (1,400), Limited to Designated 4/16-11/30
Ash Valley ACEC	Open (1,322)	Limited to Existing (1,322)	Closed (1322)	Limited to Designated (1,322)	Limited to Designated (1,322)
Roads and Trails in Remainder of AFO Management Area					
Likely Tablelands (excluding ACEC)	Limited to Designated (60)	Limited to Designated on Upper Bench (26,800)	Limited to Designated from 4/16–11/30 (56,800)	Limited to Designated (56,800)	Limited to Designated from 4/16–11/30 (56,800)
Seasonal Closure Dates	No Closure	12/1– 4/15	12/1–4/15	No Closure	12/1–4/15
Barnes Grade OHV Management Area	Open (260)	Limited to Existing (260)	Limited to Designated (260)	Limited to Existing (260)	Limited to Existing (260)
Seasonal Closures Dates	No Closure	11/15–4/15	11/15–4/15	No Closure	11/15–4/15
Nelson Corral Reservoir Dam Site	Open (120)	Limited to Existing (120)	Closed (120)	Limited to Existing (120)	Closed (120)
Cold Springs/North Springs	Open (48,910)	Limited to Existing (48,910)	Limited to Designated (48,910)	Limited to Existing (48,910)	Limited to Designated (48,910)
Seasonal Closure Dates	No Closure	No Closure	4/15–7/15	No Closure	No Closure
Day Bench	Open (3,000)	Limited to Existing (3,000)	Limited to Designated (3,000)	Limited to Existing (3,000)	Limited to Existing (3,000)
Seasonal Closures Dates	No Closure	No Closure	11/15–4/15	11/15–4/15	11/15–4/15

TRAVEL MANAGEMENT (continued)					
Roads and Trails in Remainder of AFO Management Area (continued)					
Westside Allotment	Closed (20) Open (3480)	Limited to Existing (3500)	Limited to Designated (3500)	Limited to Existing (3500)	Limited to Designated (3500)
Williams Ranch Seasonal Closure Dates	Open (600) No Closure	Limited to Existing (600) No Closure	Closed (600) No Closure	Limited to Existing (600) No Closure	Limited to Designated (600) 11/15-6/15
Hayden Hill Seasonal Closure Dates	Open (200) No Closure	Limited to Existing (200) No Closure	Closed (200) No Closure	Limited to Existing (200) 3/1-5/15	Limited to Existing (200) 3/1-5/15
Fall River OHV Trail	Open (15,000)	Limited to Existing (15,000)	Limited to Designated (15,000)	Limited to Existing (15,000)	Limited to Designated (15,000)
Hogback Ridge	Open (1,800)	Limited to Existing (1,800)	Limited to Designated (1,800)	Limited to Existing (1,800)	Limited to Designated (1,800)

NON-MOTORIZED TRAVEL

Management Common to All Alternatives:

- Create trails of a quality to attract visitors and stimulate trail-based tourism while protecting natural and cultural resources. In addition to walking, non-motorized travel will include the use of bicycles, animals, or other non-motorized use unless specified otherwise.
- Trail segments crossing private land that connect BLM land with other public routes will require acquisition of property or easements from willing sellers or cooperators.
- Way-finding signs would be placed and maintained on all trails, but only to the degree necessary to ensure public safety and enjoyment.
- Build an interpretive package at ”Descent into Goose Lake” including a 0.25-mile interpretive trail picnic tables, waterless toilet, parking area, and a 1.0-mile access trail for viewing trail traces.
- Pursue acquisition of the Union Pacific rail line between Wendell and Alturas (85 miles) for the rail bank program.
- Develop 40 miles of the Union Pacific’s abandoned Modoc Line railway for non-motorized and motorized use, if acquired.
- Cooperate with Lassen National Forest (under an existing MOU) for maintenance of the Pacific Crest Trail.
- Develop seven miles of interpretive trail to the Infernal Caverns Overlook for non-motorized use.
- Designate two miles of trail at Williams Ranch for non-motorized use.
- Designated one mile looped hiking trail at Pit River Campground.

TRAVEL MANAGEMENT (continued)					
NON-MOTORIZED TRAVEL (continued)					
Management Action: Designate proposed non-motorized trails (miles)	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
McDonald Peak	0	3	0	3	3
Cold Springs Mountain	0	1.5	0	1.5	0
Mahogany Peak	0	1	0	1	1
Sheep Mountain	0	1	0	0	1
Holbrook Trail	0	2	0	0	2
Dry Creek Station	0	4	0	4	4
Knox Gulch	0	1	0	1	1
Antelope Trail	0	1	0	1	1
Fitzhugh Creek	0	0	0.25	0.25	0.25
Other trails	11	12.5	12.25	12.25	12.25
Total miles of non-motorized trails	11	27	12.5	23	25.5
BOATING					
Management Common to All Alternatives: • Permit(s) would be required for non-motorized commercial boating on the Pit River from Fall River Mills to the (State) Route 299 bridge. • Permits for commercial boating on the Pit River within the Pit River Canyon WSA (13 miles) would be for non-motorized boating. Non-commercial boating would also be non-motorized. • Where motorized boating limitations apply, the following definitions are recognized: (1) small outboards--limited to 4-cycle gasoline engines and electric trolling motors (no personal watercraft unless expressly permitted) and (2) personal watercraft—meaning “jet-skis” or “waverunners.” • Motorized boating would be unrestricted on West Valley Reservoir. • Develop a permit system to regulate commercial boating that balances this activity with the need for resource preservation.					
Management Action: Implement restrictions to watercraft use for the following areas:	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Bayley Reservoir	No restrictions	No restrictions	Non-motorized & 4-cycle outboard	Non-motorized & 4-cycle outboard	Small outboard (restriction phased in by 2012)
Nelson Corral Reservoir	No restrictions	No restrictions	Non-motorized & 4-cycle outboard	Non-motorized & 4-cycle outboard	Electric motors & non-motorized
West Valley Reservoir	No restrictions	No restrictions	No restrictions	No restrictions	No restrictions
Delta Lake	No restrictions	No restrictions	Non-motorized & 4-cycle outboard	Non-motorized & 4-cycle outboard	Electric motors & non-motorized

TRAVEL MANAGEMENT (continued)					
BOATING (continued)					
Moon Lake	No restrictions	No restrictions	Non-motorized & 4 cycle Outboard	No restrictions	No personal watercraft (jet skis)
Pit River—below Pit River Campground	No restrictions	No restrictions	Non-motorized	Non-motorized	Non-motorized
Pit River—Lower Pit River Canyon	No restrictions	No restrictions	Non-motorized	Non-motorized	Non-motorized
OVER- SNOW TRAVEL					
Management Common to All Alternatives: • Restrictions on motorized over-snow travel apply when significant snow is present from December 1 to March 15.					
Management Action: Proposed Motorized Over-Snow Travel Restrictions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Nelson Corral High-Country (acres)	No Restrictions	Motorized & Non-motorized on 5,000	Non-Motorized on 10,000	Motorized & Non-motorized on 3,000	No Restrictions
Dead Horse Loop (acres)	No Restrictions	Motorized & Non-motorized on 7,000	Non-motorized on 7,000	Motorized & Non-motorized on 3,000	No Restrictions
ROAD MAINTENANCE					
Management Action:	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Implement annual road maintenance (miles)	28	32	0	19	28

VEGETATION

NATIVE PLANT COMMUNITIES

Management Common to All Alternatives:

- Use prescribed fire as the preferred method for rehabilitation of plant communities; however; mechanical and manual methods would also be important. Employ natural disturbance processes, particularly prescribed fire, WFU, and thinning to restore shrub communities by stimulating seeding and sprouting.
- Incorporate recommendations developed in the *Sagebrush Steppe Restoration Strategy* to manage juniper encroachment.
- Decisions to resume livestock grazing on areas that have been mechanically treated or burned by wild or prescribed fire would be based on assessment of monitoring data. Generally, grazing would not resume for a minimum of two growing seasons. However, mechanically treated areas may be assessed for potential resumption of livestock grazing following one growing season of rest.
- Old growth juniper would be protected from timber harvesting and firewood cutting. Late seral/climax stands of old growth juniper would be subject to an EA before any flat rock collecting is permitted.
- Develop a "normal year fire rehabilitation plan" for the Alturas Field Office.
- Develop a locally gathered native seed cache for all rehabilitation projects.
- Incorporate guidelines from the *Sage-Grouse Conservation Strategy* in vegetation treatments and habitat restoration projects conducted in sage-grouse habitats.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Designate areas as both ACEC and RNA **Size (acres)**	None 0	Designate 2: Timbered Crater Mount Dome 19,406	Designate 4: Timbered Crater Mount Dome Mountain Peaks Old Growth Juniper 26,021	None	Designate 4: Timbered Crater Mount Dome Mountain Peaks Old Growth Juniper 26,021
Classify and map: • **Rare plant communities** • **Plant communities achieving or approaching potential natural community** • **Plant communities of local concern** **(acres/year)**	When addressed in activity or project-level plans N/A	When addressed in activity or project-level plans N/A	Emphasis: Communities at or approaching PNC; communities of local concern 100–5,000	Emphasis: Communities at or approaching PNC 50–500	Emphasis: Communities of local concern; rare plant communities; special status species 50–5,000

VEGETATION (continued)					
NATIVE PLANT COMMUNITIES (continued)					
Rehabilitate plant communities by removing invasive juniper and decadent shrubs utilizing the following treatment methods (acres/year)					
• **Prescribed fire / WFU**	50–5,000	500–20,000	500–25,000	75–7,500	75–10,000
• **Manual**	50–300	50–2,000	50–5,000	50–2,500	50–5,000
• **Biological**	0	50–1,000	100–2,000	0–250	75–2,000
• **Chemical**	0	50–1,000	0	50–500	50–2,000
• **Mechanical**	50–1,000	100–40,000	100–5,000	75–2,500	75–10,000
• **Seeding**	0–200	50–5,000	100–10,000	0–5,000	50–10,000
Use green strips as firebreaks in degraded native plant communities on the Likely Tablelands (miles)	0	21	36	0	36
Create healthy, multi-aged stands of bitterbrush using specified treatments (acres/year)	Remove invasive juniper using mechanical treatments 0–50	Reduce late-season grazing; seed bitterbrush in poor-condition stands; remove invasive juniper and decadent woody fuels 0–15	Emphasize natural recovery; institute grazing restrictions and seed degraded areas 10–75	Remove invasive juniper and decadent woody fuels; seed and plant bitterbrush; reduce late-season grazing 0–50	Utilize all tools and methods; replant bitterbrush in first year following wildfire 10–500
Exclude livestock from seeded areas in bitterbrush stands following treatment (years)	2	2	3–5	2–4	3–5

VEGETATION (continued)					
RIPARIAN AND WETLAND COMMUNITIES					
Management Common to All Alternatives: • Assess riparian areas for PFC, existing or potential natural community, and ecological site description. • Establish PFC on 15 miles of streams, 22 acres of springs, and 46 acres of wetlands. • Remove invasive western juniper and undesirable woody vegetation from riparian areas. • Maintain, re-route, eliminate, and/or rehabilitate roads having a negative impact on riparian areas. • Livestock salting sites would be located ¼ from riparian areas to discourage damaged by livestock. • Manage riparian/wetland areas using a watershed basis. Involve interested landowners and effected parties.					
Management Action	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Construct livestock water developments outside riparian and wetland areas	No	Yes	Yes	No	Yes
Construct and/or maintain livestock exclosures to protect early seral stage plant communities and those FAR	No	Yes; emphasize temporary fencing	Yes; fence areas not meeting PFC	No	Yes, 500 acres
Plant woody riparian vegetation in plant communities dominated by willows	No	No	Yes	Yes	Yes
Construct new water developments in intact playas, lakebeds, and silver sagebrush communities	Allowed if no adverse impact on special status species	Allowed if no adverse impact on special status species	Not allowed	Allowed if no adverse impact on special status species	Not allowed
Re-route roads through Little and Big Buck Meadows; rehabilitate existing roads with native herbaceous vegetation	No	No	Yes; and close all routes in riparian areas	No	Yes
Improve riparian vegetation for native fish; install in-stream structures for habitat improvement	No	No	Yes	No	Yes

VEGETATION (continued)

ASPEN COMMUNITIES

Management Common to All Alternatives:

- Use the aspen delineation project protocol (Bartos and Campbell, 1998) to classify remaining stands that have not been mapped.
- Approximate a natural disturbance regime in selected aspen stands using a variety of treatment methods (e.g., fire, mechanical, root-ripping, herbicides.)
- During rehabilitation treatments, retain old growth juniper and other conifers greater than 12 inches DBH.
- Protect all silvaglyphs (historical carvings and drawings) during treatment procedures.
- Exclude livestock from non-regenerating aspen stands until saplings reach a minimum height of six feet.
- Locate livestock salting sites at least ¼ mile away from aspen groves.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Remove invasive conifers to create healthy, multi-aged aspen stands **Area treated (acres/year)**	Use prescribed fire and mechanical treatments 0–15	Use prescribed fire, mechanical, and chemical treatments 5–100	Use prescribed fire and mechanical treatments 5–15	Use prescribed fire, mechanical, and chemical treatments 1–15	Use prescribed fire, mechanical, and chemical treatments 5–100
Exclude livestock from aspen stands using:					
• **Permanent fencing (acres)**	0	100	500	50	200
• **Temporary fencing (acres)**	0	400	0	200	300
Exclude livestock from aspen stands larger than ½ acre for 2 years following wildland or prescribed fire	No	No	Yes	No	Yes

CURLLEAF MOUNTAIN MAHOGANY

Management Common to All Alternatives:

- Inventory curlleaf mountain mahogany stands to assess biologic integrity, associated species, and seral stage. Develop management actions based on seral stages.
- Treat stands according to the following priority: 1) decadent stands without seedlings, 2) stands invaded by conifers, 3) younger stands with (relatively) recent conifer invasion, 4) stands invaded by cheatgrass or other noxious weeds, and 5) stands heavily used by ungulates.
- Achieve a conifer canopy cover of 25% or less in stands of pre-settlement juniper/curlleaf mountain mahogany and eastside pine/curlleaf mountain mahogany.
- Control noxious weeds in and adjacent to curlleaf mountain mahogany stands prior to any treatment procedure.
- Protect previously burned curlleaf mountain mahogany from wildlife until saplings are sufficiently mature to withstand browsing.

VEGETATION (continued)					
CURLLEAF MOUNTAIN-MAHOGANY (continued)					
Management Action	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Rejuvenate or maintain stands of curlleaf mountain mahogany through selected treatments	Use prescribed fire and removal of conifers	Use prescribed fire, grass-specific herbicides, and removal of conifers	Use prescribed fire and WFU, plus removal of conifers	Use prescribed fire and removal of conifers	Prescribed fire, WFU, manual, mechanical, and chemical treatments; protection from browsing
(acres/year)	0–1,000	10–4,000	10–500	50–1,000	10–1,000
OAK WOODLANDS					
Management Common to All Alternatives: • Inventory oak woodlands to assess biologic integrity, fuel loading of conifers and shrubs in the understory, and presence of exotic annual grasses. • Develop 'Desired Future Condition' specifically for Oregon white oak and blue oak associations. • Treatments would include prescribed fire (light to moderate intensity), and removal of invasive juniper and high-density pine. • Initiate treatments in stands where no seedlings or saplings are present and where trees are at risk from high intensity wildfires.					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Rejuvenate or maintain oak woodlands with abundant saplings and in mixed age classes through selected treatments	Use prescribed fire	Use prescribed fire and manual removal of conifers	Use prescribed fire and WFU, plus manual removal of conifers	Use prescribed fire, fuels reduction, and juniper removal	Use prescribed fire and WFU, plus mechanical and manual removal of conifers
(acres/year)	0–100	10–1,500	10–500	0–5,000	10–5,000
Manage select stands of California black oak for a seral stage including conifers	No management planned	Control saplings to favor establishment of merchantable pine timber	Employ natural regeneration	Control saplings to favor establishment of merchantable pine timber	Control saplings to favor establishment of merchantable pine timber
Allow consumptive uses of dead-and-downed oak trees	Yes	Yes	Yes	Yes	No; except to clear dead trees within 66 feet of open roads and the WUI

NOXIOUS WEEDS and INVASIVE SPECIES					
Management Common to All Alternatives: • Eliminate or control the spread/density of noxious weed infestations using the IWM program. The program would be implemented in cooperation with CDFA; the counties of Modoc, Lassen, Shasta, Siskiyou, and other nearby counties; private landowners; and other interested parties. • Periodic inventories would be used to detect new infestations and monitor the condition of existing infestations. The highest priority for noxious weed inventory would be critical wildlife habitat, at-risk plant communities, high-use areas, and recreation sites. • Hay, straw, and mulch used for any purpose must be certified noxious weed free. • Develop a training program for BLM employees. Develop and conduct a public outreach plan to educate the public regarding the importance of preventing the introduction, establishment, and proliferation of noxious weeds.					
Management Actions: Integrated Weed Management	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Prioritize areas for noxious and invasive weed control using IWM:					
Employ treatments on disturbed areas: roads, ROWs, livestock watering sites and trailing routes, recreation sites	Yes	No	Yes	Yes	Yes
Emphasize sites that produce commodity resources	No	Yes	No	No	No
Emphasize early detection and rapid response to new infestations	No	No	Yes	No	Yes
Emphasize restoration of infested sites to native vegetation	No	No	Yes	No	Yes
Conduct IWM inventories in coordination with adjacent weed management areas for early detection of new infestations	Yes	Yes, emphasize infestations with high potential to affect production of commodity resources	Yes, emphasize less-disturbed, more remote, and previously inventoried areas	Yes	Yes, emphasize less-disturbed, more remote, and previously inventoried areas

SPECIAL STATUS PLANTS					
Management Common to All Alternatives: • Develop conservation agreements or species management guidelines for special status plants. • Project proposals would be reviewed prior to implementation to determine if they would affect BLM special status species. Projects would incorporate recommendations of the California Special Status Plant Policy (CA-BLM Manual Supplement H-6840-1, Special Status Plant Management) to ensure that BLM actions would not contribute to the necessity of listing a species under the Endangered Species Act. • Ensure the maintenance of viable populations of endangered, threatened, and BLM special status plant species.					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Prioritize management actions to protect individual populations of special status plants	Maintain existing populations	Maintain existing populations	Restore and enhance special status species habitats; Maintain populations on ≤ 5 acres and allow 20% maximum reduction in numbers or occupied habitat	Maintain existing populations and allow 25% maximum reduction in numbers throughout species range	Restore and enhance special status plant habitats; Maintain populations on ≤ 5 acres and allow 20% maximum reduction in population in locations with >500 plants on >1 acre.
Acquire lands from willing sellers to protect special status plant habitats	No	No	Yes	No	Yes
Limit disposal of lands that support special status plant habitats: • **Maximum disposal of 25% of lands supporting a special status plant** • **Maximum disposal of 5% of lands supporting a special status plant with limited distribution**	No	No	Yes	Yes, but no land disposals where action would result in listing under Endangered Species Act	Yes
Manage special interest species similar to special status plants to prevent deterioration and future listing	No	No	Yes	No	Yes
Manage OHV use in Ash Valley ACEC/RNA and the Westside Grazing Allotment to protect special status plants **(acres)**	Open (1,322)	Limited to Existing Routes (1,322)	Closed in Ash Valley; Limited to Designated Routes in Westside Allotment	Limited to Designated Routes (1,322)	Limited to Designated Routes (1,322)

VISUAL RESOURCE MANAGEMENT

Management Common to All Alternatives:

- Public land would be managed to achieve VRM objectives by VRM classification.
- WSAs would be managed under VRM Class I. Should Congress decline to designate a WSA as wilderness, the area would return to the original inventoried VRM class, unless it has been reclassified due to overlap with a special management area.
- ACECs, WSRs, historic trails, or other special designations would be managed as VRM Class II, unless the area is managed as Class I under other resource prescriptions.
- All developments, land alterations, and vegetation manipulations would be designed to minimize visual impacts. All projects would be designed to maximize scenic quality while minimizing scenic intrusions.
- Assign Visual Resource Management Classes as follows:

VRM Class	Acres
Class I	56,648
Class II	157,177
Class III	104,006
Class IV	185,214

WATER RESOURCES

HYDROLOGIC FUNCTION AND WATER QUALITY

Management Common to All Alternatives:

- Establish PFC on 15 miles of streams, 22 acres of springs, and 46 acres of wetlands.
- Achieve state water quality standards and the needs of (state-designated) beneficial users on 17 miles of streams.
- Amend CA basin plans to reflect appropriate water quality standards.
- All resource management programs would use recognized BMPs for water resource protection.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize restoration treatments to improve hydrologic function and water quality:					
• **Allow natural recovery of sites**	No	No	Yes	No	Yes
• **Improve livestock grazing strategies**	Yes	No	No	Yes	Yes
• **Reduce wild horse levels**	Yes	No	No	Yes	No
• **Install in-stream structures**	Yes	Yes	Yes, natural structures only	Yes	Yes
Implement bio-engineering projects for erosion control (miles)	5	25	2	10	25
Construct exclosures to protect streams, wetlands, and spring sources from excessive grazing by livestock and wild horses					
• **Permanent exclosures (acres)**	500	500	3,000	200	500
• **Temporary exclosures (acres)**	0	500	0	0	0
Restrict uses and activities in riparian areas, streams, and contributing upland watersheds	Uses allowed as long as there is progress toward attaining water quality and riparian objectives	Uses allowed as long as there is progress toward attaining water quality and riparian objectives, PFC, and land health standards	Uses allowed as long as there is unimpeded progress toward attaining state water quality standards, riparian objectives, and PFC	Uses allowed as long as there is progress toward attaining water quality and riparian objectives	Uses allowed as long as there is progress toward attaining state water quality standards, riparian objectives, and PFC

WATER RESOURCES (continued)

WATER SUPPLY

Management Common to All Alternatives:

- Maintain existing water sources and manage to promote wildlife habitat, improve distribution of livestock and wild horses, and maintain recreational uses.
- Selectively develop springs and protect associated riparian ecosystems.
- Protect federal investments by asserting water rights on waters of the state.
- Projects that involve inter-basin transfer of water would be coordinated with local and regional governments.
- Develop a reservoir management plan to support wildlife and fisheries.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize development of new water sources based on the following objectives:					
• **Improve water availability for recreation uses**	No	Yes	No	No	No
• **Improve livestock distribution**	Yes	Yes	No	Yes	Yes
• **Provide water for wild horses**	Yes	No	No	No	Yes
• **Extend seasonal water availability for wildlife**	No	Yes	Yes	No	Yes
• **Provide water for commercial energy development**	No	Yes	No	No	No
Construct new water developments e.g., reservoirs, stock ponds, dugouts (number)	75	100	20	50	75
Consider withdrawal of state-appropriated water rights on waters that are not "waters of the state"	No	Yes	Yes	Yes, on stock pond permits	Yes
Assert riparian rights on all perennial and important intermittent streams	No	No	Yes	No	Yes

WILD HORSES AND BURROS

Management Common to All Alternatives:

- Horses will be periodically removed to maintain established AML.
- Monitor herd(s) and collect data (aerial and/or ground monitoring) at 3-year intervals. AML would be reduced if monitoring data indicates wild horse populations cannot be sustained at the established level and a thriving, ecological balance maintained.
- The Strip Allotment—which is part of the Devil's Garden Horse and Burro Territory—would continue to be managed in cooperation with the USDA Forest Service under a 1980 MOU.

Management Actions	No Action	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Manage wild horses within established HMAs **(number)** **(acres)**	 1 16,895	 0 0	 0 0	 1 16,895	 1 16,895
Maintain populations within AMLs: **(AML range)**	 16-25	 0	 0	 16-25	 16-25
Prioritize selection of animals returned after gathers based on specific traits	Numbers only; no particular characteristics selected	Not applicable	Not applicable	Numbers only; no particular characteristics selected	Numbers only; no particular characteristics selected

WILDLIFE AND FISHERIES

FEDERALLY LISTED SPECIES

Management Common to All Alternatives:

Bald Eagle:

- Manage in accordance with Section 7(a)(1) and Section 7(a)(2) of the Endangered Species Act, the Pacific Bald Eagle Recovery Plan, BLM Manual 6840, existing habitat management plans, and terms and conditions contained in plan and program-level biological opinions.
- Expand coordinated annual surveys monitoring bald eagle nesting sites to determine the presence of individuals and monitor reproductive success.
- Conduct annual mid-winter surveys with cooperators. Surveys would be conducted in Big Valley, the upper Pit River Valley, and the eastern portion of the Goose Lake area.
- Implement seasonal protective measures and buffer zones appropriate for permitted activities. (Refer to Table 2.24-3 in the text.)
- Develop habitat management plans for the Conrad Ranch and Timbered Crater nesting areas, as well as the Juniper Creek roosting site.

Modoc, Shortnose, and Lost River Suckers, and Shasta Crayfish:

These species and their habitats (where and when found) will be managed according to existing recovery plans and the terms and conditions of plan and program-level biological opinion.

Northern Spotted Owl:

The AFO does not have a recovery plan for this species, since neither populations nor suitable habitats have been found. Northern spotted owl and its habitat will be managed per existing terms and conditions contained in plan and program-level biological opinions. The AFO lies outside the Northwest Forest Plan area (which incorporates the federal contribution to recovery of this species.) However, if a population and/or suitable habitat were to be discovered, it would be managed according to the terms and conditions of plan and program-level biological opinion.

Yellow-Billed Cuckoo and Oregon Spotted Frog:

These species have not been found in the management area. However, the AFO will contribute to appropriate survey efforts and – if a population of either species is discovered – would develop conservation and action plans.

WILDLIFE AND FISHERIES (continued)

STATE-LISTED AND BLM SENSITIVE SPECIES

Management Common to All Alternatives:

- The AFO will remain an active partner with CDFG, USFWS, the USDA Forest Service, and other conservation partners to determine the status and improve conditions for state-listed and BLM sensitive species and their critical habitats.
- Cooperate with partners to obtain information regarding the occurrence, abundance, and distribution of state-listed and BLM sensitive species.
- A GIS database would be developed (in cooperation with conservation partners) to document and track information on these species.
- For populations found on BLM-administered lands, develop an interdisciplinary plan with the following components: (a) involvement of recognized experts, (b) thorough review of literature and information-gathering from local or other relevant studies, (c) list all potential actions, (d) develop an implementation strategy.
- Where appropriate, seasonal protective measures and buffer zones would be enforced where permitted activities compromise utilization of critical habitat by any of these species. (Refer to Table 2.24-3).

UNGULATES

Management Common to All Alternatives:

- Meet the criteria for Standard 5, the land health standard for biodiversity (as applicable to wildlife.)
- Management will focus on priority habitats to maintain and improve ecological conditions.
- Management tools would include seeding and planting of shrubs, forbs, and grasses as part of fire rehabilitation or in other situations to maintain or enhance ungulate habitats. Vegetation manipulation (e.g., willow thinning or enhancement) would also be used to improve or maintain terrestrial and aquatic habitats.
- Eliminate or significantly reduce medusahead, cheatgrass, and other exotic annual grasses and noxious weeds using IWM protocols.
- Cooperate with state agencies to amend and update HMPs and GIS databases for ungulates.
- Maintain existing exclosures to protect important vegetation and other biological resources.
- If Rocky Mountain elk become established in the management area, coordinate with state wildlife agencies and other stakeholders, including livestock owners, to develop and implement a management plan.
- The AFO would coordinate with CDFG in the development of a management plan prior to reintroduction of California bighorn sheep. Reintroduction, transplantation, and natural expansion of bighorn sheep populations would be allowed. Where needed, poor-quality habitat in historic sheep range would be improved.
- Provide artificial water sources (guzzlers) in areas with high potential for wildlife use or where natural water sources are depleted or limited. Leave water in cattle troughs for wildlife use from June through October of each year.
- Eliminate or reduce invasive juniper where encroachment has reduced the ecological potential of ungulate habitats.

WILDLIFE AND FISHERIES (continued)					
UNGULATES (continued)					
Management Action	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional Use**	**Preferred Alternative**
Prioritize management areas for improvements to mule deer and black-tailed deer habitats	Follow guidelines from current Herd Management Plans on 503,045 acres	Focus management on Priority Habitat Areas - 128,000 acres	Focus management on Priority Habitat Areas and all identified winter ranges - 148,000 acres	Follow guidelines from current Herd Management Plans on 503,045 acres	Focus management on Priority Habitat Areas - 128,000 acres
Prioritize management areas for improvements to pronghorn habitats by maintaining healthy low sagebrush habitat	Follow guidelines from current Herd Management Plans on 384,000 acres	Focus on Priority Habitat Areas - 60, 145 acres, and important habitat - 190,000 acres	Focus on Priority Habitat Areas - 60, 145 acres, and identified high quality habitat - 220,000 acres	Manage 18,000 acres of important pronghorn habitat by reducing medusahead on the Likely Tablelands	Focus on Priority Habitat Areas - 60,145 acres, and identified high quality habitat - 130,000 acres
Construct fences to protect important ungulate habitats: aspen, bitterbrush, oaks, mahogany, riparian areas, and springs:	Construct new fencing on a case by case basis	Protect springs and other habitats case-by-case	Fence all springs; fence other habitats case-by-case	No maintenance of existing fencing; fence other habitats case-by-case	Fence springs not meeting land health standards; fence other habitats case-by-case
• **Temporary fencing for aspen groves (acres)**	0	400	0	200	300
• **Permanent fencing for aspen groves (acres)**	0	100	500	50	200
• **Temporary fencing for riparian areas (acres)**	0	500	0	0	0
• **Permanent fencing for riparian areas (acres)**	0	500	250	60	500
Assign OHV designations to protect wintering ungulates: (acres)					
• **'Open'**	442,767	0	0	0	0
• **'Limited to Existing Routes'**	2,500	14,260	0	14,260	4,260
• **'Limited to Designated Routes'**	5,780	34,000	78,260	64,000	74,000
• **'Closed'**	860	860	860	860	860

WILDLIFE AND FISHERIES (continued)					
UNGULATES (continued)					
Assign seasonal road closures to protect wintering ungulates on the following areas: • **Likely Tablelands** • **Barnes Grade** • **Day Bench**	 No Closure No Closure No Closure	 12/1-4/15 11/15-4/15 No Closure	 12/1-4/15 11/15-4/15 11/15-4/15	 No Closure No Closure 11/15-4/15	 12/1-4/15 11/15-4/15 11/15-4/15
Control invasive juniper to benefit wildlife • **Create diverse & healthy conditions in multiple habitat types using the following treatment methods**	Implement treatments on a project basis	Use mechanical harvest for biomass and woodcutting	Use mechanical treatments and prescribed fire	Use woodcutting on a project basis	Use a combination of treatment types
Establish sustainable livestock grazing use and adjust as necessary to benefit ungulate habitat: • **Establish grazing use levels for each pasture in priority habitats** • **Manage livestock grazing on the Likely Tablelands to reduce conflicts with fawning deer and kidding antelope**	 No, follow grazing guidelines Follow AMPs	 Yes Exclude grazing in May and June	 Yes Close the eastern portion to livestock grazing	 No, follow grazing guidelines Follow AMPs	 Yes Leave adequate forage for wintering ungulates

WILDLIFE AND FISHERIES (continued)

SAGEBRUSH ECOSYSTEMS AND SAGEBRUSH-OBLIGATE/ASSOCIATED SPECIES

Management Common to All Alternatives:

- Meet the criteria for Standard 5, the land health standard for biodiversity (as applicable to wildlife.)
- Identify and maintain sagebrush habitats that have a thriving understory of native vegetation.
- Implement juniper reduction to enhance sagebrush ecosystems; focus on providing diversity in shrub age class and composition and healthy understory vegetation.
- Restore natural disturbance processes (such as fire) by implementing fuels treatments, including prescribed fire and thinning projects, in accordance with *Conservation Strategies for Sage-grouse etc.*
- Especially in sagebrush habitats; use locally gathered (when available) native seeds and plants in all seeding, re-vegetation and rehabilitation projects, in accordance with BLM-California's native seed policy.
- Eliminate, reduce, or control alien weeds and invasive native plants using the IWM program.
- Avoid practices that permanently convert sagebrush habitat to non-native grasslands or agricultural uses.
- Implement seasonal protective measures and buffer zones appropriate for permitted activities. (See Table 2.24-3.)

Sage-grouse:

Implement locally developed strategies found in *Conservation Strategies for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle, Likely Tablelands/Rocky Prairie and Devil's Garden/Clear Lake Population Management Units*. Utilize translocation to augment low populations in conjunction with habitat management projects.

Burrowing Owl:

Inventory and map suitable habitat. Attempt to detect and quantify species occurrence. Develop a conservation strategy to protect identified nesting burrows and other seasonal habitats. Develop assessment parameters for habitat needs and range assessment. Develop BMPs for other resource management activities effecting burrowing owl habitat. Protect identified or potential habitat while considering proactive management such as artificial burrows, water developments, prey enhancement projects, etc.

Pygmy Rabbit:

Inventory and map suitable habitat and determined species abundance. Develop a conservation strategy to protect occupied habitat. Develop assessment parameters for habitat needs and range assessment. Develop best management practices for other resource management activities effecting pygmy rabbit habitat. Extend management considerations into all potential habitat areas.

Other sagebrush-obligate species:

Survey to determine use of sagebrush habitats by sagebrush-obligate species. Determine demographic trends and habitat utilization for these species for utilization in medium- and large-scale area, regional, and national strategies for managing sagebrush-obligate species. Use all existing legal authority, including Executive Order 13186, to direct site-specific management, including assessment parameters for species-specific range assessments and habitat needs for all sagebrush-obligate species.

WILDLIFE AND FISHERIES (continued)

OTHER NATIVE WILDLIFE SPECIES

Management Common to All Alternatives:

- Meet criteria for Standard 5 in Standards for Rangeland Health: Wildlife Biodiversity
- Utilize plantings, seedings, or other vegetation management to maintain and improve terrestrial and aquatic habitats.
- Follow BLM policy, guidelines, current conservation plans, MOUs. Plans include Partners in Flight "Birds in a Sagebrush Sea", the Nevada BLM "Migratory Birds Best Management Practices for the Sagebrush Biome" and the Nevada Bat Conservation Plan (2002), BLM Manual 1745 -Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife and Plants. Coordinate with state wildlife agencies.
- Manage special habitats to maintain or enhance biodiversity and sustain healthy multi-aged stands of aspen, mountain mahogany, oak woodlands, bitterbrush, riparian and wetland areas, springs, and a variety of mountain shrub communities.
- Provide sufficient water distribution to meet the needs of upland game birds and other wildlife. Maintain current guzzlers and construct new in areas where natural water sources are limited.
- Construct brush piles for upland game birds and small mammal habitat.
- Implement seasonal buffers and protections measures to reduce or avoid disturbance to nesting raptors, cranes, herons, and important caves used by sensitive bats (see Table 2.24-3).

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement maintenance and enhancement projects to protect meadows, springs, and riparian areas	Maintain current projects; All projects implemented on a case by case basis	No new meadows would be fenced; Protect springs and other habitat types on a case by case basis	Meadows would be fenced on a case by case basis; Fence all springs	No regular maintenance on existing structures; All projects implemented on a case by case basis	Meadows would be fenced on a case by case basis; Fence all springs not meeting the Land Health Standards
Construct fences to protect important riparian and/or meadow habitats:					
• **Temporary fencing (acres)**	0	500	0	0	0
• **Permanent fencing (acres)**	0	500	3000	200	500
Manage reservoirs to improve spring waterfowl production by maintaining existing nesting islands (see Table 2. 24-4).	Maintain the 12 reservoirs where nesting islands exist	Maintain the 12 reservoirs where nesting islands exist	Maintain the 12 reservoirs where nesting islands exist	No regular maintenance on existing structures	Maintain the 12 reservoirs where nesting islands exist
Create new waterfowl nesting islands on reservoirs (number)	0	26	26	0	26

WILDLIFE AND FISHERIES (continued)					
OTHER NATIVE WILDLIFE SPECIES (continued)					
Construct new waterfowl nesting islands to protect nesting areas (number)		27	17	0	26
Fully fence select reservoirs to exclude all grazing in order to protect and enhance waterfowl nesting habitat (number)	0	2	12	0	19
Promote good foraging habitat and protect it from catastrophic fire by implementing specific fuels treatment methods	All methods allowed	Utilize prescribed fire and mechanical methods	Utilize prescribed fire	Utilize prescribed fire and mechanical methods	All methods allowed
Implement brush mowing to enhance habitats	No	Yes	No	No	Yes
Establish green strips to reduce fire impact on habitat	No	No	Yes	No	Yes
Rehabilitate plant communities through planting and re-seeding of perennial and annual species	Use native shrubs, forbs, grasses and seeds in accordance with Native Seed Policy	Use native and non-native shrubs, forbs, grasses and seeds to provide multiple use opportunities	Use only native shrubs, forbs, grasses and seeds in accordance with Native Seed Policy	Use native and non-native shrubs, forbs, grasses and seeds. Including single species seedings of crested wheatgrass and other similar grasses	Use native and non-native shrubs, forbs grasses and seeds to provide multiple use opportunities

WILDLIFE AND FISHERIES (continued)

NATIVE / NON-NATIVE FISH AND OTHER AQUATIC SPECIES

Management Common to All Alternatives:

- Meet criteria for Standards 2 and 4 in Standards for Rangeland Health: Streams, Riparian and Wetlands.
- Use planting, seeding, or other vegetation management methods to maintain and improve aquatic habitats.
- Perform a comprehensive inventory of riparian habitat to identify fish species and populations.
- Improve streams and springs not meeting PFC. Design and implement projects based on BMPs for restoration and rehabilitation. Projects include but are not limited to maintaining or improving minimum pool depths, increasing clean spawning gravels, and implementing bank stabilization measures where needed
- Maintain native fish-bearing streams in proper water quality and riparian function, in accordance with BLM Land Health Standards, Guidelines for Livestock Grazing, PFC, and BMPs.
- Coordinate with state wildlife agencies to implement management actions in accordance with their plans, including planting of fish in appropriate waters.
- Maintain currently established dams and reservoirs to provide a safe environment for public activities.
- Coordinate with local county fish and game commissions and local sportsmen's groups to determine management priorities and enhancement opportunities.
- Develop additional reservoirs as appropriate. Explore development of waterways to emphasize fisheries based on biological potential and habitat capabilities.
- Native fish would have priority management in most cold water streams. These streams would be managed to maintain distribution of native species that would promote natural dispersal and re-colonization among populations and allow species interactions that are part of the ecosystem processes.

NON-NATIVE SPECIES

Management Common to All Alternatives:

- Manage for exotic or domesticated species according to BLM Manual 1745—Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants.
- Manage to reduce or eliminate populations of non-native or invasive species that are impacting native species and/or habitats in a manner consistent with state and federal policies, procedures, and regulations.
- Implement management measures from state plans and other conservation plans (Partners in Flight, Intermountain West Joint Venture, etc.) to manage, control, or eliminate non-native or invasive species.

Impacts Summary Table

Air Quality				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall negligible impacts due to the relatively low acreage annually burned (5,000 acres). Negligible to minor long-term beneficial effects would result from actions implemented to reduce wildland fire potential.	Overall moderate beneficial effect. Smoke from wildland fires, annual prescribed burning (10,000 acres), and WFU (69,000 acres) would result in minor short-term adverse affects. A moderate long-term beneficial effect would result from actions implemented to reduce wildland fire potential.	Overall moderate beneficial effect. This alternative would result in the highest adverse impacts to air quality from smoke from prescribed burning on up to 25,000 acres annually, and WFU on 220,000 acres. Results would be minor to moderate short-term adverse affects. Moderate to major long-term beneficial effect would result from actions implemented to reduce wildland fire potential.	Same as No Action Alternative, except 7,500 acres would be treated annually with prescribed fire.	The Preferred Alternative would result in negligible adverse impacts and moderate beneficial effects to air quality. Smoke from wildland fires, annual prescribed burning (10,000 acres), and WFU (16,998 acres) would result in minor short-term adverse affects. A moderate long-term beneficial effect would result from actions implemented to reduce hazardous fuels and wildland fire potential.

Cultural and Paleontological Resources				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall impacts would be moderately high. There would be minor to major adverse impacts to unprotected/unrecorded resources from actions associated with fire suppression, fuels reduction, OHV use, mineral leasing, 'Open' fuel wood cutting, wild horse grazing and the range program. OHV restrictions/closures in resource sensitive areas and WSAs would have minor to major beneficial effects. The construction of exclosures for wildlife and riparian protection would have minor to major beneficial effects.	Overall impacts would be the highest. There is potential for major adverse impacts due to the large number of acres designated for treatment through fuels projects, juniper and timber harvesting and biomass projects and the construction of new roads. The increased numbers of permitted livestock would have minor to major adverse effects. The use of WFU on 69,000 acres and AMR on 486,047 acres would have minor to moderate benefits for cultural and paleontological resources. The increased development of recreational facilities would result in minor to moderate short- and long-term effects, both adverse and beneficial.	Overall impacts would be the lowest. This lower potential for adverse effects would be due to the relatively low numbers of acres to be treated through juniper and timber harvesting, biomass projects, and the construction of new roads. Increased acres designated for exclosures and ACECs would have negligible to major beneficial effects. Reduction in overall numbers of livestock would have minor to major beneficial effects. The use of prescribed fire on 222,000 acres and AMR on 281,045 acres would have minor to moderate benefits for cultural and paleontological resources.	Impacts would be moderately low and similar to Alternative 2 for Fire and Fuels management, road construction and fuel wood cutting management actions. The relative lack of mechanical harvesting of juniper would have effects similar to the No Action alternative. Grazing and wild horse and burro management would have the same impacts as the No Action alternative. Energy and Minerals management, OHV, and recreational management actions would have impacts similar to Alternative 1.	The Preferred Alternative would result in moderate to major adverse impacts and moderate beneficial effects to cultural resources. There is potential for major averse impacts due to the large number of acres designated for fuels projects, juniper and timber harvesting, and the construction of 60 miles of new roads. Livestock grazing and wild horse use could impact cultural resources through trampling and pawing that mixes depositional associations and accelerates erosional processes, wallowing and trailing that results in the dispersion breakage and/or loss of artifacts and other data, rubbing against standing structures, and chemical reactions to urine and feces that result in the accelerated deterioration of historic properties. Minor to moderate beneficial effects would be achieved through the designation of six ACECs and culturally significant properties by promoting management goals focused on preserving cultural resources. OHV use would be mostly 'Limited to Existing or Designated Routes', which would reduce damage to sites from cross-country travel.

Energy and Minerals – Leasable, Locatable, Saleable				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall negligible effects due to the small area 'Closed' to energy and mineral development.	Minor adverse effects due to new surface use and occupancy restrictions. These would outweigh the minor beneficial effects resulting from new road construction.	Overall major adverse effects. The adverse effects relate to surface use restrictions. 79% of the area would be 'Open' to leasing, however, 57% of this area would be subject to an NSO restriction. Increased costs for mineral or energy development would be substantial.	Moderate impacts are due to the increased area subject to the NSO restriction along with other surface use and occupancy requirements.	The Preferred Alternative would result in minor adverse impacts and minor beneficial effects to energy and mineral development from surface use and occupancy restrictions. 84% of the AFO would be 'Open' to leasable minerals, 93% would be 'Open' to locatable minerals, and 86% would be 'Open' to saleable minerals. Minor beneficial effects would result from realty actions and new road construction.
Energy and Minerals – Renewable Energy				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall impacts would be minor to moderate resulting from WSAs (11% of the AFO management area) excluded from new development. In addition, 63% of the field office would be managed to meet VRM Class I, II, and III objectives.	Overall impacts would be minor to moderate resulting from WSAs and five ACECs (19% of the AFO management area) excluded from new development. In addition, 63% of the field office would be managed to meet VRM Class I, II, and III objectives. Minor beneficial effects may accrue from realty actions and if Congress releases WSAs from wilderness study.	Overall impacts would be minor to moderate, resulting from WSAs and ten ACECs (28% of the AFO management area) excluded from new development. In addition, 63% of the field office would be managed to meet VRM Class I, II, and III objectives. Minor beneficial effects may accrue from realty actions and if Congress releases WSAs from wilderness study.	Overall impacts would be minor to moderate resulting from WSAs and two ACECs (12% of the AFO management area) excluded from new development. In addition, 63% of the field office would be managed to meet VRM Class I, II, and III objectives. Minor beneficial effects may accrue from realty actions and if Congress releases WSAs from wilderness study.	Overall impacts would be minor to moderate. Lands within WSAs, the Lower Pit River WSR corridor, and six ACECs would be excluded from renewable energy development (17% of the AFO management area). 63% of the field office would be managed to meet VRM Class I, II, and III objectives. Minor beneficial effects may accrue from realty actions and road development.

Environmental Justice					
No Action Alternative	**No Action Alternative**	**No Action Alternative**	**No Action Alternative**	**No Action Alternative**	**No Action Alternative**
Impacts on environmental justice communities from proposed management actions are not expected to be significant.	Impacts on environmental justice communities from proposed management actions are not expected to be significant.	Impacts on environmental justice communities from proposed management actions are not expected to be significant.	Impacts on environmental justice communities from proposed management actions are not expected to be significant.	Impacts on environmental justice communities from proposed management actions are not expected to be significant.	

Fire and Fuels				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would have negligible to minor adverse impacts to the fire and fuels program. 100% of the field office area would use full suppression management, resulting in the continuation of the buildup of fuels, increasing the probability of large wildfires. Juniper and other fuels reduction treatments would occur at a rate of about 5,000 acres annually. This would result in restoration of 100,000 acres of native plant communities over the life of the plan. Livestock grazing would occur at present levels, resulting in negligible beneficial effects of restoring natural fire regimes. Routes within 491,845 acres would be 'Open' for OHV use, which would pose an increased risk of human-induced wildfire.	This alternative would result in minor beneficial impacts to the fire and fuels program. Most of the field office area would use AMR fire suppression reducing the buildup of fuels. Up to 200,000 acres could be treated with fire and other fuels reduction treatments over the life of the plan. Livestock grazing would occur at present levels, resulting in negligible beneficial effects of restoring natural fire regimes. The entire field office area would be 'Open' to OHV travel, posing greater risk of human-induced wildfire than any of the other alternatives.	This alternative would provide moderate beneficial impacts, as the use of adaptive management and the AMR for wildland fire suppression is emphasized. OHV use is restricted. Negligible adverse effects would result from increased fine fuels due to reductions in livestock grazing.	Overall minor beneficial effects resulting from fuels treatments on up to 150,000 acres over the life of the plan. However, the predominant fire management strategy in the field office would continue to be full suppression.	The Preferred Alternative would result in negligible adverse impacts and moderate to major beneficial effects to fire and fuels management. The use of adaptive management and AMR for wildland fire suppression would help to restore fire regime condition classes. Hazardous fuels reduction would be emphasized on up to 23,000 acres per year, in order to reduce the risk of catastrophic wildfire. Improvements to livestock grazing strategies and vegetation restoration treatments would help to restore natural fire regimes. Only 80 acres would be 'Open' to OHV use, which would reduce the risk of human-caused ignitions.

Forestry				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Major short- and long-term adverse effects would be associated with high catastrophic fire potential under the No Action Alternative. Treatments could result in major long-term beneficial effects.	Major long-term beneficial effects to forestry would outweigh any short-term adverse effects through the use of AMR, WFU, and treatments. There would be a reduced potential for catastrophic fire.	Moderate long-term beneficial effects to forestry would outweigh any short-term adverse effects through the use of AMR, WFU and treatments. The result would be reduced potential for catastrophic fire.	Moderate long-term beneficial effects to forestry would outweigh any short-term adverse effects through the use of AMR, and treatments which would result in reduced potential for catastrophic fire.	The Preferred Alternative would result in negligible adverse impacts and moderate to major beneficial effects to forestry management. The use of AMR for fire suppression, combined with aggressive fuels reduction, would result in moderate to major long-term beneficial effects to forestry by reducing the potential for catastrophic wildfire. Benefits would outweigh any short-term adverse effects. Mechanical thinning on 12,000 acres would remove canopy fuels, decrease the risk of catastrophic wildfires, improve forest health, and yield saleable logs. A 5,000-acre decrease in severe, stand-replacing wildfires is possible under this alternative, primarily due to increased emphasis on fuels management.

Lands and Realty				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall negligible effects to the lands and realty program. Existing LTAP will continue to be implemented focusing on consolidating ownership patterns, disposing of scattered parcels and acquiring significant natural and biological resources.	Overall minor beneficial effects to the lands and realty program. Potentially minor beneficial modifications to the LTAP include the conservation easement pilot project. Negligible impacts are expected due to historic trail and other site development.	Overall minor beneficial effects to the lands and realty program. Potentially minor beneficial modifications to the LTAP include partial conversion of the Madeline disposal area into a retention/ acquisition area.	Overall negligible effects to the lands and realty program. Existing LTAP will continue to be implemented focusing on consolidating ownership patterns, disposing of scattered parcels and acquiring significant natural and biological resources.	Overall minor beneficial effects to the lands and realty program. Potentially minor beneficial effects would result from modifications to the LTAP, including both the conservation easement pilot project and the Madeline retention/acquisition area proposal.

Lands and Realty – Rights-of-Way				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall effect would be negligible. Existing utility corridor and communication site ROWs would continue to be used. Additional proposals would be analyzed on a case by case basis. This approach would result in the greatest amount of land available for ROW applications of all the alternatives.	Overall effect would be negligible. Slight increase in acreage 'Closed' to ROW development would result in a minor adverse effect. Expansion of existing ROW corridors up to a maximum of 500 feet would result in a minor beneficial effect. BLM would continue current uses and expand new ones at the existing designated communications sites. BLM would maintain total of 32 miles of roads, which is the most road maintenance under any alternative resulting in a minor beneficial effect.	Overall major adverse effects. No additional communication sites or large utility lines would be authorized resulting in a major adverse effect. Residential distribution lines would continue on a case-by-case basis. BLM would provide no maintenance, reconstruction, or modification of roads resulting in a minor adverse effect.	Overall moderate adverse effect. BLM would maximize use of the existing space in transmission lines and no new projects would be authorized independent of existing projects except for residential distribution lines which would be authorized on a case-by-case basis. This would result in a moderate adverse effect. BLM would seek to consolidate existing communication site ROWs and would grant no additional communication site ROWs. This would also result in a moderate adverse effect. BLM would limit road maintenance to 19 miles and would provide no reconstruction or modification of roads resulting in a minor adverse effect.	Overall negligible effect. 435,385 acres would be 'Open' to new ROWs. Slight increase in acreage 'Closed' to ROW development resulting in a minor adverse effect. Preferred Alternative would expand existing transmission line and pipeline project width up to a total of 500 feet and designate existing lines as utility corridors, resulting in a minor beneficial effect. BLM would seek to maximize existing communication sites before opening new ones.

Livestock Grazing				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall negligible effects would occur under the No Action Alternative. AUMs that are available annually would remain unchanged. Negligible to minor effects may occur from managing designated sage-grouse habitat such as change in season of use and livestock grazing systems. Additional use of dispersed recreation areas would also impact livestock grazing at minor to moderate levels.	Overall, moderate beneficial effects would occur to livestock operators as a result of reinstating the Suspended AUMs thus increasing the number of Actual AUMs. Overall vegetation treatments would be twice that of the No Action Alternative and have minor beneficial effects for livestock Additional forage would be made available through a forage reserve during implementation of juniper treatments and would provide minor beneficial effects to livestock operations. Negligible to minor effects may occur from managing designated sage-grouse habitat such as changing season of use and livestock grazing systems.	Overall, major adverse impacts would occur to livestock operators as a result of emphasizing natural values and processes over livestock grazing. AUMs would be reduced by two-thirds as grazing areas would be rested two out of every three years resulting in a significant reduction in available forage. It is anticipated that a large portion of the smaller operations would become uneconomical and go out of business. The loss of AUMs would also directly impact county revenue through reductions in possessory interest tax. Overall vegetation treatments would be five times that in the No Action Alternative but have negligible effects for livestock.	Overall negligible effects would occur under Alternative 3 and would be similar to the No Action Alternative. Actual use AUMs would remain the same. Overall vegetation treatments would be three times that in the No Action Alternative and have minor beneficial effects for livestock. Negligible to minor effects may occur from managing designated sage-grouse habitat such as changing season of use and livestock grazing systems.	The Preferred Alternative would result in minor adverse impacts and minor beneficial impacts to livestock grazing operations. Active AUMs would remain at 54,881. Vegetation restoration treatments, including removal of invasive juniper, would occur on up to 10,000 acres/year, resulting in restoration of native plant communities and a more productive and higher quality forage base. Additional forage would be made available through a forage reserve program during implementation of juniper treatments. Negligible to minor adverse effects may occur from new grazing exclosures, short-term rest required for vegetation treatments, and managing grazing within designated sage-grouse habitat (e.g., changing season of use and livestock grazing systems).

Recreation				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall adverse effects are negligible to minor for recreation when all impacts are considered.	Overall benefits effects are negligible for Recreation when all impacts are considered.	Overall benefits effects are minor to moderate for Recreation when all impacts are considered.	Overall benefits effects are minor to moderate for Recreation when all impacts are considered.	Overall adverse effects are negligible to minor for recreation, and moderate beneficial impacts.
Recreation – Energy and Minerals				
Minor to major adverse effects could occur from mineral and energy development on recreation opportunities. Mineral leasing would be available on 89% (446,397) of public lands with standard terms and conditions. Surface use and occupancy would be on a case by case basis. (continued on next page)	Overall, minor adverse effects would occur to recreation from mineral development. Mineral leasing restrictions would increase substantially with surface use and occupancy requirements applied to 200,000 acres with sensitive resources. (continued on next page)	Overall, negligible adverse effects would occur to recreation from mineral development. Mineral leasing would have surface use and occupancy requirements applied to 50,000 acres which is a moderate decrease from other Alternatives, but NSO stipulations would dramatically increase to 228,000 acres for protection of sensitive resources. All ACECs/RNAs and WSRs would be 'Closed' (103,023) which is a significant increase in resource protection and enhancement of recreation values. (continued on next page)	Overall, minor adverse effects would occur to recreation resources from mineral development. This Alternative is similar to Alternative 1 with the following variations: Mineral leasing has 37,253 acres with NSO stipulations, and 200,000 acres of surface use and occupancy requirements. (continued on next page)	Overall, minor adverse effects would occur to recreation from mineral development. Mineral leasing NSO stipulations would apply to 18,580 acres. (continued on next page)

Recreation – Energy and Minerals (continued)				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Locatable minerals 501,723 acres would be available for mineral development with 1322 acres in the Ash Valley ACEC/RNA withdrawn. Saleable minerals have 446,397 acres available for development. Flat rock collection has 84% of field office lands 'Open', and mineral materials are 'Open' on 89% of public lands. Mineral and energy development, could have adverse effects on recreation opportunities, but mineral potential is low in the area, and development would generally be site-specific and on a case-by-case basis.	Locatable minerals would slightly decrease recreation opportunities with the Ash Valley ACEC/RNA revocation, but a slight increase in wild land protection would occur from the Lower Pit River WSR withdrawal of 2,500 acres. Saleable minerals would have a moderate decrease of 'Closed' acres (23,756) with only WSAs and WSRs 'Closed' to Saleable minerals. Renewable Energy would have a slight benefit to natural settings and recreation with an additional closure of 400 acres for WSRs. Recreation experiences that rely on the natural landscape and key settings would diminish slightly. Mitigation and protection measures would provide buffers, and development would generally be site specific.	Locatable minerals 12 ACECs/RNAs encompassing (84,319) and the Lower Pit River WSR would be 'Closed' to mineral entry which is a substantial decrease in acres available for mining. Saleable minerals availability is reduced substantially, with only 124,000 acres 'Open' for mineral materials, and flat rock collection is 'Closed' on 503,045 acres. Renewable Energy development is 'Closed' on WSAs, WSRs, ACECs/RNAs and all NSO areas encompassing 378,958 acres which represent a dramatic reduction in acres available for wind energy, but benefits for recreation values and natural settings. The major reduction in available acres, closures, and restrictions on leases and development would increase substantially throughout the field office. These actions would maintain the existing character of the area and minimize potential disturbance for enhancement of all recreation activities.	Locatable minerals would have 7,722 acres 'Closed' to mineral entry. Saleable minerals No special stipulations or restrictions on mineral materials or flatrock collection. Renewable Energy Same as Saleable minerals in Alternative 3. Recreation experiences that rely on the natural landscape and key settings would diminish slightly. Mitigation and protection measures would provide buffers, and development would generally be site specific.	Locatable minerals Withdrawals on ACECs/RNAs and WSRs (32,993 acres) would have a significant decrease from Alternative 2, but a modest increase over all other alternatives for closure to mineral entry. Saleable minerals WSRs, WSAs, and ACECs/RNAs outside of WSAs would be 'Closed' to development on 66,670 acres. This would be an insignificant increase over other alternatives except for Alternative 2, which has substantially more acres 'Closed' to Saleable minerals. Renewable Energy Same as Saleable minerals in the Preferred Alternative. Recreation experiences that rely on the natural landscape and key settings would diminish slightly. Mitigation and protection measures would provide buffers, and development would generally be site-specific.

Recreation – Utilities and Rights-of-Way				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor to moderate adverse effects would occur to recreation resources from utility corridors and facilities. Recreation opportunities and activities associated with natural settings and aesthetics would be by slightly reduced. The fewest restrictions to minerals, energy and utilities occur in this alternative, whereas the potential for additional impacts is greatest on 445,000 acres. Infernal Caverns/Rocky Prairie SRMA Minor to moderate adverse effects occur to scenic quality and the Infernal Caverns/Rocky Prairie SRMA, due to the existing Alturas Intertie project which crosses trails and roads which lead to the Battle of the Infernal Caverns. Impacts to VRM, context and setting occur to this significant historical resource.	Minor to moderate beneficial effects to recreation would occur due to more restrictions on utilities, i.e., encourage the use of existing lines, expand existing corridors up to 500 feet, or designate existing lines as corridors. With new utility ROWs and associated roads, this alternative would be similar in acres to the no action alternative with 441,000 acres available for ROWs, although the potential for additional impacts to recreation would be slightly decreased. Infernal Caverns/Rocky Prairie SRMA If the Alturas Intertie project would be designated as a "corridor" major adverse effects would occur to the Infernal Caverns/Rocky Prairie SRMA. The existing alignment is within the high use recreation area and would also cause major adverse effects to the setting and context of the Battle of the Infernal Caverns, and the recreation experiences associated with hiking and viewing significant historical resources.	Major beneficial effects would occur to recreation by prohibiting new utility ROWs and associated roads, as well as the removal of abandoned utilities and facilities. The potential for additional roads and visual impacts to scenic quality would be eliminated. Key recreation sites and natural landscapes would be maintained. These actions would maintain the existing character of the area and minimize potential disturbance, and enhance all recreation activities. Infernal Caverns/Rocky Prairie SRMA Without "corridor" designation of the Alturas Intertie project, no further impacts would occur to the Battle of the Infernal Caverns or recreation activities within the Infernal Caverns/Rocky Prairie SRMA.	Moderate to major beneficial effects would occur to recreation by limiting new utility ROWs and associated roads to 10,000 acres and maximizing available space within existing corridors. The potential for additional roads and utilities with impacts to visual resources, aesthetics, key settings, and natural landscapes associated with recreation activities would be reduced significantly. Infernal Caverns/Rocky Prairie SRMA Without "corridor" designation of the Alturas Intertie project, no further impacts would occur to the Battle of the Infernal Caverns or recreation activities within the Infernal Caverns/Rocky Prairie SRMA	Moderate beneficial effects would occur to recreation, scenic quality, and natural settings due to increased restrictions to utilities, a reduction of acres in ROWs, encouraging use of existing lines, expanding existing corridors up to 500 feet, and designating existing lines as corridors. 435,385 acres would be available for new utility ROWs and associated roads. The potential for additional roads for recreation travel would be moderately decreased from No Action. Infernal Caverns/Rocky Prairie SRMA Major adverse effects would occur to scenic quality and the Infernal Caverns/Rocky Prairie SRMA if the Alturas Intertie project were to be designated as a "corridor". The existing proposed alignment is within this recreation area. Moderate to major adverse effects would result to the setting and context of the Battle of the Infernal Caverns, and the recreation experiences associated with hiking and viewing these significant historical resources.

Recreation – Non-Motorized Travel				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor beneficial effects on recreation opportunities associated with natural landscapes and settings would occur with construction of eleven miles of new non-motorized trails. These trails are identified in existing management plans, and would provide better access for public use and benefits.	Moderate beneficial effects would occur to recreation non-motorized use opportunities. Non-motorized trail development would include 27 miles of BLM-administered trails, which represents a significant increase beyond trails identified in existing plans.	Negligible beneficial effects would occur to recreation in natural settings with development of 12.5 miles of trails in high use areas such as the Infernal Caverns/Rocky Prairie SRMA. Under Alternative 2 only a slight benefit would occur for trail users in these areas.	A moderate beneficial effect would occur on non motorized recreation trail use in natural settings. Development of 23 miles of non-motorized trails would have a significant increase of miles for this resource.	A minor to moderate beneficial effect would occur for recreation in natural settings. New recreation opportunities would be available with the development of 25.5 miles of non-motorized trails.

Recreation – Livestock Grazing				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor to major adverse effects would occur due to the continued loss and degradation of riparian and aquatic habitats in sensitive aquatic environments. Recreational fisheries, wildlife viewing, and scenic quality are impacted in reservoirs, streams, and lakes that lack protection from the effects of livestock grazing.	Moderate to major beneficial effects would occur to recreational fisheries, wildlife viewing, and scenic quality that are associated with water resources. Protection measures for sensitive aquatic environments and recreational fisheries include fencing and modification of grazing systems to benefit water resources. Moderate to major beneficial effects would occur to Nelson Corral reservoir which would be fenced to enhance recreational fishing, riparian resources, and aquatic habitat, while maintaining livestock water. Recreational fisheries which are not protected from livestock grazing would continue to have minor to major adverse effects to recreational fisheries and scenic quality. Whereas, protected recreational fisheries would have moderate to major beneficial effects for the fisheries, wildlife viewing, and scenic quality.	Dramatic moderate to major beneficial effects on recreational fishing opportunities would occur when protected from livestock grazing. Public lands would be grazed once every 3 years. The effects of reduced grazing would have increased benefits to recreational fishing and scenic quality in areas associated with riparian and water resources. Nelson Corral reservoir would have the same actions and impacts as Alternative 1.	Same as the No Action Alternative for unprotected recreational fisheries. However, reservoirs, streams, and lakes that have protection would have moderate to major beneficial effects for recreational fisheries, wildlife viewing, and scenic quality.	Livestock grazing under the Preferred Alternative would result in minor adverse impacts and moderate beneficial impacts to recreation and visitor services. Recreational activities would continue to be pursued in conjunction with livestock grazing on most BLM-administered lands; therefore, continuation of this practice is not expected to have additional adverse effects. Recreational fishing would benefit, as livestock grazing is managed to meet land health and water quality standards. 500 acres of riparian/wetland exclosures would be constructed to improve riparian conditions along stream banks. These actions would improve the natural appearance of the landscape, preserving wildlife and fish habitats, and minimizing visitor/livestock interactions.

Recreation – Special Recreation Management Areas				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible to minor adverse effects would occur to recreation opportunities in high use areas. Without SRMA designation, recreational experiences and resources would continue to degrade with a gradual loss of recreation opportunities.	Moderate beneficial effects would occur with the designation of two new SRMAs. Both the Pit River SRMA (76,000) acres and the Infernal Caverns/Rocky Prairie SRMA (117,000) acres would provide additional emphasis and priority for management of all recreation opportunities and resources within these two popular recreation areas.	SRMA designation, Same as Alternative 1.	SRMA designation, Same as Alternative 1.	Moderate beneficial effects would occur with the designation of two new SRMAs. The Pit River SRMA (76,000 acres) and the Infernal Caverns/Rocky Prairie SRMA (117,000 acres) would provide additional emphasis and priority for management of all recreation opportunities and resources within these two popular recreation areas.
Recreation – Health and Safety				
No adverse effects on hunting, but negligible to minor adverse effects on recreational fishing, wildlife viewing, health and safety. No restrictions on shooting or hunting at high use recreation sites or reservoirs. Conflicts and health and safety issues can arise with hunting on the water's edge, between fishermen, other recreation enthusiasts, and hunters discharging guns.	Same as No Action Alternative.	Moderate adverse effects to hunting activities at the 2 reservoirs, and negligible adverse effects management-area-wide. Other recreation uses (fishing, wildlife viewing, and hiking) would have moderate beneficial effects on health and safety with no shooting activities adjacent to the reservoirs. Nelson Corral and Bayley reservoirs would be 'Closed' to shooting within ¼ mile of waters edge. Both reservoirs are used for migratory waterfowl hunting, fishing, and wildlife viewing.	Minor adverse effects to hunting activities at the 2 reservoirs, and negligible adverse effects management-area-wide. Minor to moderate beneficial effects to recreational fishing, other activities, and health and safety. Nelson Corral and Bayley reservoirs would be 'Closed' to shooting April 1-November 15th.	The Preferred Alternative would result in negligible adverse effects to hunting, health and safety. No restrictions would be implemented on the season of use or distance from waters edge for hunting activities. Nelson Corral and Bayley reservoirs would be designated as official recreation sites.

Recreation – Recreation Opportunity Spectrum				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Moderate beneficial effects would occur to motorized recreation with areas classified as SPM. The highest acreage in all alternatives for this ROS setting occurs in this alternative (283,949 acres). Also, SPM and SPNM, which provide a mix of non-motorized and motorized opportunities, would have 69% of public land allocated to these settings and have a minor beneficial effect for these recreation activities.	Moderate beneficial effects would occur to motorized recreation throughout the Alturas Field Office. ROS RN classification would increase to 45%. The SPM and SPNM settings provide a mix of opportunities, and 50% of the landscape is allocated to these settings, and would have no effect on non motorized and motorized recreation activities.	Moderate to major beneficial effects would occur for enhancement of non-motorized opportunities on public lands. Under Alternative 2, there is an increased emphasis on maintaining primitive landscapes in ROS. About 15% of the field office would be managed as a primitive setting. The 'Primitive' areas, coupled with about 16% of the field office area managed as SPNM would result in approximately one-third of the lands managed for non-motorized recreation opportunities. SPNM and SPM combined together at 65% provide a mix of non-motorized and motorized opportunities, with a minor beneficial effect for these activities.	Moderate beneficial effects would occur over all other alternatives for this type of recreation experience with the highest number of acres identified in SPNM at 148,766. Minor to moderate beneficial effects would occur from the combined settings of SPNM and SPM allocated at 73% of the landscape, and provide a mix of non-motorized and motorized opportunities.	Negligible adverse impacts and minor to moderate beneficial effects would result to non-motorized recreation experiences. 11% of public lands within the AFO would be managed under ROS classification of 'Primitive'. These areas are located within roadless portions of WSAs. Minor beneficial effects would also occur as 67% of the field office landscape would be classified as SPNM and SPM. These classes would provide a mixture of opportunities for non-motorized and motorized recreation activities on public lands..

Social and Economic Conditions				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Effects on current social conditions more beneficial than adverse. Beneficial effects include increased recreational opportunities and protection of resources that are of critical concern, native to the area, or are valuable to rural lifestyles. Adverse effects generally would be short-term or temporary, except for permanent closure of facilities (e.g., roads) or access restrictions to recreation. Expected to generate approximately 2 new jobs and $57,100 in annual personal income. Total personal income would increase by approximately 0.015%. The proposed management actions would result in a very small increase in regional economic activity.	Effects on current social conditions more beneficial than adverse. Beneficial effects include increased recreational opportunities and protection of resources that are of critical concern, native to the area, or are valuable to rural lifestyles. Adverse effects generally would be short-term or temporary, except for permanent closure of facilities (e.g., roads) or access restrictions to recreation. Expected to generate approximately 192 new jobs and $5.0 million in annual personal income. Total employment within the two-county study area would increase by approximately 1.1%. Total personal income would increase by approximately 0.7%. Proposed management actions would result in a very small increase in regional economic activity.	The effects on current social conditions more beneficial than adverse. Beneficial effects include increased recreational opportunities and protection of resources that are of critical concern, native to the area, or are valuable to rural lifestyles. Adverse effects generally would be short-term or temporary, except for permanent closure of facilities (e.g., roads) or access restrictions to recreation. Expected to result in a loss of 348 new jobs and a loss of $1.9 million in annual personal income. Total employment within the two-county study area would decrease by approximately 1.8%. Total personal income would decrease by approximately 0.2%. The proposed management actions would result in a loss in regional economic activity.	The effects on current social conditions more beneficial than adverse. Beneficial effects include increased recreational opportunities and protection of resources that are of critical concern, native to the area, or are valuable to rural lifestyles. Adverse effects generally would be short-term or temporary, except for permanent closure of facilities (e.g., roads) or access restrictions to recreation. Expected to generate approximately 24 new jobs and $644,600 in annual personal income. Total employment within the two-county study area would increase by approximately 0.1%. Total personal income would increase by approximately 0.08%. Proposed management actions would result in a very small increase in regional economic activity.	The effects on current social conditions more beneficial than adverse. Beneficial effects include increased recreational opportunities and protection of resources that are of critical concern, native to the area, or are valuable to rural lifestyles. Adverse effects generally would be short-term or temporary, except for permanent closure of facilities (e.g., roads) or access restrictions to recreation. Expected to generate approximately 85 new jobs and $2.2 million in annual personal income. Total employment within the two-county study area would increase by approximately 0.5%. Total personal income would increase by approximately 0.3%. Proposed management actions would result in a small increase in regional economic activity. The potential reduction of in-lieu payments to the counties as a result of the sale or transfer of federal lands in the AFO area would not be substantial, and losses in county revenues may be offset by a potential increase in property tax revenues.

Soils				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall impact would be moderate beneficial and adverse effects. Major short- and long-term adverse effects would be associated with high catastrophic fire potential under the No Action Alternative. Mechanical treatments could result in major long-term beneficial effects. Lack of OHV restrictions currently has the potential for major adverse effects to soil resources.	Overall impact would be major beneficial and adverse effects. AMR, WFU and treatments would result in reduced potential for catastrophic fire and major long-term beneficial effects to soil that would outweigh any short-term adverse effects. OHV use could result in major adverse effects in the Barnes Grade area. Exclosures and roads gated or 'Closed' would result in moderate long-term beneficial effects. Grazing practices may result in major short and long-term adverse impacts.	Overall impact would be major and primarily beneficial. AMR, WFU, and treatments would result in reduced potential for catastrophic fire and moderate long term beneficial effects to soil that would outweigh any short-term adverse effects. Exclosures, OHV restrictions and grazing restrictions would result in major short and long-term beneficial effects.	Overall impact would be moderate beneficial and adverse effects. AMR and treatments would result in reduced potential for catastrophic fire and moderate long-term beneficial effects to soil that would outweigh any short-term adverse effects. Reduced acreages for ACEC designations and exclosures may result in moderate short- and long-term adverse effects to soils.	The Preferred Alternative would result in minor adverse impacts and moderate beneficial impacts to soil resources. AMR and fuels reduction treatments would result in reduced potential for catastrophic wildfire, resulting in moderate to major long-term beneficial effects to soil that would outweigh any short-term adverse effects. Livestock grazing and wild horse use in areas with sensitive soils could degrade soils in both the short and long term through soil compaction, erosion, sedimentation, and degrading of stream channel condition. Managing grazing to meet land health standards and the construction of new livestock exclosures for the protection of 500 acres of riparian areas and vegetation restoration treatments would result in moderate beneficial impacts. OHV use would be largely 'Limited to Existing or Designated Routes', which would reduce disturbance to soils in areas suitable for cross-country travel. BLM would close 4,625 acres to OHV use, providing soil protection.

Special Designations – Areas of Critical Environmental Concern				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible to minor beneficial effects would result from the No Action Alternative. Two existing ACECs would be retained for a total of 2,770 acres (less than 1% of BLM field office Area). No ACECs would be designated.	Minor to moderate beneficial effects would result from the designation of five new ACECs (40,079 acres) proposed to protect sensitive species, cultural resources, and pristine natural environments. Specific impacts from resource uses on individual ACEC values and associated sensitive resources are listed below.	Major beneficial effects would result from the designation of ten new ACECs (83,007 acres) proposed to provide recreation opportunities and protect wildlife habitat, sensitive species, cultural resources, and pristine natural environments. Specific impacts from resource uses on ACEC values and associated sensitive resources are listed below	Negligible to minor beneficial effects would result from the designation of two new ACECs (6,400 acres) proposed to protect cultural resources, and historic trails. Specific impacts from resource uses on ACEC values and associated sensitive resources are listed below	Moderate to major beneficial effects would result from the designation of six new ACECs (29,171 acres) proposed to protect historic trails, sensitive species, cultural resources, old growth juniper, wildlife habitats, and pristine natural environments. Specific impacts from resource uses on ACEC values and associated sensitive resources are listed below

Special Designations – Ash Valley ACEC/RNA				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in minor adverse impacts, and moderate benefits to the existing Ash Valley ACEC/RNA (1,322 acres). The ACEC would continue to be managed for the protection of sensitive resources, and the preservation of critical habitat for special status plants. The area's scenic qualities would be protected under VRM Class II criteria. There would be no impacts from new ROWs, timber harvesting, woodcutting, locatable minerals, or flat rock collection, as these uses would remain 'Closed'. The Ash Valley ACEC/RNA would remain 'Open' to leasable minerals, with potential moderate impacts. Negligible adverse effects have been documented from motor vehicle traffic and livestock grazing in the ACEC, and similar effects are expected in future. Therefore, livestock grazing and OHV use would continue as they are currently practiced, unless future monitoring reveals substantially greater adverse effects. Full fire suppression activities could contribute to minor adverse impacts as natural fire regimes are required for successful reproduction in some of the special species plants within the ACEC.	Same as No Action, except that minor to moderate adverse impacts would result from potential locatable and saleable mineral development. However, additional benefits would result from requiring no surface occupancy restrictions to potential leasable mineral development. Minor benefits would result from OHV restrictions to existing routes.	Alternative 2 would result in negligible adverse impacts and major benefits to the existing Ash Valley ACEC (1,322 acres). Most impacts are the same as No Action, except additional benefits would result from OHV use, livestock grazing, and all mineral development being 'Closed' within the ACEC. WFU within the ACEC would help restore the natural fire regime and benefit habitat for special status plants.	Alternative 3 would result in negligible adverse impacts, and moderate benefits to the existing Ash Valley ACEC (1,322 acres). Most impacts are the same as No Action, except that additional benefits would result from restricted OHV use, and all mineral development being 'Closed' within the ACEC.	Same as No Action, except additional benefits would result from requiring NSO restrictions to potential leasable mineral development. The use of AMR for fire activities could contribute to beneficial impacts as natural fire regimes are returned.

Special Designations – Baker Cypress Natural Area				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in minor adverse impacts, and moderate benefits to the existing Baker Cypress Natural Area (1,448 acres). The area would continue to be managed for the most part according to the wilderness IMP because the ACEC falls within the Timbered Crater WSA. The ACEC would continue to be managed for the protection of sensitive resources, and the preservation of critical habitat for special status plants. The area's scenic qualities would be protected under VRM Class I criteria. There would be no impacts from new ROWs, timber harvesting, woodcutting, OHV use, or mineral development, as these uses would remain 'Closed'. Livestock grazing would continue to result in negligible adverse impacts, as the area receives very little use due to no water availability. Minor to moderate adverse effects would occur to Baker cypress due to the suppression of fire in the ecosystem. Cones of this unique specie will not open without fire.	Alternative 1 would result in minor adverse impacts, and moderate to major benefits to the existing Baker Cypress Natural Area (1,448 acres). Most impacts are the same as No Action, except that additional benefits would result from the use of AMR for fire activities. This would contribute to beneficial impacts as natural fire regimes are returned, and assist Baker cypress reproduction as this species requires fire for adequate regeneration. OHV use would be 'Limited to Existing Roads and Trails', and impacts would be negligible.	Alternative 2 would result in minor adverse impacts, and moderate to major benefits to the existing Baker Cypress Natural Area (1,448 acres). Most impacts are the same as No Action, except that additional benefits would result from the use of WFU. This would contribute to beneficial impacts as natural fire regimes are returned, and assist Baker cypress reproduction as this species requires fire for adequate regeneration. Additional benefits would result from the closure of all energy and mineral development, especially locatable minerals.	Same as No Action, except that OHV use would be 'Limited to Existing Roads and Trails' and impacts would be negligible.	The Preferred Alternative would result in minor adverse impacts, and moderate to major benefits to the existing Baker Cypress Natural Area (1,448 acres). Most impacts are the same as No Action, except that additional benefits would result from the use of AMR for fire activities. This would contribute to beneficial impacts as natural fire regimes are returned, and assist Baker cypress reproduction as this species requires fire for adequate regeneration. Additional benefits would result from the closure of all energy and mineral development, especially locatable minerals. OHV use would be 'Limited to Designated Routes', and impacts would be negligible.

Special Designations – Pit River Canyon ACEC				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Moderate adverse and beneficial impacts to the Pit River Canyon area. The area would not be designated as an ACEC and would continue to be managed for the most part according to the Wilderness IMP because most of the area falls within the Pit River Canyon WSA. Riparian and upland areas would be managed to meet land health standards. Scenic qualities would be preserved under VRM Class I objectives. Negligible adverse impacts would result from OHV use, as this area is 'Limited to Existing Roads and Trails'. Development of new right-of-ways and mineral and energy development are 'Closed', also because of the wilderness study status of surrounding lands. Therefore, negligible impacts would affect the ACEC. Minor to major adverse effects would result from livestock grazing (depending on the location, extent, and nature of the site) due to damage to cultural resources, recreation, and other ACEC resources and values.	Minor adverse and major beneficial impacts to the Pit River Canyon area. 6,703 acres would be designated as the Pit River Canyon ACEC. WSR designation is also recommended for 16 miles under Alternative 1. A 'wild' classification would apply to 13 miles and 3 miles would be classified 'recreational.' WSR designation would preserve the free-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. Management would focus on protecting scenic, geological, and cultural resources in the Upper Pit River Canyon and Lower Horse Creek Canyon by preserving natural settings for recreational purposes. Enhancement of river-related recreational opportunities has the potential to attract additional visitors. This would have negligible to minor adverse effects from increased noise, litter, and potential user conflicts. However, adverse impacts would be easily outweighed by benefits to riparian and river ecosystems, wildlife, and visual resources from preserving these river segments in an unaltered, free-flowing state. Moderate beneficial effects would result from juniper removal and prescribed fire. Effects from livestock grazing, OHV use, and energy and minerals would be the same as No Action.	Same as Alternative 1, except that livestock grazing would be restricted to one out three years, resulting in only minor adverse effects to cultural resources. Additional benefits would also result from increased vegetation restoration treatments.	Same as No Action Alternative.	Minor adverse and major beneficial impacts to the Pit River Canyon area. The area would not be designated as an ACEC and would continue to be managed for the most part according to the Wilderness IMP because most of the area falls within the Pit River Canyon WSA. Riparian and upland areas would be managed to meet land health standards. Scenic qualities would be preserved under VRM Class I objectives. WSR designation is recommended for 16 miles, under a 'wild' classification. WSR designation would preserve the free-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. Moderate beneficial effects would result from juniper removal and prescribed fire. Effects from livestock grazing, OHV use, and energy and minerals would be the same as No Action.

Special Designations – Lava ACEC				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in minor adverse and moderate beneficial impacts to the Lava ACEC area. The area would not be designated as an ACEC and would continue to be managed for the most part according to the wilderness IMP because most of the area falls within the Lava WSA. Scenic qualities would be preserved under VRM Class I objectives. Negligible adverse impacts would result from OHV use, as this area is 'Limited to Existing Roads and Trails', and 20 acres 'Closed' in vernal pool areas. Development of new ROWs and mineral and energy development are regulated by wilderness study status of surrounding lands. Therefore, negligible impacts would affect the area. Adverse impacts on vegetation, soils, and water quality from livestock grazing would be negligible to minor.	Alternative 1 would result in minor adverse and moderate beneficial impacts to the Lava ACEC area. 10,770 acres would be designated as the Lava ACEC. Moderate beneficial effects would result from increased use of AMR and fuels reduction treatments. Impacts from VRM, livestock grazing, OHV use, and energy and minerals are the same as No Action.	Same as Alternative 1, except that livestock grazing would be restricted to one out three years, resulting in only negligible adverse effects. Additional benefits would also result from increased vegetation restoration treatments.	Same as No Action Alternative.	The Preferred Alternative would result in minor adverse impacts and moderate benefits to the Lava ACEC area. Impacts are similar to No Action Alternative, except that additional beneficial effects would result from increased use of AMR and fuels reduction treatments. .

Special Designations – Timbered Crater ACEC/RNA				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor adverse and minor beneficial impacts to the area. The area would not be designated as an ACEC and would continue to be managed for the most part according to the Wilderness IMP because the entire area lies within the Timbered Crater WSA. Scenic qualities would be preserved under VRM Class I objectives. Negligible adverse impacts from OHV use, as this area is 'Closed'. Timber harvesting, development of new ROWs, and mineral and energy development would remain regulated by wilderness study status; therefore, negligible impacts would affect the area. Adverse impacts on vegetation, soils, and water quality from livestock grazing would be negligible. Special status plants are largely protected by a livestock exclusion fence, and grazing outside the fenced area is limited to the periphery of the proposed ACEC due to vast lava fields and lack of water.	Negligible adverse and moderate beneficial impacts to the area. 17,896 acres would be designated as the Timbered Crater ACEC. Wildland fire management would employ AMR. Juniper treatments and prescribed fire would primarily enhance ACEC resources and values (i.e., Baker cypress, soils, scenic quality, and wildlife), with negligible short-term adverse effects and minor to moderate long-term benefits. Negligible adverse impacts from OHV use, as the ACEC would be 'Limited to Existing Roads and Trails', and no cross-country travel would be allowed. Timber harvesting, development of new ROWs and mineral and energy development would remain regulated by wilderness study status; therefore, negligible impacts would affect the area. Negligible impacts from livestock grazing, as described in No Action.	Minor adverse and moderate beneficial impacts to the area. 17,896 acres would be designated as the Timbered Crater ACEC. WFU would be employed in the area to permit fire to play a natural and significant role in improving vegetation conditions. Juniper treatments and prescribed fire would primarily enhance ACEC resources and values (i.e., Baker cypress, soils, scenic quality, and wildlife), with negligible short-term adverse effects and minor to moderate long-term benefits. Additional benefits from the ACEC being 'Closed' to locatable minerals. Negligible adverse impacts from OHV use, as the area would remain 'Closed'. Negligible impacts from livestock grazing, as described in No Action, except that grazing in periphery areas would occur only 1 out of 3 years. Timber harvesting and development of new ROWs would remain regulated by wilderness study status, with negligible impacts.	Same as No action Alternative, except that OHV use would be 'Limited to Existing Roads and Trails', and no cross-country travel would be allowed.	Same as Alternative 1, except that additional benefits may occur as OHV use would be 'Limited to Designated Routes', and from the ACEC being 'Closed' to locatable minerals.

Special Designations – Emigrant Trails ACEC				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate adverse and negligible beneficial impacts to the Emigrant Trails ACEC area. The area would not be designated as an ACEC and would continue to be managed for the most part for protection of portions of the historic Lassen, Applegate, and Yreka Trails. Scenic qualities would be preserved under VRM Class I and II objectives. Timber harvest and woodcutting would remain 'Closed'. The area would be 'Open' to new ROWs. The area is currently 'Open' to off-highway vehicles, except within the Pit River Canyon WSA, which is 'Limited to Existing Roads and Trails'. Moderate adverse effects could occur from cross-country travel. The area is also 'Open' to all types of mineral development, except within the Pit River Canyon WSA.	Same as No Action, except minor benefits would result from designating OHV travel to existing routes.	Alternative 2 would result in minor adverse and major beneficial impacts to 9,924 acres associated with the Emigrant Trails ACEC. Designation would enhance and protect the natural setting, vegetation, wildlife; and trail viewing opportunities. The ACEC would be 'Closed' to ROWs, mineral activities, and other development. OHVs would be 'Limited to Existing Roads and Trails', so impacts would be negligible. Livestock grazing would be available in the area, but grazed areas rested two out of three years, resulting in minor to adverse effects on vegetation and wildlife habitat. ROS would have 'Primitive' and SPM classifications, and would result in minor beneficial effects on natural settings which are a large part of the experience associated with historic trails.	Same as Alternative 2, except moderate benefits would result from 5,000 acres being designated as the Emigrant Trails ACEC.	The Preferred Alternative would result in minor adverse and moderate beneficial impacts, and would protect and provide interpretive information and recreational opportunities on 29 miles of historic trail remnants. It would encompass 1,750 acres of BLM-administered lands (in three locations) on portions of the historic Lassen, Applegate, and Yreka Trails. Protection would enhance trail-related recreation and visitor understanding and enjoyment of historic trails. Impacts from ROWs, OHV use, and mineral development are similar to those listed under Alternative 2, except on fewer acres, and no surface occupancy requirements would be followed for leasable minerals. Impacts to scenic quality, and from livestock grazing are similar to Alternative 1, except greater emphasis would be placed on land health standards and protecting sensitive resources from adverse grazing effects. ROS 'Primitive' classification would have moderate beneficial effects for protection of historic resources and natural settings.

Special Designations – Mountain Peaks ACEC/RNA				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in minor adverse and minor beneficial impacts to the Mountain Peaks ACEC area. The area would not be designated as an ACEC. 985 acres are located in the Tule Mountain WSA, and would continue to be managed according to the Wilderness IMP. Scenic qualities would be preserved under VRM Class I objectives in the WSA, and Class II objectives outside the WSA. Minor to moderate adverse impacts would result from livestock grazing, 'Open' OHV use outside of the WSA, and potential energy and mineral development outside the WSA.	Same as No Action, except minor benefits would result from designating OHV travel to existing routes, and the use of AMR for wildfires.	Alternative 2 would result in minor adverse and major beneficial impacts. The Mountain Peaks ACEC (3,500 acres) would be designated to enhance and protect unique vegetation, wildlife habitat continuity, and visual resources of high-elevation mountain habitats. A 'Primitive' ROS designation already applies. OHVs would be 'Limited to Existing Roads and Trails'. Development of new ROWs and mineral and energy development would be 'Closed' through the ACEC process, and because of the wilderness study status of surrounding lands. Impacts from livestock grazing would be minor, as grazing would only be conducted one year of every three.	Same as No Action, except minor benefits would result from designating OHV travel to existing routes.	This alternative would result in minor adverse and moderate beneficial impacts. Impacts are the same as Alternative 2, except that livestock grazing would be available every year. Greater emphasis would be placed on land health standards and protecting sensitive resources from adverse grazing effects, to lessen impacts.

Special Designations – Old Growth Juniper ACEC/RNA				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate adverse and minor beneficial impacts to the Old Growth Juniper ACEC area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. The area is currently 'Open' to new ROWs, livestock grazing, timber harvesting, woodcutting, and all energy and mineral development. However, the Sheep Valley grazing exclosure protects culture resources, wildlife habitat, water, and soils. Impacts to scenic quality would potentially be moderately adverse, as the area is managed under VRM Class III and IV objectives. Impacts from OHV use would be moderate as the area is 'Open' outside of Sheep Valley.	Same as No Action, except additional minor benefits would result from designating OHV travel to existing routes, and the use of AMR for wildfires.	Alternative 2 would result in negligible adverse and major beneficial impacts. The Old Growth Juniper ACEC (3,115 acres) would be designated to enhance and protect old-growth juniper and associated vegetation and habitats. Livestock grazing would be conducted only one year of every three, resulting in moderate beneficial effects. The ACEC would be 'Closed' to new ROWs, timber harvesting, woodcutting, and all energy and mineral development, resulting in no impacts from these uses. OHV use would be 'Closed' on 2,025 acres, and 'Limited to Designated Routes' in the remaining area, eliminating impacts from cross-country travel. Scenic qualities would be preserved under VRM Class II objectives. AMR would be employed for wildfires.	Same as No Action Alternative, except that additional minor benefits would result from designating OHV travel to designated routes in Sheep valley, and restricting leasable minerals to no surface occupancy requirements.	The Preferred Alternative would result in minor adverse and moderate beneficial impacts. Impacts are similar to Alternative 2, except that livestock grazing would be available every year. Greater emphasis would be placed on land health standards and protecting sensitive resources from adverse grazing effects, to lessen impacts. Leasable minerals would be restricted to no surface occupancy requirements, and impacts would be minor.

Special Designations – Mount Dome ACEC/RNA				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate to major adverse and minor beneficial impacts to the Mount Dome ACEC area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. The area is currently 'Open' to new rights-of-way, livestock grazing, and all energy and mineral development. However, the ACEC is on the upper slopes of the mountain where water is scarce and livestock use severely limited. Timber harvesting is also not an issue since it is 'Closed' to protect bald eagle nesting habitat. Therefore, livestock grazing and timber harvest would have no adverse impacts. Scenic qualities would be preserved under VRM Class II objectives. Mount Dome is a major roost area for wintering birds of prey. The mountain (and its environs) is also very important to raptors during the nesting season. Wind-powered energy development would result in major, long-term adverse impacts for these birds. Large wind turbines, transmission lines, and service roads would also have obvious visual drawbacks and would seriously compromise recreational experiences that rely on a natural landscape for enjoyment. Despite the fact that OHVs are 'Limited to Existing Roads and Trails', there would be no OHV impacts because the upper slopes of Mount Dome lack roads and trails; hence vehicles are limited to established routes on the lower slopes.	Alternative 1 would result in moderate adverse and moderate beneficial impacts. 1,510 acres would be designated as the Mount Dome ACEC to protect the area for raptor habitat. Vegetation treatments and restoration would be conducted for ACEC resources and values and would have minor to moderate long-term benefits, principally for bald eagles. Other impacts would be similar to No Action, except that some adverse impacts would be reduced by closing the area to new rights-of-way. Additional minor benefits would result from the use of AMR for wildfires.	Alternative 2 would result in negligible adverse effects and moderate to major beneficial impacts. 1,510 acres would be designated as the Mount Dome ACEC to protect the area for raptor habitat. Vegetation treatments and restoration would be conducted for ACEC resources and values and would have minor to moderate long-term benefits, principally for bald eagles. Utility ROW and all energy and mineral development would be 'Closed'. This would result in moderate to major benefits to raptors by preventing damage to habitats for wintering birds-of-prey. Additional minor benefits would result from the use of AMR for wildfires.	Same as No Action, except all OHV use would be 'Limited to Existing Roads and Trails', and impacts would be negligible.	Same as Alternative 2, except leasable minerals would fall under no surface occupancy requirements, resulting in negligible adverse impacts.

Special Designations – Juniper Creek ACEC				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate adverse and minor beneficial impacts to the Juniper Creek ACEC area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. This area has unique cultural resources and wintering wildlife habitat. The area is currently 'Open' to new ROWs, and all energy and mineral development. Impacts from these activities would be minor to moderate. Scenic qualities would be managed under VRM Class III objectives, so some visual obstructions would be allowed. Livestock grazing would continue, and adverse effects from this activity would be minor to moderate. There are prehistoric sites within the ACEC area and livestock grazing would potentially affect individual archaeological sites and artifacts.	Same as No Action, except additional minor benefits would result from designating OHV travel to existing routes, and the use of AMR for wildfires.	Alternative 2 would result in negligible adverse and major beneficial impacts. The Juniper Creek ACEC (1,182 acres) would be designated to enhance and protect unique cultural resources and wintering wildlife habitat. The ACEC would be 'Closed' to new ROWs, livestock grazing, OHV use, and all energy and mineral development, resulting in negligible impacts from these uses. Moderate beneficial effects would result from increased use of AMR and fuels reduction treatments. Scenic qualities would be protected under VRM Class II objectives.	Same as No Action, except additional minor benefits would result from designating OHV travel to designated routes.	The Preferred Alternative would result in minor adverse and minor beneficial impacts to the Juniper Creek ACEC area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. Minor benefits would result from designating OHV travel to designated routes, and the use of AMR for wildfires. Greater emphasis would be placed on land health standards and protecting sensitive resources from adverse grazing effects, to lessen impacts.

Special Designations – Beaver Creek ACEC				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate adverse and minor beneficial impacts to the Beaver Creek ACEC area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. This area has unique cultural resources and wintering wildlife habitat. The area is currently 'Open' to new ROWs, and all energy and mineral development. Impacts from these activities would be minor to moderate. Scenic qualities would be managed under VRM Class III objectives, so some visual obstructions would be allowed. Livestock grazing would continue, and adverse effects from this activity would be minor to moderate. There are prehistoric sites within the ACEC area and livestock grazing would potentially affect individual archaeological sites and artifacts.	Same as No Action, except additional minor benefits would result from designating OHV travel to existing routes, and the use of AMR for wildfires.	Alternative 2 would result in negligible adverse and major beneficial impacts. The Beaver Creek ACEC (972 acres) would be designated to enhance and protect unique cultural resources and wintering wildlife habitat. The ACEC would be 'Closed' to new ROWs, livestock grazing, OHV use, timber harvest, and all energy and mineral development, resulting in negligible impacts from these uses. Moderate beneficial effects would result from increased use of AMR and fuels reduction treatments. Scenic qualities would be protected under VRM Class II objectives.	Same as No Action, except additional minor benefits would result from designating OHV travel to designated routes.	The Preferred Alternative would result in minor adverse and minor beneficial impacts to the Beaver Creek ACEC area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. Minor benefits would result from designating OHV travel to designated routes, and the use of AMR for wildfires. Greater emphasis would be placed on land health standards and protecting sensitive resources from adverse grazing effects, to lessen impacts.

Special Designations – Likely Tablelands/Yankee Jim/Fitzhugh Creek ACEC				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Moderate to major adverse and minor beneficial impacts to the area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies, and the Tablelands Integrated Resource Management Plan. Moderate to major impacts from livestock grazing and recreational uses. This area contains unique prehistoric and historic resources, and important riparian and meadow vegetation within the 27,435 acres. The area is currently 'Open' to new ROWs and all energy and mineral development. Impacts from these activities would be to moderate to major, should development occur. Scenic qualities would be preserved under VRM Class II objectives, so impacts to visual resources would be negligible to minor. Livestock grazing and OHV use are 'Open', except for within the 660-acre Fitzhugh Creek portion. Livestock grazing would result in moderate adverse impacts on the unique prehistoric, riparian, and biological resources of the area.	Moderate adverse and minor beneficial impacts to the area. The total area of this ACEC under Alternative 3 is 3,200 acres. Would close the ACEC to new ROWs, resulting in minor benefits. Scenic qualities would be preserved under VRM Class II objectives, so impacts to visual resources would be negligible to minor. OHV use would be seasonally 'Closed' from December 1 through April 15. Seasonal road closure would help maintain soil stability, protect vegetation and cultural sites, and benefit wildlife and have moderate beneficial effects. All energy and mineral development within the ACEC would be 'Open', resulting in potential moderate adverse effects. Livestock grazing would be available in the ACEC, and impacts would be minor to moderate.	Moderate adverse and major beneficial impacts to the area. The total area of this ACEC under Alternative 3 is 27,435 acres. Major benefits would result to natural resources, recreation, and ACEC values from the restriction of grazing to every third year. Livestock exclusion would be implemented on 3,860 acres, and other areas would also be protected. Prehistoric sites within the ACEC associated with lithics, artifacts, and middens would be protected, as would be significant historic sites. NRHP-eligible sites would receive priority protection. OHVs would be 'Limited to Designated Routes' from April 16 through November 30 and 'Closed' from December 1 through April 15. Seasonal road closure would help maintain soil stability, protect vegetation and cultural sites, and benefit wildlife and have moderate beneficial effects. Utility ROW grants and all forms of mineral and energy development would be 'Closed'; hence, impacts would be negligible. Additional minor benefits would result from the use of AMR for wildfires.	Moderate adverse and moderate beneficial impacts to the area. The total area of this ACEC under Alternative 3 is 1,400 acres. Impacts are similar to the Preferred Alternative except OHVs would be 'Limited to Designated Routes' all year, resulting in benefits to resources by restricting cross-country travel. However, no seasonal road closures would be implemented to benefit soil stability, protect vegetation, cultural sites, and benefit wildlife.	Moderate adverse and moderate beneficial impacts to the area. The total area of this ACEC is 1,400 acres (primarily Yankee Jim portion). The 1,400-acre ACEC area is one of the most archaeologically important and sensitive areas in the AFO. ACEC designation would protect the area from primary impact agents such as livestock and the illegal collection of artifacts. ACEC designation would place greater emphasis on meeting land health standards and protecting sensitive resources from adverse grazing effects, to lessen impacts. Negligible impacts from utility ROWs and energy and mineral development, as these uses would be 'Closed' (or NSO for leasable minerals). Scenic qualities would be preserved under VRM Class II objectives, so impacts to visual resources would be negligible to minor. The remainder of the Likely Tablelands area would be managed according to the Tablelands Integrated Resource Management Plan. Minor to moderate impacts from livestock grazing and recreational uses. OHV use would be 'Limited to Designated Routes', and 'seasonally 'Closed'' during winter months to lessen impacts to soils and other resources. Additional minor benefits from the use of AMR for wildfires.

Special Designations – Historic Trails				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall adverse effects are negligible to minor for historic trails when all impacts are considered. Minor to moderate adverse impacts would occur from OHV activities with indiscriminate riding on linear features and trail traces associated with historic trails. 89% of the field office would be 'Open' to OHV and cross country travel. Major adverse effects would result from ground disturbance and infrastructure associated with locatable minerals development adjacent to historic trails. (continued on next page)	Overall beneficial effects are negligible to minor for historic trails when all impacts are considered. Minor to moderate beneficial effects would occur related to OHV management and activities, as only 80 acres would be 'Open' to cross country travel with three associated OHV management areas. OHVs are 'Limited to Existing or Designated Routes'. Protection of historic trail resources would be at a higher level with OHV restrictions in place. Moderate to major adverse effects from locatable minerals development would be similar to the No Action Alternative, except it would occur on 500,545 acres. 2,500 acres of mineral withdrawals would provide negligible beneficial effects on trail resources. (continued on next page)	Overall beneficial effects are negligible to minor for historic trails when all impacts are considered. Moderate beneficial effects would occur related to OHV management and activities, as only 80 acres are 'Open' to cross country travel with two associated OHV management areas. Restrictions include OHV 'Limited to Existing or Designated Routes', seasonal and permanent closures. The greatest level of protection from OHV would occur due to more closures in areas with a higher incidence of historic trails. Moderate adverse impacts would occur in localized areas, from locatable minerals development, which would be reduced overall from all other alternatives, with fewer acres available for mineral extraction. Moderate to major beneficial effects would occur from mineral withdrawal on 84,719 acres, which denies mineral entry and eliminates adverse impacts to resources and historic trails on 17% of the public lands. (continued on next page)	Overall beneficial effects are negligible for Historic Trails when all impacts are considered. Same as Alternative 1 for OHV. Moderate to major adverse impacts from locatable minerals development would occur and would be similar to Alternative I, but would only occur on 495,323 acres. 7,722 acres of mineral withdrawal would provide negligible to minor beneficial effects for historic trail resources. (continued on next page)	Overall minor adverse impacts and beneficial effects for historic trails when all impacts are considered. Minor to moderate benefits would result from acquisition of portions of historic trails (including railroad grades), securing public access, and establishing protection. Minor to moderate beneficial effects would occur related to OHV management, as only 80 acres are 'Open' to cross country travel. OHV restrictions include 'Limited to Existing or Designated Routes' and seasonal and permanent closures. Minor adverse impacts would occur from potential locatable minerals development on 470,052 acres, but moderate beneficial effects would also occur from mineral withdrawal on 32,993 acres. (continued on next page)

Special Designations – Historic Trails (continued)				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor beneficial effects by maintaining VRM Class II objectives along all trails, they would gain some limited protection from a class II designation VRM. Negligible beneficial effects would occur to vegetation and trails on (50-250) treated acres from prescribed fire. The use of fire would assist in reestablishment of the natural ecological condition which existed during the time of original trail use. Negligible beneficial effects would occur to vegetation and trails from mechanical treatment on (10-25) treated acres. Mechanical treatment would assist in the reestablishment of the natural ecological condition which existed during the time of original trail use.	Moderate adverse effects to VRM and trail resources would occur from minerals development due to ground-disturbing activities throughout the field office. All lands not associated with WSAs would be 'Open' to leasable and locatable minerals, as well as renewable energy development. However, Surface Use and Occupancy Requirements on leasable minerals development would limit potential visual impacts within sensitive areas. The potential for most large-scale minerals development is generally low; however, planning projects to meet VRM and trail objectives would ensure that potential impacts were minimized. Minor beneficial effects would occur by maintaining VRM Class II objectives along all trails. Minor beneficial effects would occur to vegetation and trails on (500-3200) treated acres from prescribed fire. The use of fire would assist in reestablishment of the natural ecological condition which existed during the time of original trail use. Minor beneficial effects would occur to vegetation and trails from mechanical treatment on (100-5000) treated acres. Mechanical treatment would assist in the reestablishment of the natural ecological condition which existed during the time of original trail use.	Moderate beneficial effects would occur by maintaining VRM Class II objectives along all trails, and would provide the most protection from mineral development, habitat conversion projects, and OHV. This alternative has the largest number of acres with limitations and restrictions for surface disturbing activities on public lands. Additionally, 9,924 acres containing historic trails would be included in the Emigrant Trails ACEC to ensure the preservation of setting and context associated with historic trails and would provide major benefits for historic trails. Overall this alternative provides the greatest benefit to the protection of historic trails. Moderate beneficial effects would occur to vegetation and trails from prescribed fire. The use of fire would assist in reestablishment of the natural ecological condition which existed during the time of original trail use on (500-8200 treated) acres. Same as the No Action Alternative for mechanical treatment.	Minor to moderate beneficial effects would occur to VRM associated with historic trails. 5000 acres of historic trails would be protected in the Emigrant Trails ACEC to maintain the setting and context of historic trails. Same as the No Action Alternative for prescribed fire. Same as the No Action Alternative for mechanical treatment.	Minor beneficial effects would occur by maintaining VRM Class II objectives along all trails, and would maintain the setting and context of historic trails. VRM Class II would protect the trails from disturbance and ensure that mineral development, habitat conversion projects, OHV use, and the removal of juniper biomass would be planned to protect and enhance trail corridors. The Emigrant Trails ACEC would ensure the preservation of historic trails on 1750 acres in three key locations. Same as Alternative 2 for prescribed fire. Same as Alternative 1 for mechanical treatment.

Wild and Scenic Rivers				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible beneficial effects would result from river segments identified as eligible. The Upper Pit River Canyon, Lower Pit River Canyon and Lower Horse Creek Canyon would not be recommended for designation as WSRs, but suitability studies would continue. BLM would continue to manage the eligible river segments to protect the outstandingly remarkable values, free flowing nature and tentative classification. The Lower Pit River Study Area would be 'Open' to energy and minerals development, as well as utility rights of ways. Disruption associated with development and infrastructure would result in moderate to major adverse impacts to scenic, free flowing rivers, and recreational values.	Moderate to major beneficial effects would occur to all three eligible river segments recommended for designation into the Wild and Scenic River System for their; scenic resources, free flowing river values, and recreational opportunities. Recommended areas would be 'Closed' to energy and mineral development and new utility ROWs. The 13-mile segment of the Upper Pit River Canyon would be classified as "Wild", offering the highest degree of protection. 2.5 miles of the Lower Pit River Canyon and 3 miles of Lower Horse Creek Canyon would be classified as 'Recreational'. BLM would protect the outstandingly remarkable values, tentative classification, and free-flowing nature of these rivers in perpetuity.	Major beneficial effects would result for WSR values. All three rivers would be recommended for designation into the Wild and Scenic River System. Classifications of two river segments would have higher levels of preservation. Lower Horse Creek would become "Wild", and Lower Pit River Canyon would become "Scenic". The Upper Pit River Canyon would remain classified as "Wild", same as Alternative 1. Recommended areas would be 'Closed' to energy and mineral development and new ROWs. BLM would protect the outstandingly remarkable values, tentative classification, and free-flowing nature of these rivers in perpetuity.	Moderate adverse effects would occur to scenic and free-flowing river values in these segments. No recommendations for designation would occur. No studies would take place to determine suitability for designation. Lower Pit River Canyon would be subject to the same adverse impacts as under The No Action Alternative, as there would be no protection from energy and minerals development and utility ROWs.	Major beneficial effects would result for WSR values. All three rivers would be recommended for designation into the Wild and Scenic River System. Classifications of two river segments would have higher levels of preservation. Lower Horse Creek would become "Wild", and Lower Pit River Canyon would become "Scenic". The Upper Pit River Canyon would remain classified as "Wild". Recommended areas would be 'Closed' to energy and mineral development and new ROWs. BLM would protect the outstandingly remarkable values, tentative classification, and free-flowing nature of these rivers in perpetuity.

Wilderness Study Areas				
No Action	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor to moderate beneficial impacts to wilderness characteristics would result. Protective management of wilderness values would continue in the four existing WSAs under the Wilderness IMP. 17,896 acres within Timbered Crater WSA and Baker Cypress Natural Area would be 'Closed' to motorized travel resulting in moderate benefits to wilderness characteristics and natural landscapes. OHV travel is restricted to existing roads and ways within Tule Mt. (16,698 acres), Pit River (10,984 acres), and Lava (10,770 acres) WSAs with no effects, these three WSAs have been 'Limited to Existing Roads and Trails' since 1979.	Minor to moderate adverse impacts would result from overall emphasis on development of recreation and commercial opportunities. This alternative proposes the fewest restrictions on motorized travel, resulting in moderate adverse effects to wilderness values. The Wilderness IMP would continue to provide some protection of Wilderness values.	Same as the No Action Alternative.	Same as Alternative 1	Negligible adverse or beneficial effects would occur to wilderness characteristics, naturalness, and solitude in the Timbered Crater WSA (17,896 acres), with motorized travel 'Limited to Designated Routes'. No change would occur to the other three WSAs, where OHVs are restricted to existing roads and ways. All four WSAs would continue to be managed under the Wilderness IMP for non-impairment of wilderness values.

Travel Management				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall benefits are minor for Travel when all impacts are considered.	Overall adverse effects are negligible to minor for Travel when all impacts are considered.	Overall adverse effects are moderate to major for Travel when all impacts are considered.	Overall adverse effects are negligible to minor for Travel when all impacts are considered.	Overall adverse effects are negligible to minor for Travel when all impacts are considered.
Travel Management – Off-Highway Vehicle (OHV) Designations				
A moderate beneficial effect would occur to motorized travel in the Alturas Field Office. 87% of the public lands would be 'Open' for OHV and cross country travel, 4% are 'Closed', and 9% of the landscape is restricted to existing or designated roads and trails.	Moderate to major adverse effects would occur to OHV activities and negatively affect travel in the Alturas Field Office. Travel would be restricted to established travel routes, resulting in the elimination of off road motorized travel access opportunities. Overall less than 1% (880) of the public lands would be 'Closed', (80) acres would be 'Open', and 99%, or (502,085) of public lands would be designated as 'Limited to Existing or Designated Routes'. Two OHV management areas would be designated in the field office area, and would have a moderate beneficial effect on OHV by providing opportunities for travel access activities at site specific locations.	A major adverse effect would occur to OHV activities, with more restrictions and closures that would negatively affect travel in the AFO on 503,045 acres of public lands. OHV travel would be restricted to designated or existing roads and trails on (472,768) acres, or 94% of public lands, 6% (30,197) of the landscape is 'Closed' to OHV, and 120 miles of roads are 'Closed' seasonally. Travel on 83,007 acres of the 10 new ACECs would be affected due to management restrictions. OHV use would be excluded on 25,275 acres of 5 new ACECs, and 1322 acres of the existing Ash Valley ACEC.	Same as Alternative 1, except with minor beneficial effects to travel opportunities and OHV travel access, as only one OHV management area would be established.	The Preferred Alternative would result in moderate to major adverse effects and moderate beneficial impacts to travel management. 99% of the AFO would be 'Limited to Existing or Designated Routes'. Seasonally, 81 miles of roads would be 'Closed', and less than 1% (4,625) would be 'Closed' yearlong to motorized vehicles. 80 acres would be designated as 'Open'. Three OHV management areas would be designated in the field office area, and would have a moderate beneficial effect on OHV by providing opportunities for travel access and activities.

Travel Management – Energy and Minerals				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible to major beneficial impacts could occur to travel and access from new roads for exploration, mineral sites or facilities. This would occur on a case-by-case basis and be tied to a specific geographic area. Leasable minerals 89% of public lands would be 'Open' to leasing with standard terms and conditions. Surface use and occupancy on case by case basis. Locatable minerals Ash Valley ACEC withdrawn from entry Saleable minerals 89% of field office 'Open' to material pits, 84% is 'Open' to flat rock collection, but the Cinder Cone Planning Unit, WSAs and ACECs are 'Closed'. Renewable Energy 89% of the field office would be 'Open'; WSAs are 'Closed'.	Minor adverse effects would occur to travel. Due to more restrictions on minerals, fewer roads and trails would be established or maintained which would decrease the potential amount of roads for OHV recreational opportunities. Leasable minerals Surface use and occupancy requirements would apply on 200,000 acres for protection of sensitive resources. NSO on Ash Valley ACEC, WSAs and Lower Pit River Canyon WSR 'Closed' to leasing. Locatable minerals WSRs would be withdrawn. Ash Valley ACEC mineral withdrawal revoked on 1322 acres. 89% of the field office is 'Open' to Saleable minerals and Renewable Energy, WSAs and WSRs are 'Closed'.	Minor to moderate adverse effects would occur to travel, due to the decrease in maintenance and new road construction associated with mineral exploration and development. The most restrictions and closures on travel are present in this alternative, which would negatively affect road use for travel and OHV recreational opportunities. Leasable minerals 80% of landscape would be 'Open' to lease, all leases would have surface use and occupancy requirements, 228,000 acres with significant natural resources would have NSO stipulations, all ACECs and WSRs 'Closed' to leasing. Locatable minerals All ACECs/RNAs and WSRs are 'Closed', 17% of the field office would be withdrawn from mineral entry. All ACECs/RNAs, NSO areas, and WSAs are 'Closed' to Saleable minerals and Renewable Energy.	Minor adverse effects on travel would occur with restrictions on mineral exploration and development; these actions would reduce the potential for additional roads for travel opportunities. Leasable minerals 87% of lands would be 'Open' to leasing; WSAs and ACECs would be 'Closed' to leasing. NSO stipulations and surface use and occupancy requirements would apply. Locatable minerals All ACECs/RNAs would be withdrawn, 2% of the field office would be withdrawn from mineral entry. Saleable minerals All ACECs/RNAs and WSAs would be 'Closed', 89% of the field office area would be 'Open' to mineral materials. Renewable Energy All ACECs/RNAs and WSAs would be 'Closed', 87% of the field office 'Open' for development.	Minor adverse effects would occur to travel by removing or restricting much of the potential for additional roads that would be associated with mineral and energy exploration and development. Leasable minerals 89% of public lands would be 'Open' to leasing; NSO would apply to ACECs outside of WSAs. Leasing 'Closed' on WSAs and WSRs. Locatable minerals All ACECs/RNAs and WSRs would be 'Closed'. 7% of the field office lands would be withdrawn from mineral entry. Saleable minerals and Renewable Energy would be 'Open' on 86% of the field office lands, WSAs, WSRs, and ACECs/RNAs outside WSAs would be 'Closed' to development.

Travel Management – Utilities and Rights-of-Way				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Moderate beneficial effects by providing the greatest opportunities to travel with the fewest restrictions to minerals, energy, utility corridors, and facilities. The potential for additional roads for recreation travel would be enhanced substantially on 445,000 acres. .	Minor adverse impacts due to more restrictions on minerals, energy, utility corridors, and facilities. This alternative would be similar in acres to the no action alternative with 441,000 acres available for ROWs. However, would be different by, e.g., encouraging the use of existing lines, expanding existing corridors up to 500 feet, or designating existing lines as corridors. The potential for additional roads for recreation travel would be slightly decreased.	Major adverse effects by prohibiting new utility ROWs and associated roads, as well as the removal of abandoned utilities and facilities. The potential for additional roads for recreation travel would be eliminated.	Moderate adverse effects by limiting new utility ROWs and associated roads to 10,000 acres within existing corridors. The potential for additional roads for recreation travel would be reduced significantly.	Minor to moderate adverse effects due to more restrictions, i.e., minimize acres of impacts by ROWs, encourage use of existing lines, expand existing corridors up to 500 feet, or designate existing lines as corridors. 435,385 acres would be available for new utility ROWs and associated roads.
Travel Management – Non Motorized Travel				
Minor beneficial effects from eleven miles of new non-motorized trails that could be constructed, based on trails identified in existing management plans. These trails would provide better access for non-motorized uses in high-use recreation areas.	A moderate beneficial effect by increasing non-motorized opportunities. Trail development would include 27 miles of BLM-administered trails, which represents a significant increase beyond trails identified in existing plans.	Minor beneficial effects in natural settings by development of 12.5 miles of trails in high-use areas such as the Infernal Caverns/Rocky Prairie SRMA. Due to the small amount of trail development, only a slight benefit would occur to trail users in these areas.	A moderate beneficial effect in natural settings. Development of 23 miles of non-motorized trails would have a significant increase of miles for this resource under this Alternative and would benefit trail users on public lands.	Moderate beneficial effects would include a significant number of new non-motorized recreation opportunities within the field office. Development of 25.5 miles of trails in high-use areas such as the Infernal Caverns/Rocky Prairie SRMA would benefit trail users. With a moderate increase in trail development within these high use areas, it would serve a large portion of the recreating public.

Travel Management – Watercraft Travel and Boating				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor to moderate adverse effects from overuse on the Lower Pit River, affecting scenic quality, fishing, and white water experiences. One commercial permit is issued annually with no restrictions on total number available. Currently there are no adverse effects, but with growing recreation tourism and low water conditions on other river systems, commercial outfitters can adversely affect resources with increased visitor use.	Moderate adverse effects to the quality of the recreation experience by a significant increase in commercial and visitor use. Issuance of 10 commercial permits on the Lower Pit River would have a decrease the non commercial user's enjoyment of white water activities. Solitude, fishing opportunities, and scenic quality would decrease significantly with a significant increase in commercial visitor use.	Moderate adverse effects to the recreation experience for white water commercial recreation opportunities. No commercial activities would take place on the river, as 0 commercial permits would be issued for use on the Lower Pit River. A moderate decrease in commercial visitor use would enhance personal enjoyment of aesthetics, fishing and scenic quality for non commercial white water activities and users.	Minor beneficial effects to the recreation experience by issuance of 4 commercial permits and establishing relatively low commercial visitor use on the Lower Pit River. White water recreation opportunities would be enhanced by increasing the quality of experience on the river; for fishing, rafting, and scenic quality.	Moderate beneficial effects to the recreation experience on the Lower Pit River. Issuance of 3 commercial permits would establish and maintain low commercial visitor use on the River. White water recreation opportunities would be enhanced by increasing the quality of experience on the river for fishing, rafting, solitude, and scenic quality. .
Travel Management – Road Maintenance				
Negligible to minor adverse impacts, and moderate beneficial impacts. AFO would continue regular maintenance on 28 miles of currently prioritized roads to provide safe and adequate access for recreation, permitted uses, and BLM administrative activities.	Negligible to minor adverse impacts, and moderate beneficial impacts. AFO would continue regular maintenance on 28 miles of currently prioritized roads to provide safe and adequate access for recreation, permitted uses, and BLM administrative activities.	Negligible to minor adverse impacts, and moderate beneficial impacts. AFO would continue regular maintenance on 28 miles of currently prioritized roads to provide safe and adequate access for recreation, permitted uses, and BLM administrative activities.	Negligible to minor adverse impacts, and moderate beneficial impacts. AFO would continue regular maintenance on 28 miles of currently prioritized roads to provide safe and adequate access for recreation, permitted uses, and BLM administrative activities.	Negligible to minor adverse impacts, and moderate beneficial impacts. AFO would continue regular maintenance on 28 miles of currently prioritized roads to provide safe and adequate access for recreation, permitted uses, and BLM administrative activities.

Vegetation				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible to moderate adverse impacts on vegetation from unregulated OHV use, spread of noxious weeds, wildfire from altered fire regimes, fire suppression, and continued moderate to heavy livestock grazing. Restoration activities and construction of facilities would cause short-term negligible to minor direct adverse impacts, but they would result in long-term indirect minor to major beneficial effects as a result of vegetation restoration. The management approach is largely reactive and this alternative would not allow BLM to take a proactive approach to achieve land health.	Moderate to major adverse impacts from continued deterioration of plant community function and structure, increased livestock grazing, OHV activities, and potential energy and mineral extraction. This is due to the larger number of acres subject to surface disturbance and increased impact from livestock grazing and commodity production. Greater possibility of plant community fragmentation, increased risk of noxious weed spread, and greater risk of human-caused fire due to increased recreational use and access and more road and trail maintenance. Restoration acreage would be slightly greater than in the No Action Alternative, with short-term minor adverse impacts and long-term moderate to major beneficial effects.	Least adverse impacts and the most benefits to vegetation. Minor adverse effects would occur from disturbances caused by OHV use and potential energy and mineral extraction. Maintenance and restoration of native vegetation and special habitats would be emphasized. Moderate beneficial effects from prescribed fire and wildland fire use. Reintroduction of fire to the landscape on a large scale is considered a beneficial effect under this alternative. Minor to major beneficial effects from resting grazing allotments and accelerating progress toward meeting land health standards and PFC. However, resting of annual (exotic) rangelands could result in long-term moderate to major adverse effects to vegetation communities.	The most significant adverse impacts. Similar to Alternative 1, moderate to major adverse impacts would occur from disturbances caused by increased livestock grazing, OHV activities, potential energy and mineral extraction, increased stack water development, and recreational development. Additional adverse effects would result from reduced restoration efforts. The use of AMR and WFU would be similar to the level proposed under Alternative 1. Generally, the introduction of a natural or semi-natural fire regime is considered to result in a beneficial effect on vegetation resources. Grazing management and anticipated effects would be identical to those described for the No Action and Alternative 1.	Minor to moderate adverse effects to vegetation, and moderate to major beneficial impacts. Efforts towards achievement of land health standards would be less successful than under Alternative 2, but an improvement over the remaining three alternatives. Would restore a higher total acreage of unhealthy lands than the other alternatives. Restoration activities would have effects similar to Alternatives 2 and 3; beneficial impacts would be the greatest under the Preferred Alternative. The use and reintroduction of fire on the landscape (AMR, WFU, and prescribed burning) would have beneficial effects similar to those that would be realized under Alternative 3. Mitigation for adverse grazing effects would be increased.

Noxious Weeds				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible to minor adverse and beneficial effects to the control of noxious weeds. Short- and long-term minor to major adverse impacts from new weed infestations in the AFO, primarily from sources outside the field office boundary. IWM methods would be incorporated to enhance, restore, rehabilitate, or maintain plant communities and to improve wildlife habitat, rangeland health, and watershed function. Emphasis would be detection and control in existing disturbed areas. Inventory would primarily be conducted for proposed ground-disturbing projects (i.e., vegetation management or manipulation), as well as in coordination with wildlife managemnet areas and other government agencies. OHV and other vehicle use would have minor to moderate adverse effects by introducing new weeds from outside the planning area. Potential for increased adverse effects because all of the field office is 'Open' to cross-country travel.	Minor to major adverse effects due to impacts from substantial ground-disturbing activities. An exception would be more emphasis to protect high quality natural resources for commodity production. IWM practices would continue to be implemented but low priority areas (low potential for commodity production) would have minor to moderate adverse impacts. Inventory would emphasize early detection of new infestations; priority would be for commodity production and juniper management projects. Designating OHV use to existing roads and trails would result in beneficial effects to resources but the increased opportunities for recreation use would result in minor to moderate adverse effects to vegetation and soil.	Under Alternative 2, the impacts from implementing the IWM program would be the same as the No Action Alternative with the addition that the AFO would emphasize the restoration of noxious weed sites to native vegetation. The aggressive approach to IWM would significantly benefit vegetation and soil resources. The resting of annual grasslands from livestock, however, could increase the cover of exotic annuals and increase the potential for wildfire and shorter fire-return intervals. An increase in fire frequency could harm adjacent healthy communities by converting them to annual grass-dominated communities. Limits on OHV travel would be greater than the No Action Alternative and Alternative 1, reducing risk of noxious weed establishment from OHV travel. Beneficial impacts from weed inventories would be the same as the No Action Alternative.	The projects and activities proposed are similar to those under the No Action Alternative and would have the same impacts to the weeds program, Impacts from OHVs would be the same as Alternative 1.	Negligible to minor adverse impacts and moderate to major long-term beneficial impacts. Vegetation resources would continue to be managed to achieve land health standards using site-specific management techniques. In addition, there would be increased emphasis on early detection and rapid response (control) of new infestations—this would be a moderate to major long-term beneficial impact. Beneficial impacts fro weed inventories would be the same as the No Action Alternative. Limitations on OHV travel would be greater than those in the No Action Alternative, but less restrictive than Alternative 2.

Special Status Plants				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Negligible to minor adverse effects and moderate benefits to special status plants. Maintenance of special status plants and their habitats is emphasized, not restoration or enhancement. All project proposals are reviewed prior to implementation. Project recommendations are incorporated into the project if necessary to avoid or minimize impacts. Fire management would result in few beneficial impacts to special status plants. Due to the relatively small size of vegetation rehabilitation/ restoration treatments (prescribed fire, mechanical treatments, or seeding), benefits would be short-term. Long-term adverse impacts from the continued expansion of exotic annual grasslands into and adjacent to habitats of special status plants. Minor to major adverse effects from increased OHV use and minimal regulation (including enforcement).	Effects are same as No Action Alternative. Due to size of vegetation treatments, some special status plants could be overlooked which would result in adverse impacts. Benefits from fire management would be same as the No Action Alternative. WFU and prescribed fire would have moderate to major beneficial impacts by re-introducing the natural fire regime back into plant communities. Increased livestock use would have short-term and possibly long-term adverse impacts to special status plants. Recreation use would have slight to moderate adverse impacts to special status plants. Impacts from recreation and OHV use would be beneficial, both in the short and long-term. Adverse impacts would be minor.	Negligible adverse effects and moderate benefits to special status plants due to increased inventories, long-term studies, restoration, and enhancement projects. Vegetation treatment impacts would be similar to Alternative 1; however, there would be less short-term adverse impacts from prescribed fire and more from mechanical treatments. Impacts from fire management would be similar to the No Action Alternative. Resting of grazing allotments and reductions in livestock AUMs would result in the greatest beneficial impacts on vegetation communities and special status plants. Impacts from recreation and OHV use would be beneficial, both in the short and long-term. Adverse impacts would be negligible to minor.	Beneficial and adverse effects are the same as the No Action alternative. Impacts from fire management would be similar to No Action and Alternative 1. Grazing impacts, both beneficial and negative would be similar to the No Action alternative. Long-term adverse impacts would be similar to Alternative 1. Impacts from recreation and OHV use would be the same as Alternative 1.	Negligible adverse effects and moderate benefits to special status plants due to increased inventories, long-term studies, restoration, and enhancement projects. Recovery of special status plants would take longer than under Alternative 2, however. WFU and prescribed fire would have moderate to major beneficial impacts by re-introducing the natural fire regime back into plant communities. Impacts from grazing on special status plants would mostly be adverse; however, grazing might benefit some plants by removing or reducing the vigor of competing plants and by preventing the growth of shrub cover in open herbaceous habitats. Fencing would be required in some areas to protect special status plants from grazing by wild horses and livestock. Special status species management objectives would be incorporated into allotment monitoring and evaluation processes. Grazing would use site-specific management to reduce adverse impacts. Impacts from recreation and OHV use would be beneficial, both in the short and long term. Adverse impacts would be negligible to minor.

Visual Resource Management				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall adverse effects are minor to moderate for VRM when all impacts are considered. Minor to major adverse effects would occur from new corridors and communication sites depending on size and location of the facilities. These adverse effects would be site-specific, but would negatively affect visual resources and the natural landscape. (continued on next page)	Overall adverse effects are minor to moderate for VRM when all impacts are considered. Moderate adverse effects would occur to VRM on a site-specific basis with growth of specific utility corridors and the expansion of existing utility ROWs of up to 500 feet and designating existing transmission lines as utility corridors. Area-wide visual resources would benefit by encouraging the siting of new facilities in locations with existing visual intrusions. (continued on next page)	Overall beneficial effects are minor to moderate for VRM when all impacts are considered. Moderate beneficial effects to visual resources would occur by eliminating new visual intrusions on the landscape, removing abandoned utility lines, and prohibiting authorization of additional utility lines and communication sites. (continued on next page)	Overall beneficial effects are negligible for VRM when all impacts are considered. Minor beneficial effects to visual resources would be realized by prohibiting authorization of additional utility lines and communication sites. Maximize space of existing corridors on 10,000 acres. This would assist in eliminating potential visual intrusions into undisturbed areas from new facilities. (continued on next page)	The Preferred Alternative would result in minor adverse and moderate to major beneficial impacts to scenic quality. 42% of the field office area would be managed as VRM Class I and II. 21% would be managed as Class III and 37% would be managed as Class IV. Moderate beneficial effects would occur from requiring ROW holders to remove abandoned facilities from public lands. New corridors would have minor to moderate adverse effects. Expansion of existing utility ROWs of up to 500 feet, designation of existing transmission lines as utility corridors would benefit area wide visual resources by encouraging the siting of new facilities in locations with existing visual intrusions. Moderate adverse effects would occur to VRM on a site-specific basis with growth of specific utility corridors. (continued on next page)

Visual Resource Management (continued)				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Moderate to major adverse effects would occur to visual resources in this alternative with the highest amount of acres of field office lands 'Open' to mineral development and leasing, with the fewest restrictions. The potential for most large-scale minerals development is generally low; however, planning projects to meet VRM objectives would minimize potential visual impacts. No buffer zones would be established for visual resources except on a case-by-case basis. Overall adverse effects would be negligible to moderate depending on project location and size.	Moderate adverse effects to visual resources would occur due to potential ground-disturbing activities, and is similar to the No Action alternative with a large number of acres available for mineral development and leasing on field office lands. However, 200,000 acres would have surface use and occupancy requirements on leasable minerals for protection of the natural resources. Moderate adverse effects would occur to VRM on a site-specific basis with mineral development at various locations. VRM objectives would help minimize potential visual impacts. Same as No Action Alternative for establishment of buffer zones.	Minor to moderate adverse effects would occur from mineral development to VRM. All ACECs would be 'Closed' to leasables, locatable mineral entry, flat rock collection, and renewable energy development. These actions would have minor to moderate beneficial effects to visual resources on 83,007 acres of public lands, by reducing the potential for ground-disturbing activities. Available acres for minerals and energy development would be significantly reduced within the entire field office area. Major beneficial effects on visual resources would result by establishing a 5-mile buffer zone along major travel routes. All projects would be required to minimize visual impacts, and possible restriction of projects in areas of high scenic quality would enhance the preservation of the natural landscape in highly visible areas.	Moderate adverse effects to visual resources would occur from potential development of leasable and locatable minerals, flat rock collection, and renewable energy due to the large amount of acres available for development. These impacts would be similar to those effects under Alternative 1—except that; only 7,722 acres in the Ash Valley, Likely Tablelands/Yankee Jim/Fitzhugh Creek, and Emigrant Trails ACECs would also be 'Closed' to such activities. These actions would have minor beneficial effects for VRM associated with resources in sensitive areas. Minor to moderate beneficial effects would occur to visual resources from establishing a 3-mile buffer zone along major travel routes—where all projects would be required to minimize visual impacts—and possible restriction of projects in areas of high scenic quality. The management of these buffer areas would enhance the preservation of the natural landscape in highly visible areas.	OHV use within most of the field office area would be 'Limited to Designated or Existing Routes', reducing visual impacts from cross-country travel. Continued livestock grazing under this alternative would result in some adverse impacts on riparian areas, soils, and vegetation, creating site-specific visual intrusions. However, major improvements to livestock grazing strategies and land health would be made, resulting in the restoration of native plant communities and the natural setting. Energy and mineral development would have minor to moderate adverse effects at site- specific locations where development occurs. These adverse impacts to visual quality would be mitigated somewhat by meeting VRM Class objectives to minimize potential impacts. ROWs would be excluded from Lower Pit River WSR, WSAs and ACECs.

Water Resources				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall impact would be moderate with beneficial and adverse effects. Major short- and long-term adverse effects to water quality and hydrology would be associated with high catastrophic fire potential under the No Action Alternative. Lack of OHV restrictions currently has the potential for major adverse effects to water resources.	Overall impact would be major with beneficial and adverse effects. Improvements to coldwater and warmwater habitat and WSR designation are anticipated to generate localized long-term benefits to water quality and stream channel condition. AMR, WFU. and treatments would result in reduced potential for catastrophic fire and major long-term beneficial effects to water quality and hydrology that would outweigh any short-term adverse effects. Exclosures would result in moderate long-term beneficial effects to water quality and hydrology. Grazing practices may result in major short- and long-term adverse impacts to water resources.	Overall impact would be major and primarily beneficial. AMR, WFU, and treatments would result in reduced potential for catastrophic fire and moderate long term beneficial effects to water quality and hydrology that would outweigh any short-term adverse effects. Exclosures, OHV restrictions and grazing restrictions would result in major short- and long-term beneficial effects to water resources.	Overall impact would be moderate with beneficial and adverse effects. Improvements to coldwater and warmwater habitat are anticipated to generate localized long-term benefits to water quality and stream channel condition. AMR and treatments would result in reduced potential for catastrophic fire and moderate long-term beneficial effects to water quality and hydrology that would outweigh any short-term adverse effects. Reduced acreages for ACEC designations and exclosures may result in moderate short- and long term adverse effects to water resources.	Overall impact would be moderate and primarily beneficial. Improvements to coldwater and warmwater habitat and WSR designation are anticipated to generate localized long-term benefits to water quality and stream channel condition. AMR and hazardous fuels treatments would result in reduced potential for catastrophic fire. This would result in moderate to major long-term beneficial effects to water quality and hydrology that would outweigh any short-term adverse effects. Livestock exclosures would be constructed on 500 acres of riparian/ wetland sites, reducing effects to water quality from soil trampling and nutrients. OHV management would offer moderate beneficial effects to water resources.

Wild Horses and Burros				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Overall negligible effects would occur under the No Action Alternative. Viable populations of horses would be maintained at AML	Overall negligible effects would occur under the No Action Alternative. Emphasis on commodity values would increase pressure on wild horses resulting in increased pressure on surrounding private ranches.	Overall major adverse effects would result from removing the Red Rock herd. Emphasis would be on ecosystem health.	Same as No Action Alternative.	Overall negligible effects would occur under the Preferred Alternative. Viable populations of horses would be maintained at AML.

Wildlife and Fisheries				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Wildlife—Fire & Fuels				
In general, moderate to major adverse impacts from the fire and fuels programs, due to build-up of fuels that would promote large catastrophic fires and/or allowing plant communities to age to late succession. Climax plant communities contribute to a decrease in species bio-diversity. Minor adverse impacts from fire suppression activity are expected to be short-term impacts. Minimal fire and fuels activity could cause further habitat degradation from increase juniper invasion.	Moderate to major adverse impacts from the fire and fuels programs, due to build up of fuels that would promote large catastrophic fires and/or allowing plant communities to age to late succession, which contributes to a decrease in species bio-diversity. Minor adverse impacts from fire suppression activity are expected to be short-term impacts. Increased acres treated under the fuels program would have greater benefits to wildlife, especially where projects designed to diversify sagebrush habitat and decrease juniper would have long-term beneficial impacts. Mechanical treatments may need follow-up rehabilitation to speed up vegetative recovery.	Use of AMR offers the best potential for benefiting wildlife habitat. Allowing for natural fires to burn in many areas could provide major long-term benefits by improved diversity, reduced invasive juniper, and improvement of sagebrush habitats. Emphasis on fire rehabilitation would have long-term benefits for wildlife. Large acres planned for fuels treatment utilizing all tools available would maximize the ability to improve priority habitat areas for big game, diversity shrub habitats, control juniper invasion, and improve sagebrush habitat for sage-grouse. The above actions would have long-term minor to major benefits for many species and habitat conditions.	Major adverse impacts from fire suppression is expected due to build of fuels that would promote large catastrophic fires and is some habitat types cause further habitat degradation from increase juniper invasion. Minor benefits to big game and other wildlife where emphasis is placed on protection of commodity habitat types. Provides for a mixed use of fuels treatments, but mechanical treatment is emphasized. Treatment of up to 12,000 acres per year would moderately contribute to habitat improve for most it wildlife, but only if implemented at a high acreage rate per year. Short-term minor adverse impacts from fuels treatment would out weigh the long-term minor to moderate benefits.	Overall, moderate beneficial impact would occur from AMR implemented over most of the field office. Aggressive fire suppression would result in short-term adverse impacts from the activity but would contribute to long-term minor to moderate benefits to habitats that rely on fire to maintain health, diversity and more natural conditions. “Let burn” emphasis would have more beneficial impacts over the long term and could be significant in promoting healthy sage steppe habitat for big game, sage-grouse, and other sagebrush-obligate species. Prescribed fire emphasis would result in long term beneficial impacts. Mechanical treatments of juniper could have lasting and major beneficial impacts on sage-grouse habitat and seasonal big game ranges, and benefit special habitats by creating diverse and healthy age classes.

Wildlife—Soil Resources				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Long-term but minor beneficial conditions for aquatic and terrestrial wildlife from 100 acres of protected soils. Minor to moderate adverse impacts to those areas where soils would not be protected or enhanced to reduce erosion.	Soil protection of 6000 acres would result in long-term moderate beneficial conditions for aquatic and terrestrial wildlife. Moderate benefits to riparian areas would also occur by implementation of a 50-foot buffers.	Long-term moderate beneficial conditions for aquatic and terrestrial wildlife would result from soil protection of 10,154 acres of sensitive soil areas. Moderate benefits to riparian areas would also occur by implementation of a 50-foot buffers.	Soil protection of 1000 acres would result in long-term minor beneficial conditions for aquatic and terrestrial wildlife. Moderate benefits to riparian areas would also occur by implementation of a 50-foot buffers.	Minor long-term impacts for terrestrial and aquatic wildlife would occur from soil erosion prevention measures on 200 acres. Moderate benefits to riparian areas would also occur by implementation of a 50-foot buffers.
Wildlife—Wildlife & Fisheries				
Negligible benefits to most aquatic and terrestrial wildlife. Actions to improve habitat on a small scale and maintenance of existing structures and exclosures as well as actions to meet land health standards, would continue to have positive long-term benefits. Implementing actions and recommendations from sage-grouse conservation strategies would have lasting minor to major benefits for grouse and other sage obligates.	Moderate to major benefits to big game habitat are expected from management of designated priority habitat areas. Actions within priority habitat areas would also benefit many other wildlife species. Creating new water fowl structures would benefit production of waterfowl during spring. Implementing actions and recommendations from sage-grouse conservation strategies would have lasting minor to major benefits for grouse and other sage obligates.	Moderate to major benefits to big game habitat are expected from management of priority habitat areas and designated emphasis areas identified by BLM and CDFG. Actions within priority habitat areas would also benefit many other wildlife species. Creating new waterfowl structures would benefit production of waterfowl. Sage-grouse plans implemented would have long-term major benefits to grouse, other sagebrush-obligate species, and important big game habitat.	Similar to the No Action Alternative, only slight benefits to most aquatic and terrestrial wildlife. Actions to improve habitat on a small scale, maintenance of existing structures and exclosures, and actions to meet land health standards would continue to have positive long-term benefits. Implementing actions and recommendations from sage-grouse conservation strategies would have lasting minor to major benefits for grouse and other sage obligates.	Moderate to major benefits to big game habitat from management of designated priority habitat areas. Major long-term benefits for terrestrial and aquatic species from actions to improve special habitats, and sage steppe habitat through sage-grouse conservation plans. Actions within priority habitat areas for big game would also benefit many other wildlife species. Creating new waterfowl structures would benefit production of waterfowl.

Wildlife—Vegetation				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Under the vegetation program, minor to moderate benefits are expected from fire rehabilitation and actions designed to improve land to Land Health Standards. Low-volume juniper treatment would cause long-term moderate adverse impacts to do continued degradation of habitat encroached by juniper. Actions to improve 5 miles of riparian habitat would have moderate benefits to aquatic and terrestrial wildlife in those areas. Other riparian habitats that are not identified for improvement could be impacted from other land activities and would result in adverse minor to major impacts on riparian areas.	Minor to moderate benefits are expected from actions designed to improve land to land health standards. Small juniper treatment would cause long-term moderate adverse impacts. Creating diverse shrub habitats would have long-term moderate benefits wildlife. Actions to improve 25 miles of riparian habitat would have major benefits to aquatic and terrestrial wildlife in those areas. Permanent and temporary exclosures would create minor to major beneficial impacts on water quality and riparian vegetation, and improve fisheries.	Vegetation program would emphasize improving natural vegetation communities, diversifying shrub habitats, reducing noxious weeds, and using rehabilitation to improve habitat. Short- and long-term and minor to major level benefits would be expected from healthy and diverse shrub habitats. Actions to improve only 2 miles of riparian habitat would have minor benefits to aquatic and terrestrial wildlife in those areas. Permanent exclosures of 3,000 acres to protect riparian habitats would create minor to major beneficial impacts on water quality and riparian vegetation, and improve fisheries.	Minor to major benefits are expected from fire rehabilitation and actions designed to improve land to land health standards. Low-volume juniper treatment would cause long term major adverse impacts to do continued degradation of habitat encroached by juniper. Little to no emphasis on stream bank protection and in stream water work could allow for degradation of aquatic habitat and water quality for aquatic species. Protective fences constructed on a case-by-case basis would add minor to moderate benefits locally to those areas but may not contribute to large drainage stabilization or improvement.	Minor to moderate benefits from green stripping to protect important sage habitat and reduce spread of noxious weeds and grass. Native and non-native seed use benefits wildlife in land rehabilitation. Aspen and special habitats managed for diverse age structure; major long-term benefits for many species. Major benefits expects from projects designed for riparian enhancement. Permanent exclosures (500 acres) to protect riparian habitats would create minor to major beneficial impacts on water quality and riparian vegetation, and improve fisheries.

Wildlife—Energy & Minerals				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Most actions from the energy and minerals program would result in short-term adverse impacts, but the scale of the impact is dependant on where and how large the impact area will be (to be determined through site-specific NEPA analysis). The expected low occurrence of activity within these programs would most have negligible impacts on wildlife.	Similar to the No Action Alternative, the energy and minerals program would result in short-term adverse impacts but the scale of the impact is dependant on where and how large the impact area will be (to be determined through site-specific NEPA analysis). The expected low occurrence of activity within these programs would most have negligible impacts on wildlife.	Restriction on where energy and mineral use could occur provides long-term benefits to wildlife by keeping these areas off limits to development. Areas 'Open' for energy and mineral use would result in short-term adverse impacts but the scale of the impact is dependant on where and how large the impact area will be. The expected low occurrence of activity within these programs would most have negligible impacts on wildlife.	Most actions from the energy and minerals program would result in short-term adverse impacts but the scale of the impact is dependant on where and how large the impact area will be. Impacts could be substantial but difficult predict where or when these might occur (to be determined through site-specific NEPA analysis). The expected low occurrence of activity within these programs would most have negligible impacts on wildlife.	Similar to the No Action Alternative, the energy and minerals program would result in short-term adverse impacts but the scale of the impact is dependant on where and how large the impact area will be (to be determined through site-specific NEPA analysis). The expected low occurrence of activity within these programs would most have negligible impacts on wildlife. Restrictions on important identified habitats will provide long-term benefits to those species (i.e., sage-grouse leks).

Wildlife—Forestry				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The forestry program actions would have mostly short-term and minor impacts on wildlife and, in many cases, long-term benefits to wildlife habitat. Healthy forest helps to maintain healthy environments for good bio-diversity. Juniper reduction improves sage steppe habitat for those species dependant on them, but small-scale removal only adds minor benefits to wildlife habitats.	Minor to major short-term adverse impacts from mechanical emphasis in the forestry program. But, in turn, could have long-term moderate to major beneficial impacts to wildlife habitat. Improved forest conditions and decrease juniper would help create healthy and diverse areas for wildlife. Road construction for harvesting would cause short-term adverse impacts that in some areas may be a major impact. Mitigation measures would be put in place in sensitive areas.	Emphasis of hand treatments and "light hand on the land" approach to harvesting and improving forest conditions would provide the best benefits over other alternatives. Healthy forest emphasis would result in minor to major short-term adverse impacts for both aquatic and terrestrial wildlife, but in turn would have long term beneficial impacts to wildlife habitat. Improved forest conditions and decrease juniper would help create healthy and diverse areas for wildlife.	Mechanical emphasis in the forestry program would result in minor to major short-term adverse impacts, but in turn would have long-term beneficial impacts to wildlife habitat. Improved forest conditions and decreased juniper would help create healthy and diverse areas for wildlife. Thirty miles of road construction for harvesting would cause short-term adverse impacts that in some areas may be a major impact. Mitigation measures would be put in place in sensitive areas.	Minor to major short-term adverse impacts from mechanical emphasis in the forestry program. But in turn would have long-term moderate to major beneficial impacts to wildlife habitat. Improved forest conditions and decreased juniper would help create healthy and diverse areas for wildlife. Road construction for harvesting would cause short-term adverse impacts that in some areas may be a major impact. Mitigation measures would be put in place in sensitive areas.

Wildlife—Livestock Grazing & Wild Horse Management				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Grazing of public lands on the AFO would continue to have long-term minor to major adverse impacts, except where significant changes in grazing management are made to improve category one allotments. Moderate to major impacts could occur when grazing riparian areas, meadows, springs, and from grazing that contributes to low fire frequency and increased juniper invasion. Minor to major impacts on springs and riparian areas where horse numbers are too high and contribute to habitat degradation.	Similar to No Action Alternative, except that major adverse impacts could occur from increased AUM use above the current active use. Implementing guidelines from the sage-grouse conservation plans could improve sagebrush habitats over the long term. Minor to moderate benefits to springs and other important wildlife areas from reduction in horse numbers. Implementing management for long term reductions of horse number will have moderate long term benefits for wildlife habitat.	Reducing grazing by two thirds would have major benefits to all habitats for aquatic and terrestrial wildlife. Major benefits would result in important shrub habitats for big game, sagebrush habitats used by sage-grouse, and many ground-dwelling animals. There would be continued long-term moderate benefits to perennial plants from reduced grazing upon them and could increase beneficial fires. Moderate benefits to springs and other important wildlife areas from reduction in horse numbers. Implementing management for long-term reductions of horse number will have moderate long-term benefits for wildlife habitat.	Similar to No Action, grazing would continue to have long-term minor to major adverse impacts, except where significant changes in grazing management are made to improve category one allotments. Moderate to major impacts could occur when grazing riparian areas, meadows, springs, and from grazing that contributes to low fire frequency and increased juniper invasion. Minor to major adverse impacts on springs and riparian areas where horse numbers are too high and contribute to habitat degradation.	Except where significant changes in grazing management are made to improve category one allotments, grazing public lands on the AFO would continue to have short-term and long-term adverse impacts. Minor to major impacts would occur when grazing riparian areas, meadows, and springs, and from grazing that contributes to low fire frequency and increased juniper invasion. Implementing guidelines from the sage-grouse conservation plans could improve sagebrush habitats over the long term. Minor to moderate benefits to springs and other important wildlife areas from reductions in horse numbers to AML. Implementing management for long-term reductions of horse numbers to AML will have moderate long-term benefits for wildlife habitat.

Wildlife—Recreation & Travel Management				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Minor to major adverse impacts on wildlife habitat from continued 'Open' designations of OHV use within sage-grouse and important big game habitat. Relatively low occurrence of off- road use on the AFO expected to increase over the next 20 years and could cause major adverse impacts. Continued closures on big game winter ranges will have long-term moderate beneficial impacts.	Several OHV closures within sensitive wildlife habitats would have long-term minor to major benefits for big game. Continued 'Open' designations of OHV use could have minor to major adverse impacts on wildlife habitat; especially within important sage-grouse and big game habitat. Relatively low occurrence of off- road use on the AFO is expected increase over the next 20 years and could cause major adverse impacts. Continued closures on big game winter ranges will have moderate beneficial impacts.	Most restrictions on OHV use and therefore major benefits to wildlife. Seasonal and permanent closures would provide long-term benefit to important big game ranges and sensitive sage-grouse areas. In most cases reduced human disturbance is always a benefit to wildlife.	Continued 'Open' designations of OHV use could have minor to major impacts on wildlife habitat, especially within sage-grouse habitat. The current low occurrence of off- road use on the AFO is expected to increase over the next 20 years and cause these adverse impacts. Continued closures on big game winter ranges will have moderate beneficial impacts.	Change in OHV designated 'Open' to 'Limited to Existing and Designated Routes' provides major beneficial impacts for aquatic and terrestrial wildlife. Reduced impact allows undisturbed areas and concentrates human uses so that wildlife can adapt long-term to the human use patterns and find more seclusion on the landscape. Seasonal and permanent closures would provide long-term moderate benefits to important big game ranges and sensitive sage-grouse areas. Limitations on other recreation activities will benefit riparian habitat and species
Wildlife—Special Designations				
Minor to moderate beneficial impacts due to continued management of WSAs and ACECs. These areas contribute to low human occurrence resulting in low disturbance to wildlife.	Moderate beneficial impacts due to increased ACEC designation and other special areas that would benefit wildlife over long term. Low human occurrence in these areas and continued management of WSAs will result in low disturbance to wildlife.	Moderate to major beneficial impacts due to increased designation of ACECs and other special areas that would benefit wildlife over long term. Low human occurrence in these areas and continued management of WSAs will result in low disturbance to wildlife.	Minor beneficial impacts due increased designation of ACECs and other special areas would benefit wildlife over the long term. Low human occurrence in these areas and continued management of WSAs will result in low disturbance to wildlife.	Moderate beneficial impacts due to increased designation of ACECs and other special areas would benefit wildlife over the long term. Low human occurrence in these areas and continued management of WSAs will result in low disturbance to wildlife.

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CHAPTER 3:
AFFECTED ENVIRONMENT

Chapter 3. Affected Environment

Introduction

This chapter describes the existing physical, biological, cultural, social, and economic characteristics of the Alturas Field Office (AFO) planning area, representing 503,045 acres in four counties in northeastern California. The affected environment defines the baseline of existing conditions from which possible impacts of the plan alternatives may be analyzed. The majority of the data was provided by the Bureau of Land Management (BLM) AFO; federal, state, county, and local agencies; various organizations; and other public and private sources. Data include published and unpublished reports, maps, and geographic information system (GIS) information.

A majority of the lands administered by the AFO are located in the Modoc Plateau of the Great Basin Province, as described in The Jepson Manual (Hickman 1993). The remainder of the AFO area (i.e., the area along the western boundary) is within the Cascade Range region of the California Floristic Province. Because the AFO area is located within the transition zone between these two floristic provinces, a portion of the AFO area exhibits floristic elements of both the Great Basin and the Cascade Range foothills. In the transition zone, these elements mix, plant communities intergrade with little clear demarcation, and plant alliances become ecotonal.

The AFO planning area includes most of Modoc County, except for an area on the east side of the county (generally east of the Warner Mountains) that is within the planning area of the Surprise Field Office. The planning area includes the City of Alturas, which is where the BLM administrative offices are located; and the communities of Adin, Canby, Davis Creek, Day, Likely, Lookout, Newell, New Pine Creek, and Tionesta.

In Lassen County, the planning area includes the communities of Bieber, Madeline, Little Valley, Nubieber, and Pittville; Termo is immediately adjacent to the area. It should be noted that although Modoc County has the largest amount of area within the AFO planning area (approximately 53%), the greatest share of actual BLM land managed by the AFO is in Lassen County. Approximately 52% of BLM land managed by the AFO is in Lassen County and 29.4% is in Modoc County.

Approximately 331,334 acres of the AFO planning area and 46,522 acres of BLM land are located in Shasta County. Shasta County communities in the planning area include Burney, Cassel, Dana, Fall River Mills, Glenburn, Hat Creek, Johnson Park, and McArthur.

Approximately 889,956 acres of the planning area and 42,712 acres of BLM land are located in Siskiyou County. The communities of Tulelake, Macdoel, and Mt. Hebron are located in the planning area. Dorris is immediately adjacent to the planning area.

Dominant vegetation types include mountain big sagebrush, mixed sage–western juniper, western juniper, conifer, and riparian formations. Large animal species that characterize the area include deer, pronghorn antelope, mountain lion, coyote, and black bear; wild horses are also present. Principal uses of the lands include livestock grazing, developed agriculture, forestry, and recreation.

3.1 Air Resources

The AFO area is located in Modoc County and lies in the Northeast Plateau Air Basin (NPAB). The NPAB includes Siskiyou, Modoc, and Lassen Counties. The Modoc County Air Pollution Control District has jurisdiction over air quality issues throughout Modoc County. It administers air quality regulations developed at federal, state, and local levels.

3.1.1 Current Conditions

3.1.1.1 Climate and Topography

Weather in northern California is dominated by the position of the Eastern Pacific high pressure cell that is normally located off the coast of North America. Due to the positioning of this cell, an almost unbroken chain of winter storms occurs in the study area, and the bulk of the precipitation in the study area occurs during this winter storm period. Weather systems in the region usually result in strong winds and unstable air masses, providing for good dispersion conditions. During fair weather periods, stable air conditions prevail throughout the region.

During spring, the movement of the Pacific high pressure cell results in a decline of precipitation in the project vicinity. Spring conditions are rarely warm and dry, due to unstable conditions that result in rain and snow. Dry, warm conditions are characteristic of the summer months, although thunderstorms are not uncommon. The transitional period between summer and winter/spring is generally characterized by cool, clear days and evening temperatures that drop below freezing.

The existing air quality conditions in the AFO area are reflected by monitoring data collected in the region. Air quality monitoring data for 1999 through 2001 (the most recent years available) are presented in Table 3.1-1. The closest monitoring station is located at the West 4th Street monitoring station in Alturas.

As shown in Table 3.1-1, the AFO area has experienced violations of the state's PM_{10} (particulate matter less than 10 micrometers in diameter) standards during the last 3 years. The federal and state governments have established ambient air quality standards for six criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, and lead (Pb). The state and federal ambient air quality standards are summarized in Table 3.1-2 (at the end of this subsection). O_3 and PM_{10} are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as CO, NO_2, SO_2, and Pb are considered to be local pollutants because they tend to accumulate in the air locally. Particulate matter (PM_{10} and particulate matter less than 2.5 micrometers in diameter [$PM_{2.5}$]) is also considered to be a localized pollutant.

In the AFO area, particulate matter is the primary pollutant of concern. During the summer months, when wildfires and prescribed burns are a significant source of airborne particulate matter, frequent dry periods can result in infrequent instances of mixing and ventilation, resulting in higher levels of particulate matter. During the winter months, particulate matter from wood-burning stoves and furnaces used for heating often results in increased levels of airborne particulate matter. During these times, air quality is less likely to meet state and federal attainment status. Table 3.1-3 summarizes the state and federal attainment designations for Modoc County.

Table 3.1-1 Ambient Air Quality Monitoring Data at the Alturas West 4th Street Monitoring Station (1999–2001)

Pollutant Standard	1999	2000	2001
Particulate Matter (PM_{10})			
Maximum 24-hour concentration ($\mu g/m^3$)	94.0	79.2	66.6
Second highest 24-hour concentration ($\mu g/m^3$)	73.4	58.8	47.0
Average geometric mean concentration ($\mu g/m^3$)	22	17	16
Average arithmetic mean concentration ($\mu g/m^3$)	26	22	19
Number of Days PM_{10} Standard Exceeded[a]			
CAAQS 24-hour (>50 $\mu g/m^3$)[b]	30	18	6
NAAQS 24-hour (>150 $\mu g/m^3$)[b]	0	0	0
Particulate Matter ($PM_{2.5}$)			
Maximum 24-hour concentration ($\mu g/m^3$)	40.0	38.0	35.0
Second highest 24-hour concentration ($\mu g/m^3$)	27.0	37.0	32.0
Average arithmetic mean concentration ($\mu g/m^3$)	7.9	8.5	7.6
Number of Days $PM_{2.5}$ Standard Exceeded[a]			
NAAQS 24-hour (>65 $\mu g/m^3$)[c]	0	0	0

Notes:

$\mu g/m^3$ = micrograms per cubic meter
CAAQS = California ambient air quality standards.
NA = Not applicable.
NAAQS = National ambient air quality standards.

[a] The number of days above the standard is not necessarily the number of violations of the standard for the year.

[b] Calculated exceedances are based on measurements taken every 6 days.

[c] Calculated exceedances are based on measurements taken every 3 or 6 days, depending on the time of year and the site's monitoring schedule.

Sources: California Air Resources Board 2003, U.S. Environmental Protection Agency 2003.

Table 3.1-3 Attainment Status for Criteria Pollutants of Concern in the Modoc County Air Pollution Control District

Particulate Matter Less Than 10 Microns		Particulate Matter Less Than 2.5 Microns		Carbon Monoxide		Ozone	
Federal	State	Federal	State	Federal	State	Federal	State
Unclassified	Non-attainment	Unclassified	NA	Unclassified/ attainment	Unclassified	Unclassified/ attainment	Attainment

Note: NA = Not applicable.

3.1.1.2 Air Quality Pollutants

Ozone

O_3 is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections. O_3 can cause substantial damage to vegetation and other materials. It is a severe eye, nose, and throat irritant. O_3 also attacks synthetic rubber, textiles, plants, and other materials, and can cause extensive cell damage and leaf discoloration in plants.

O_3 is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases and oxides of nitrogen, react in the atmosphere in the presence of sunlight to form O_3. Because photochemical reaction rates increase when the intensity of ultraviolet light and air temperature increase, O_3 is primarily a summer air pollution problem. The ozone precursors (reactive organic gases and nitrogen oxides) are emitted by stationary combustion engines and mobile sources, such as construction equipment.

Carbon Monoxide

CO essentially has no effect on plants and materials but can significantly affect human health. It is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also emit more CO at low air temperatures.

Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials.

Emissions of particulate matter are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

3.1.2 Trends

Information provided by BLM staff indicates that the following activities contribute to emissions in the AFO area (Whitcome, personal communication.):

- Wildfires (beyond management control),
- Prescribed fires (piles and broadcast),
- Heavy equipment use,
- Road construction and maintenance,
- Reservoir construction and maintenance,
- Chainsaw use on fuels and fire projects, and
- Field work by BLM employees (e.g., vehicles and all-terrain vehicles).

BLM activities would continue to generate emissions of criteria pollutants, particularly inhalable particulate matter. The substantial generation of particulate matter, particularly from wildfires and prescribed fires, is anticipated to result in a detrimental effect on air quality in the region.

Table 3.1-2 Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard ($\mu g/m^3$)		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 1 day per year
		8 hours	NA	0.08	NA	157	NA	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
CO at Lake Tahoe only	CO	8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual average	NA	0.053	NA	100	NA	If exceeded on more than 1 day per year
		1 hour	0.25	NA	470	NA	If exceeded	NA
Sulfur dioxide	SO_2	Annual average	NA	0.03	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable particulate matter	PM_{10}	Annual geometric mean	NA	NA	20	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	NA	50	NA	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	$PM_{2.5}$	Annual geometric mean	NA	NA	12	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	NA	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	65	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

3.2 Cultural Resources and Paleontology

Muck Village

Cultural resource sensitivity within the AFO area is generally considered to be high. Archaeological site types that are representative of the Great Basin, California, and Columbia Plateau cultures can be found across the area. While each culture area possesses its own unique adaptations, similarities among site types exist. In general, prehistoric site types found in the Alturas area are semi-permanent camps, temporary camps, hunting related sites, plant processing locales, rock features, rock art locales and quarry sites.

Historic site types in the AFO area are typically related to ranching and logging operations, as well as transportation related resources such as the Lassen-Applegate Trail, the Yreka trail, military routes and a number of toll roads. There are 1,700 recorded cultural resource sites in the AFO area; 85% of these are prehistoric and 15% are historic. Only one site is listed in the National Register of Historic Places (NRHP), although it is likely that additional sites possess characteristics that would meet established NRHP eligibility criteria. Three culturally related areas of critical environmental concern (ACECs) have been identified, but have not received the ACEC designation as yet.

In addition to the erosional processes from wind and water, the major effects on cultural resources are site deflation or disturbance from grazing (of both domestic livestock and wild horses) and recreational vehicle use, vandalism in the form of surface collecting, and fire suppression activities. In general, cultural resources throughout the AFO area have received little active management in the past. A number of gaps within the cultural resource database have been identified and are currently being addressed. Although most surveys that were required under Section 106 of the National Historic Preservation Act have been documented, very little Section 110 survey information from before 1999 is available. Very few sites have been evaluated for the NRHP, although a number have been identified as being eligible. Without increased survey, evaluation, and mitigation, it is likely that such sites will lose what cultural or scientific information that would make them eligible for the NRHP.

A Class I Cultural Resource Overview that synthesizes all available data for Northeastern California was prepared in 2004 by Far Western Anthropological Research Group. Unless otherwise noted, the following chronological summary is taken from this document.

3.2.1 Prehistoric Context

Chronology

Prehistoric occupation of the project area, commencing approximately 12,000 years ago, has been divided into six separate periods, each with distinctive life ways and land use patterns (Delacorte 1997). The initial occupation, the Early Holocene period (ca. +7,000 before present [BP]), is characterized by highly mobile foragers who traveled from one valley system to another focusing of the food resources found near lakeshores and wetlands.

The Post-Mazama period (ca. 7,000-5,000 BP), signals the first significant use of upland zones of the project area, as well as increasing settlement activity near prominent sources of water. The latter may have resulted from severe drought, as smaller springs and streams took on new importance as once-productive wetlands and lakes disappeared.

The next occupation, the Early Archaic period (5,000-3,500 BP), is marked by major increases in archaeological visibility with artifacts and sites dating to this time occurring in a wide range of geographic contexts. Obsidian and basalt quarry production, the latter the hallmark of the Martis Complex centered near Lake Tahoe, begin to accelerate during this period.

This trend continues through the Middle Archaic period (3500-1,500 BP), which represents both within the project area and throughout California somewhat of a "golden age" recognized by the appearance of large, semi-sedentary villages, as well as elaborations in material culture, house construction, obsidian and basalt production, and ceremonial and settlement activity directed at the hunting of large game.

The transition from the Middle to the Late Archaic period (1,300-600 BP) produced major changes in assemblage structure, subsistence, and settlement practices. At about 1,000 BP, large-scale obsidian quarry production collapses, many of the previously occupied villages are abandoned, and subsistence activities are increasingly directed at a few key root crops. Drought, population-resource imbalances, and chronic warfare have all been cited as potential causes for these dramatic changes. The final phase of prehistoric occupation, the Terminal Prehistoric period (600 BP-Contact), is marked by the arrival of Numic-speaking groups into much of the Great Basin portion of the project area. Settlements have a "stand alone" domestic quality, as might be expected by a series of dispersed, short-term occupation by small family units. There is also continuing evidence of conflict associated with the arrival of new peoples into this boundary land separating California from the Great Basin.

3.2.2 Ethnographic Context

3.2.2.1 Modoc

Modoc territory centered on Lower Klamath, Tule, and Clear Lakes and the Lost River, which flows between Clear and Tule Lakes (Kroeber 1925, Ray 1963, Merriam and Talbot 1974).

In the pre-contact period the Modoc people lived on both sides of what is now the California-Oregon border and immediately east of the Cascade Range. They spoke a dialect of the Plateau Penutian family (Stern 1998:446) which, along with their close relatives and neighbors to the north, the Klamath, formed a linguistically isolated unit known as Lutuamian (Shipley 1978). Their language was unintelligible to their neighbors in every direction (Ray 1963). Traditional Modoc tribal territory was divided into three geographic areas, with the residents of each area known by a different name: Gumbatwas ("people of the west"), the Paskanwas ("river people"), and the Kokiwas ("people of the far-out country") (Ray 1963).

Although there are several ethnographic resources available, Ray's monograph (1963) is the most comprehensive, detailed, and integrative source for the Modoc. His data contribute information regarding a full range of cultural and social aspects, and additionally he identifies a number of villages and religious sites, although his locations are of an extremely general nature (Ray 1963:201-211; see also Spier 1930). Since most of their lives were spent in the lacustrine settings of the Klamath Basin, the resources that were locally abundant formed the basis of the subsistence round for this group. Life revolved around the seasonal harvest of fish, waterfowl, and tules or wokas. Beginning in the spring, with the annual sucker runs in the Upper Klamath Lake and the Lost River, people would leave their winter villages behind and travel to the fishing grounds. During these runs, everyone was kept busy processing the catch to store for the winter. Once the sucker runs slackened, Modoc women began gathering upland plant foods such as biscuitroot (*Lomatium canbyi)* and epos (*Perideridia* spp.). During this time, waterfowl eggs were also gathered.

In July, the yellow pond lily (*Nuphar polysepalum*) ripened in Modoc country and was harvested. For the Modoc, this harvest was preceded by first-fruits rite presided over by a shaman (Stern 1998). Later, as other plant resources became available, the women went out and gathered plants in groups. During this time, the men were occupied with hunting upland game.

Deer and pronghorn antelope were often taken by a single hunter in deer headdress, or by groups of hunters who, through the use of fire or other methods, 'herded' these animals into makeshift corrals or pounds, where they could be easily dispatched. In the early fall, people gathered cherries, plums, and other fruits and nuts.

Extended trips in the nearby uplands and further abroad saw the men hunting, while the women picked berries. By October, most people had returned to their winter villages to rebuild the semi-subterranean lodges and hold communal ceremonies. Food that had been dried and temporarily stored was placed into more permanent storage pits in the villages. The return of cold weather saw families firmly ensconced in winter villages, relying for the most part on stored foods to see them through to the next spring sucker run.

Permanent winter villages were established in the river valleys, such as Lost River Valley, and along the Lower Klamath and Tule Lakes. Winter settlements varied in size, but some were rather large (ca. 100 people) and were continually occupied (Stern 1998:451). Social life was most elaborate in the winter villages where family groups congregated after an extended period of hunting, fishing, and gathering. The Modoc were served by three separate types of leaders: a political leader or chief, a war leader, and a shaman. The Modoc understood the world as a flat disc that the creator, Kumookumts, had generated from a hill on the east side of Tulelake (Ray 1963:20). The land of the dead, where human spirits went after death, was in the west, and malicious influences flowed from that direction (Ray 1963:20). Consequently, house doors opened to one of the other directions to prevent these negative influences from entering, and people preferred not to sleep in the western portion of the house (Ray 1963:146).

3.2.2.2 Historical

The Applegate Emigrant Trail (Southern Road to Oregon) ran through Modoc territory, and in the 1850s the tribe became increasingly engaged in hostilities with the settlers and miners who entered the area. In 1864, the Modoc and Klamath signed a treaty which assigned reserve lands for both tribes in Klamath territory. With no land within their traditional territory set aside for them, the Modoc people reluctantly agreed to live on the Klamath agency. This arrangement proved unsatisfactory, however, for many of the Modoc.

A number of Modoc, led by Captain Jack, rebelled and left the Klamath agency to live at a traditional village on the Lost River. Agency efforts to force them back to the reserve resulted in the Modoc War of 1872-73, during which the Modoc retreated to a fortress-like sanctuary in the lava beds, where they held off U.S. troops for many months.

Upon their final surrender, the surviving Modoc insurgents and their supporters were sent to Oklahoma, returning only many years later to join the members of the tribe who had been allowed to remain at the Klamath agency (Murray 1959; Powers 1976; Ray 1962; Thompson 1971). Thus, by the time ethnographic efforts were pursued in the late nineteenth and early twentieth centuries, the Modoc had been effectively separated from their traditional lands. Many had spent most of their lives in Oklahoma, where the opportunities for passing on cultural information, especially about the traditional landscape, were greatly restricted (Voegelin 1942:48). Consequently, there is relatively less detailed information regarding Modoc lifeways and sites than is available for other tribes, who were able to maintain intimate knowledge of their aboriginal territory through continuous residence.

Ray's (1963) ethnogeographic information is the most comprehensive for the Modoc. He lists villages, cremation grounds, and ritual centers, which account for most of the principal settlements inhabited around the mid-1800s. Ethnographic site information is not included in this document.

3.2.2.3 The Pit River: Achumawi and Atsuge

The Pit River Indians have traditionally inhabited a vast area of northeastern California which encompasses the mountainous Pit River drainage, from southern Goose Lake all the way to Big Bend, in Shasta County. Pit River tribes are comprised of two groups: the Achumawi, consisting of nine bands, and the Atsuge, with two bands (Garth 1978; Kniffen 1928:303; Olmstead and Stewart 1978). The Achumawi language and its distant relative, Atsuge, together form the Palaihnihan family, a member of the Hokan stock; each language contains dialects that correspond to the band divisions (Olmsted 1966; Shipley 1978). The nine bands of Achumawi are the Astarawi, Kosealekte, Hammawi, Hewisedawi, Atwamsini, Ajumawi, Ilmawi, Itsatawi, and Madesi. The Atsuge, who occupy the southern Pit River territory, consist of two bands: the Atsuge and the Aporige. Territorial boundaries of these nine bands may be found in (Kniffen) 1928, Merriam and Talbot (1974), and Garth (1953).

Pit River people on the west side of the field office area lived near the easternmost limits of salmon and acorns. Thus these items were incorporated into their subsistence economy. The eastern bands of the Achumawi focused their subsistence efforts on the many fish in the local streams, including pike minnows, suckers, trout, lamprey, as well as smaller minnow varieties (Olmsted & Stewart 1978). Men fished with spears in spring and summer, and set nets through the ice in winter. Fishing was exceptionally good at the forks of Pit River (in Kosalektawi territory). Deer hunting was excellent in the Warner Mountains, as well as on the plains north of the Pit River (Kniffen 1928). Deer were hunted throughout the year (Kniffen 1928). More distant groups were invited to take part in the fall deer drives held in the Warner foothills, and these guests brought dried salmon and acorns in exchange for this invitation (Kniffen 1928). The wetlands sustained numerous tubers, roots, and year-round and migratory waterfowl, which were supplemented by other vegetal resources in the surrounding grasslands and forests (Stewart 1978). Tules provided food and supplied fibers for house coverings, mats, twine, clothing, and rafts (Kniffen 1928, Olmsted and Stewart 1978). Even apparently barren sagebrush areas like the Madeline Plains yielded important resources, such as sage-grouse eggs in spring (Olmsted and Stewart 1978). Pit River women gathered important plant foods including epos roots that were dried in the sun and either eaten or stored for the following winter. Camas roots, other bulbs, "tule potatoes," and later in the season salmon berries, bear berries, juniper berries, wild plum, and wild buckwheat were available in the higher lands; these were dried or ground and stored for winter use (Kniffen 1928).

Traditionally, the Pit River bands established their permanent winter settlements in protected valleys, building substantial dwellings against the severe winter weather. Later in time, however, family groups may have remained in the uplands during mild winters to be near caches of roots (Delacorte 2000, Foster-Curley personal observation 2004). The basic structure usually served as a multi-family home, where all shared a central fire (Voegelin 1942, Garth 1953). Summer shelters at gathering camps typically were brush windbreaks (Kroeber 1925). The village was the basic political unit. Within the village, chiefs directed economic pursuits and determined when to move and when to conduct communal hunts (Garth 1953). While there was no overall tribal authority, popular chiefs were "influential far outside their own areas and could make decisions overriding those of lesser chiefs" (Garth 1978:237). Other officials potentially included an assistant chief, crier, and messenger (Voegelin 1942). A shaman oversaw the health of the community membership. Pit River peoples believed that the soul traveled to the western mountains at death, and they observed procedures to help the soul on its journey. If these steps were not taken, the ghost might return and try to take a companion, probably a close relative, with it (Olmsted and Stewart 1978:232). Thus the body was removed immediately from the house, wrapped in a hide or net, and cremated (Voegelin 1942).

3.2.2.4 Ethnohistory

The Pit River bands, like their neighbors, the Modoc, experienced considerable conflict with the miners and settlers who invaded their lands in the 1850s. By 1859, many tribal members had been rounded up by the militia and driven to the multi-tribal reservation in Round Valley, in northern Mendocino County. By 1863, many of the Pit River people had escaped from Round Valley and returned to their traditional homes. As more and more of their ancestral hunting and fishing grounds were overrun by settlers, they naturally turned to another source of meat: the settler's cattle. This led to a series of retaliatory raids on native villages by the U.S. Army, whose main objective was to protect the settlers—either by killing the Indians or by forcibly moving them onto reservations. In 1867, Pit River people joined the Modoc in an uprising against the whites, which turned into a three-day battle, now known as the Battle of Infernal Caverns. Several men were killed on both sides, until the Indians finally escaped during the night through a system of underground passages in the basalt. An uneasy settlement was achieved the next year (Garth 1953, Wheeler-Voegelin 1974, Tiley 2000). Within four years of the Battle of Infernal Caverns, the Ghost Dance came to Lassen and Modoc counties, introduced by two Paiute men (DuBois 1939). The movement experienced a renaissance, known as the Earth Lodge Cult, when it swept back through the region from the Central Valley (DuBois 1939).

As the population of settlers grew and the native population and resources dwindled, the Pit River peoples "became largely dependent on the white settlers for jobs" (Gates 1983). Many of these people have continued to reside in their traditional homes and maintain an intimate knowledge of their lands.

3.2.3 Native American Traditional Values and Resources

Native Americans have identified a number of places within the AFO area as being culturally significant (Roybal-Evans 1982). While many traditional sites are essentially landscape level in size (i.e., Payne Peak, Warren Peak, etc.) a number of them are very site-specific and constrained. Smaller sites are often related to good luck, power, or medicine and still play a significant part in the lives of native peoples. Larger sites are often related to hunting and gathering activities or quarrying locales and are still in use today by Native Americans. Other important sites identified with Native American traditional values are cemeteries and places such as the Infernal Caverns, where an historic battle between Native Americans and an armed military force took place in 1867. Native people are typically reluctant to identify specific sites as being culturally important until those sites are threatened by proposed projects. Native Americans have expressed concern over the use of herbicides, livestock grazing on sites, and energy-related development.

3.2.4 Historical Context

Early historic-era land use in the region was mostly limited to exploitive economies (such as mining and logging) rather than settlement. Because of the rugged terrain, it was easier, safer, and cheaper to live elsewhere so most immigrants passed through the area rather than remaining in it. Nonetheless, non-native people have lived in the project area for over 150 years and have made many alterations to its landscape. These alterations can be generalized by land use themes such as transportation (including the historic Lassen-Applegate and Yreka trails), mining, agriculture and ranching, military development, urbanization, logging, electrical development, resource management, and tourism. Archaeological remains associated with each theme most frequently represent the technological aspects of each industry or theme and its social and economic elements, such as domestic living areas.

Historic themes in the AFO include the Native American conflicts in the 1860s and 1870s, twentieth century federal land use from large-scale reclamation programs, and war-time internment camps.

While the Tulelake Basin and the Pit River Valley became dominated by agriculture, the economy of the Modoc Plateau focused on logging operations. Some mining also occurred in the southeastern region of the district, although most has consisted of non-mineral quarrying.

3.2.5 Factors Currently Affecting Cultural Resources

Historically, two factors have altered the integrity of cultural resources in the AFO area and continue to do so currently, accounting for the present condition of many sites. These factors are:

1) Reduction of vegetation and overgrazing. The reduction of vegetative cover and associated erosion has visibly affected open sites—both those confined to surface scatters and those with vertical deposits. In many instances, soil erosion and slope wash have contributed to lateral displacement and downslope consolidation of surface scatters occurring in terrain of greater than 5% slope. They also have accelerated the attrition of the upper levels of deeper deposits. Throughout the area, the contents of sites are being exposed on the surface and their contexts are being washed away. The tendency of wind action to remove loosened fine, dry silts, and clays augments this erosional process. Recent monitoring data has noted serious impacts to cultural resources as a result of grazing activities (Foster-Curley 2003). These impacts are typically related to livestock trampling, wallowing, and trailing through sites. Livestock hoof action can significantly affect the surface and subsurface deposits of a site, hopelessly mixing archaeological contexts and rendering such sites ineligible for the NRHP. On sparse to moderate lithic scatters, these impacts can be devastating, resulting in the complete loss of the site. The lack of long-term monitoring data makes it impossible to determine how many other sites have been affected in a similar manner. Cultural resource surveys and monitoring data in 2004 show that in some areas up to half of the recorded sites have been affected by grazing activities.
2) Vandalism/Looting. Archaeological sites within the AFO area have sustained repeated illegal artifact collection. Most sites that are easily accessible lack "collection quality" artifacts of both flaked stone tools and groundstone. Surface collection has been a favorite recreational activity throughout the region, as evidenced by the many private collections that have been donated to the local museum. Most open sites with cultural deposits have sustained damage due to collection and illegal excavation activities, as well as important cave deposits.

3.3 Economic Conditions

The AFO area encompasses portions of Modoc, Lassen, Shasta, and Siskiyou Counties. The alternative management plans could result in changes in countywide socioeconomic conditions and in fiscal impacts on county governments. Socioeconomic and fiscal conditions within the counties could change in response to changes in management emphasis or activities within the field office, such as changes in timber harvest, grazing, mineral extraction, and recreation.

Socioeconomic variables that could be affected by alternative management plans include population, employment, and income. Fiscal conditions include changes in county revenues attributable to changes in payment of in-lieu of taxes and federal revenue sharing from sale of timber, grazing fees, and mineral extraction, and sales taxes associated with increased recreation.

3.3.1 Population

The 2000 population of Lassen, Modoc, Shasta, and Siskiyou Counties ranked 47th, 56th, 29th, and 44th respectively, among the 58 California counties. Between 1990 and 2000, population increased in Lassen, Shasta, and Siskiyou Counties by 23, 11, and 2%, respectively (Table 3.3-1). Population growth in Lassen County was higher than the 14% statewide average. The population level of Modoc County decreased by 2% during the same period.

In 2000, the population density of Modoc, Lassen, and Siskiyou Counties was 2.4, 7.4, and 7.0 persons per square mile, respectively. This is substantially less than the 43.1 persons per square mile in Shasta County. However, all four counties reflect population density less than the statewide average of 217.1 persons per square mile. (U.S. Bureau of the Census 2004a)

Projections indicate that the populations of Lassen, Shasta, and Siskiyou Counties are expected to continue to grow through 2020 (Table 3.3-2). Population within Shasta County is expected to grow at a higher rate than the statewide average, but growth in Lassen County is expected to be below the statewide rate. Population in Modoc County is expected to grow through 2010 and then decline slightly by 2020.

Table 3.3-1 Population of California and Modoc, Lassen, Shasta, and Siskiyou Counties (1970–2000)

		1980		1990		2000	
County	1970 (Number)	(Number)	Change (%)	(Number)	Change (%)	(Number)	Change (%)
Lassen	14,690	21,661	+46	27,598	+27	33,828	+23
Modoc	7,469	8,610	+15	9,678	+12	9,449	-2
Shasta	77,640	115,715	+49	147,036	+27	163,256	+11
Siskiyou	33,225	39,732	+20	43,531	+10	44,301	+2
California	19,953,134	23,667,902	+19	29,760,021	+26	33,871,648	+14

Sources: U.S. Bureau of the Census 1995 and 2004a, n.

Table 3.3-2 Population Projections and Percent Change for California and Lassen, Modoc, Shasta, and Siskiyou Counties (2000–2020)

County	2000 (Number)	2010 (Number)	2010 Change (%)	2020 (Number)	2020 Change (%)
Lassen	33,828	36,954	+9	38,232	+4
Modoc	9,449	9,547	+1	9,285	-3
Shasta	163,256	196,464	+20	227,922	+16
Siskiyou	44,301	45,611	+3	45,862	+1
California	33,871,648	39,246,767	+16	43,851,741	+12

Sources: U.S. Bureau of the Census 1995 and 2004a.

3.3.2 Employment and Income

Total employment in Lassen, Modoc, Shasta, and Siskiyou Counties in 2000 was 10,161, 3,635, 65,828, and 17,267, respectively (Table 3.3-3). The public administration, retail trade, and education, health, and social services sectors represented were the largest employment sectors in each county. Government employment accounted for 43, 33, 18, and 24% of total employment within Lassen, Modoc, and Shasta Counties, respectively.

Generally, the education, health and social services; arts, entertainment, and recreation; and public administration sectors experienced the greatest growth in employment. Conversely, employment in the agriculture, forestry, fishing, and mining; manufacturing; and retail trade sectors declined. Decreases in employment in these sectors most likely reflect declines in the forest products industry; and the increases in the other sectors reflect a shift to more service-oriented employment in the three counties—with the greatest shift occurring in Shasta County.

Unemployment rates for the three counties ranged from a high of 7% in Modoc County to a low of 4% in Lassen County (U.S. Census 2004c, 2004e, 2004g, and 2004i). The statewide unemployment rate was approximately 4% in 2000.

Per capita income for the three counties ranged from a high of approximately $17,700 in Shasta County to $14,700 in Lassen County (Table 3.3-4). Income levels have increased in each county from 1990 levels. Increases have ranged from a low of 17% in Lassen County to a high of 57% in Modoc County. Although income levels have increased in all four counties, they are still below the statewide average of $22,711.

3.3.3 County Revenues

3.3.3.1 Lassen County

During fiscal year 2000–2001, Lassen County received approximately $43,434,000 in revenues (California State Controller 2003). Property taxes accounted for $2.9 million of the 2000–2001 revenues. Sales taxes totaled approximately $733,000, and lodging taxes totaled approximately $43,000. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the federal government totaled approximately $19.9 million and $8 million, respectively (California State Controller 2003).

Lassen County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. The payments are based on population and acreage of federal lands within the county.

Table 3.3-3 Employment Sectors for Lassen, Modoc, Shasta, and Siskiyou Counties (1990 and 2000)

Employment Sector	Lassen		Modoc		Shasta		Siskiyou	
	1990	2000	1990	2000	1990	2000	1990	2000
Agriculture, forestry, fishing, and mining	958	691	755	660	2,291	1,631	2,043	1,737
Construction	521	578	196	251	5,320	4,890	942	948
Manufacturing	726	342	273	135	6,438	4,199	2,272	1,111
Wholesale trade	207	129	90	129	1,907	1,984	326	379
Retail trade	1,423	1,117	626	343	11,835	9,309	2,996	2,200
Transportation and warehousing	519	326	208	212	4,513	3,730	1,188	982
Information	-	141	-	29	-	1,335	-	275
Finance, insurance, and real estate	246	303	166	79	3,398	3,408	797	653
Professional, scientific, and management	456	431	193	107	4,243	5,055	1,362	1,100
Education, health, and social services	1,352	2,329	543	925	10,250	16,291	2,498	4,017
Arts, entertainment, recreation, accommodation, and food services	111	700	34	200	688	6,258	210	1,767
Other services	999	339	224	198	9,283	3,952	971	900
Public administration	1,710	2,735	227	367	2,655	3,786	900	1,200
Total	9,228	10,161	3,535	3,635	58,578	65,828	16,505	17,269

Sources: U.S. Census 2004b–i.

Table 3.3-4 Per Capita Income Levels for Lassen, Modoc, Shasta, and Siskiyou Counties and California (1990 and 2000)

County	1990	2000	Change (%)
Lassen	12,626	14,749	+17
Modoc	10,971	17,285	+57
Shasta	12,381	17,738	+43
Siskiyou	12,202	17,570	+42
California	16,409	22,711	+38

Source: U.S. Census 2004c, e–f, h, j–m.

Approximately 1,640,000 acres of land in Lassen County are under federal ownership, of which 1,009,000 acres are managed by BLM (BLM 2004a). During fiscal year 2000–2001, Lassen County received a $996,000 in-lieu of taxes payment (BLM 2004b).

In-lieu of taxes payments from BLM lands was estimated to total approximately $608,000 in 2001. In-lieu of taxes payments accounted for 1.4% of the county's total 2001 revenues. Lassen County also receives payments from the federal government in the form of revenue sharing.

Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (BLM 2002). The revenues paid to Lassen County are not a substantial portion of the total county revenues.

3.3.3.2 Modoc County

During fiscal year 2000–2001, Modoc County received approximately $24,421,000 in revenues (California State Controller 2003). Property taxes accounted for $2.2 million of the 2000–2001 revenues. Sales taxes totaled approximately $236,000, and transient lodging taxes totaled approximately $20,000. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the federal government totaled approximately $10.4 million and $5.9 million, respectively (California State Controller 2003).

Modoc County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. The payments are based on population and acreage of federal lands within the county. Approximately 1,695,000 acres of land in Modoc County are under federal ownership, of which 272,400 are managed by BLM (BLM 2004a). During fiscal year 2000–2001, Modoc County received a $259,000 in-lieu of taxes payment (BLM 2004b). In-lieu of taxes payments from BLM lands were estimated to total approximately $42,000 in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Modoc County also receives payments from the federal government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (BLM 2002). The revenues paid to Modoc County are not a substantial portion of the total county revenues.

3.3.3.3 Shasta County

During fiscal year 2000-2001, Shasta County received approximately $209,296,000 in revenues (California State Controller 2003). Property taxes accounted for $12.7 million of the 2000–2001 revenues. Sales taxes totaled approximately $6 million, and transient lodging taxes totaled approximately $594,000. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the federal government totaled approximately $104 million and $51.4 million, respectively (California State Controller 2003).

Shasta County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. The payments are based on population and acreage of federal lands within the county. Approximately 981,000 acres of land in Shasta County are under federal ownership, of which 126,600 are managed by BLM (BLM 2004a). During fiscal year 2000–2001, Shasta County received a $669,000 in-lieu of taxes payment (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments from BLM lands was estimated to total approximately $86,300 in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Shasta County also receives payments from the federal government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (BLM 2002). The proportion of these revenues paid to Shasta County is not a substantial portion of total county revenues.

3.3.3.4 Siskiyou County

During fiscal year 2000-2001, Siskiyou County received approximately $72,386,000 in revenues (California State Controller 2003). Property taxes accounted for $7 million of the 2000–2001 revenues. Sales taxes totaled approximately $740,000 million, and transient lodging taxes totaled approximately $399,000. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the federal government totaled approximately $31 million and $21.7 million, respectively (California State Controller 2003).

Siskiyou County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. The payments are based on population and acreage of federal lands within the county. Approximately 2,563,800 acres of land in Siskiyou County are under federal ownership, of which 82,600 are managed by BLM (BLM 2004a). During fiscal year 2000–2001, Siskiyou County received a $392,000 in-lieu of taxes payment (BLM 2004b). In-lieu of taxes payments from BLM lands was estimated to total approximately $12,600 in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Siskiyou County also receives payments from the federal government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (BLM 2002). The revenues paid to Shasta County are not a substantial portion of total county revenues.

3.4 Energy and Minerals

The Federal Government's policy for mineral resource management, as expressed in the Mining and Minerals Policy Act of 1970, reads: "Foster and encourage private enterprise in the development of economically sound and stable industries, and in the orderly and economic development of domestic resources to help assure satisfaction of industrial, security, and environmental needs." BLM has an essential role in contributing to an adequate and stable supply of mineral and energy resources, while continuing to sustain the land's productivity for other uses and its capability to support biodiversity goals.

The energy and minerals program on BLM-administered land in the AFO area includes three categories of minerals: leasable minerals, locatable minerals, and saleable minerals.

3.4.1 Leasable Minerals

Leasable mineral resources, including oil, gas, geothermal, and some solid mineral resources such as coal and oil shale are obtained from the BLM-administered lands by leasing. The 1920 Mineral Leasing Act (as amended), the 1970 Geothermal Steam Act, and 43 Code of Federal Regulations (CFR) Parts 3100 and 3200 govern oil, gas, and geothermal leasing. These laws provide for the leasing of the public mineral estate by a prospector or a corporation, provided that the lands are open for mineral leasing and not reserved or withdrawn for other purposes. Site-specific stipulations are included in any oil and gas or geothermal EA prior to the issuance of any lease. Upon receipt of a plan of development, site-specific surveys must be completed to eliminate or mitigate any adverse impacts.

Although a number of oil and gas leases have been issued in the AFO area, no development or drilling has taken place on any of the previously issued leases. Lease applications were received in the Upper Pit River area in the early 1970s; however, no lease was issued or pursued further. Oil and gas leasing is not expected to increase unless unexpected technology advances reduce the risk of exploration beneath the existing volcanic cover.

An EA for potential geothermal leasing was completed in the Bieber area; however, no industry interest was generated. There was also interest in the Upper Pit River area for potential geothermal leasing, but industry interest was quite low. Existing hot springs along a trend southeast of the Glass Mountain Known Geothermal Resource Area toward the Ash Creek Wildlife Area suggests moderate to high geothermal potential. Under present and future energy needs and predicted government support, the known and potential geothermal resources are expected to spur future interest and activity in the AFO area.

3.4.2 Locatable Minerals

Locatable minerals are minerals for which mining claims can be located, such as precious and base metals and some non-metallic minerals that are not classified as "common variety." Locatable minerals include rare and uncommon mineral types, such as gold, silver, copper, lead, and zinc, and some varieties of stone, pumice, and cinder deposits with distinct and special properties making them commercially valuable for use in manufacturing, industrial, or processing operations. In determining a deposit's commercial value, the following factors may be considered: quality and quantity of the deposit, geographic location, accessibility to transportation, and proximity to market or point of use. The General Mining Law of 1872 (as amended) provides the rights to prospect for valuable minerals, and to locate and develop mining claims on public domain lands open to mineral entry.

A mining claim is considered real property that is protected by constitutional rights. Active mining claims are limited to annual assessment and sporadic exploration activities, which are governed under the Mining Law of 1872. Notices and plans of operation for mining activities are processed according to regulations.

BLM administration of mining claims is covered under the 43 CFR 3809, Surface Management of Public Lands under U.S. Mining Laws. Prospectors can claim and develop locatable minerals on areas open to mineral location. BLM approval is not needed if proposed operations would disturb five acres or less per year, but notification is required. Operators proposing to disturb more than five acres per year are required to submit a plan of operation; BLM must then prepare an environmental analysis for the proposed action.

Present management direction with respect to locatable mineral development allows for exploration consistent with the protection of other resource values and encourages mineral exploration and development on all public lands, except those withdrawn through specific decisions for each sub-unit. Furthermore, where their development is consistent with other environmental and resource values, present management discourages closure of lands known or suspected to contain identified sub-economic minerals from exploration or location.

Potential locatable minerals in the AFO area include mercury, gold, silver, and zeolites. The now closed and reclaimed Hayden Hill surface gold mine was the major activity in the AFO area and included exploration, development, production, and reclamation. Exploration activity is expected to be minimal around the former mine site. The majority of BLM-administered lands under claim have been transferred to private ownership. Hayden Hill District is expected to remain active, with sporadic exploration activity probable, depending on gold prices.

Other locatable mineral activity is expected to be sporadic and primarily focused on areas of known mineral occurrences (i.e., existing claims). Activity would be oriented toward exploration and would fluctuate with the price of gold and other commodities. Technological breakthroughs and uses for rare minerals may spur speculative mineral exploration activities. Technological advances (geochemistry and geophysics) pertaining to exploration may lead to high-risk exploration activity under the unmineralized volcanics and Quaternary basins in the AFO area. The probability of another major mine is considered minimal; however, the potential impact of a mine on the AFO area would be large in terms of workloads, areas withdrawn from multiple use, and access.

3.4.3 Saleable Minerals

Saleable minerals such as pumice, cinders, decorative stone, and sand and gravel may be purchased or acquired by use permits from BLM. The saleable minerals in the AFO area consist primarily of cinders and flat rock. Under field office policy, applicants are required to delineate the boundaries of proposed collection areas and the amount of mineral material to be collected. These proposed areas are then reviewed and adjusted by BLM staff. The applicant is then authorized to complete botanical and archaeological evaluations, as well as an environmental assessment (EA). After the evaluations and assessment are reviewed, and a collection permit may be issued. Collection season is limited to drier months to minimize impacts on soils. Trucks must be certified noxious weed free prior to entering public lands. Other site-specific stipulations apply.

Six cinder pits, generally no larger than five acres, are located in the AFO area. County and state road departments are the primary users of cinders. Leases for the six cinder pits are typically renewed to the county and private firms on a five-year permit. Occasional single sales to commercial contractors and private individuals are carried out in existing pits. Active mineral material operations are currently underway at Blue Sand and Brush Mountain Pits.

Pittville Silica #1 is currently leased but is not active. Although interest has been expressed in Muck Valley, Babcock, and Round Barn Pits, they are not active. Access into the Muck Valley Pit has been an issue. There has been no recent activity at Davis Creek, East Ash Valley, Moran, or Juniper Ridge Pits.

The Day Pit is closed due to noxious weed issues. Coyote Reservoir and Dixie Valley Pits also are closed. The Madeline Pit is managed by the California Department of Transportation.

Approximately 8,000 acres of flat rock occur in the AFO area. Such stone is used primarily in small commercial and residential construction industries. Long-term needs would be met from the existing resource base. Most areas of the field office are open to flat rock collection, except for The Ash Valley ACEC (1,322 acres) and the Cinder Cone Planning Area (approximately 50,000 acres), and wilderness study areas (WSAs) (56,648 acres). This Cinder Cone Planning Area acreage includes all areas of Shasta County administered by the AFO outside of existing WSAs. Under current management, authorized personal use of flat rock is not to exceed three tons per person per calendar year. Native Americans may be permitted to collect up to three tons per person per year from designated locations at no charge, for personal use in sweat lodges or for other ceremonial purposes.

Saleable mineral production is expected to increase as sources close to areas of growth face a stricter state and local regulatory environment. Sand and gravel demand is expected to increase because of the lower permitting fees and costs of materials on BLM-administered land, despite the added transportation costs. Demands for building stone are likely to increase dramatically as local sources are depleted, premium prices are paid in urban areas, and low fees are charged by BLM. Increased transportation costs likely would be offset by present and future demand and high profit margins.

3.4.4 Restrictions

BLM-administered lands are generally open to mineral exploration and development under 43 CFR 3000-3800. Lands that are closed or withdrawn from some or all mining uses are known as “exclusion” areas. There are two types of closures to mineral leasing and mineral material disposal: discretionary and nondiscretionary. Discretionary closures are management-level decisions to close lands to mineral leasing and disposal; nondiscretionary closures are formal withdrawals by Congress or the Secretary of the Interior. Withdrawals of land from locatable mineral entry can occur only through nondiscretionary actions by Congress or the Secretary of the Interior.

Discretionary closures may apply in ACECs, research natural areas (RNAs), WSAs, and where mining is incompatible with other management objectives or land uses. Nondiscretionary closures occur in wilderness areas or areas withdrawn for other purposes. WSAs are nondiscretionally withdrawn from mineral leasing (43 CFR 3100.0-3 and 3201.11) but are open to locatable mineral entry, with restrictions to prevent impairment of the area’s suitability for inclusion in the wilderness system (43 CFR 3802.1-5). Except for pending decisions on the existing WSAs, ACECs, and special management areas and potential conditions applied to future (ongoing) acquisitions, there are no indications that future mineral withdrawals will occur in the lifetime of this Proposed Resource Management Plan (PRMP).

On lands open to mineral development and exploration, additional restrictions may apply to protect natural resources and mitigate conflicts with management objectives and other land uses. Such restrictions also would apply in “avoidance” areas, including ACECs, WSAs, and RNAs not listed as closed to mineral operations. Restrictions may also apply to protect visual resources, significant archeological sites, wildlife, and habitat components. All applicable restrictions would be attached to mining notices, plans of operations, leases, permits, and contracts.

Some areas are closed to surface occupancy (no surface occupancy) for fluid mineral leasing operations. Under this type of restriction, drilling to explore, test, or produce fluid mineral resources may not occur from the surface. Mineral leasing may still occur, provided that the operator angle drills to the resource from an adjacent area where surface occupancy is allowed.

3.4.5 Factors Affecting Future Development

Energy and mineral resource use has been relatively stable during implementation of the existing management framework plans.

Key factors affecting future resource and use conditions include:

- Mineral and energy commodity prices.
- Technological advances in the use of common and rare elements.
- Technological advances in exploration techniques.
- Energy demands and changing dependencies on fossil fuels.
- Legislative and regulatory changes that support or oppose energy and minerals activities.
- Acceptance of existing or future WSAs as wilderness areas.
- Continued stringent regulations at the state and local levels, pushing mineral extraction activities into more remote (federal) locations in response to increased demand.
- Changes in the California Department of Transportation's budget that influence sand and gravel usage. Major projects in the AFO area have been postponed as projects in the southern part of the state have taken priority.

3.5 Environmental Justice

The Alturas resource management planning process incorporates environmental justice considerations. In doing so, the planning process addresses any adverse human health or environmental impacts affecting minority and low-income populations to a greater extent than the general population in these areas.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from the execution of federal, state, local, or tribal programs and policies.

Meaningful involvement means that (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health, (2) the public's contribution can influence the regulatory agency's decision, (3) concerns of all participants involved will be considered in the decision making process, and (4) decision makers must seek out and facilitate the involvement of those potentially affected.

3.5.1 Minority Populations in the Alturas Field Office Area

For environmental justice assessment purposes, key minority populations are those where either: (1) the minority population of the affected area exceeds 50%, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The AFO planning area is composed of Lassen, Modoc, Shasta and Siskiyou Counties in California. The minority population breakdown by county and state is contained in Table 3.5-1.

Several tribal governments have lands or interests within the AFO boundaries. Among these are the Pit River Tribe, the Klamath Tribes, and the Alturas, Likely, Lookout and Redding Rancherías. The field office has also consulted with the Shasta Tribe concerning management activities (Burke, personal communication).

3.5.2 Low-Income Populations in the Alturas Field Office Area

To determine the location of low-income populations, economic characteristics of the counties in the field office area were analyzed (Table 3.5-2). The U.S. Bureau of the Census sets the income threshold to determine poverty level. If the total income for an individual falls below the relevant poverty threshold, that individual is classified as being "below the poverty level" (U.S. Census Bureau 2003b). In the state of California, 10.6% of the total population was below the poverty level in 2000 (U.S. Census Bureau 2003c). All identified income levels (median household, family, and per capita) for all the counties in the field office area fall below the statewide averages. In addition, a higher percentage of families in the field office area are living below the poverty level than the statewide average. Especially high in the AFO area, 32.2% of the population in Shasta County was below the poverty level in 2000; the State average was 10.6% of the total population in California for that year.

Table 3.5-1 Population Characteristics of Lassen, Modoc, Shasta, and Siskiyou Counties (2000)

Geographic Area (Total Population)	White	Hispanic or Latino (any race)	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race
Lassen County (33,828)	83.3% (28,169)	13.8% (4,681)	9.1% (3,081)	4.6% (1,572)	1.1% (382)	0.6% (194)	4.1% (1,402)
Modoc County (9,449)	88.6% (8,374)	11.5% (1,088)	1.0% (90)	5.8% (552)	1.0% (93)	0.2% (17)	6.4% (607)
Shasta County (163,256)	92.5% (151,083)	5.5% (8,998)	1.1% (1,818)	4.8% (7,829)	2.4% (3,938)	0.3% (451)	2.5% (4,125)
Siskiyou County (44,301)	90.5% (40,074)	7.6% (3,354)	1.6% (726)	6.2% (2,747)	1.6% (701)	0.3% (130)	3.7% (1,632)
Alturas Field Office area	90.7%	7.0%	2.0%	5.0%	2.0%	0.3%	3.1%
State of California (33,871,648)	59.5%	32.4%	6.7%	1.0%	10.9%	0.3%	16.8%

Notes:
The AFO area numbers were extrapolated by combining the data available for all counties in the planning area.
Race is typically broken out two ways. The Hispanic information is typically separate because Hispanics can be of any race. The Hispanic information is presented in combination with the other racial information in the table above.

Source: U.S. Census Bureau, Census 2000, DP-1 Profile of General Population Characteristics: 2000, (List Counties) California. California information was accessed from the same source: http://factfinder.census.gov/servlet/QTTable?_ts=88407310470.

Table 3.5-2 Economic Characteristics of Lassen, Modoc, Shasta, and Siskiyou Counties (2000)

County	Median Household Income	Median Family Income	Per Capita Income	% of Families below Poverty Level
Lassen	$36,310	$43,398	$14,749	11.1
Modoc	$27,522	$35,978	$17,285	16.4
Shasta	$34,335	$40,491	$17,738	32.2
Siskiyou	$29,530	$36,890	$17,570	14.0
Statewide	$47,493	$53,025	$22,711	10.6

Source: U.S. Census Bureau, DP-3, Profile of Selected Economic Characteristics: 2000, (All Counties) California. State information was accessed from the same source: http://factfinder.census.gov/servlet/QTTable?_ts=88407972930.

3.5.3 Tribal Governments in the Alturas Field Office Area

Three federally recognized tribal governments are located in the AFO area: the Pit River Tribal Council (Burney, Shasta County, CA), the Klamath Tribes (headquartered in Oregon), and the Alturas Rancheria (Alturas, Modoc County, CA) (Burke, personal communication). Tribal land ownership accounts for less than 1% of the land in the AFO area (12,493 acres of 4,117,341 total acres).

3.6 Fire and Fuels

Fire and fuels on lands administered by the AFO have been affected by active and passive management actions since prehistoric times. Vegetation and fuel type are two primary descriptors of fire and fuel resources. Fuel in the natural environment includes both live vegetation and materials such as dead branches, needles, seeds, and cones. These fuels provide the structure that, under appropriate conditions, supports fire across the landscape. The vegetation and fuel are affected by other elements of the environment, such as precipitation, temperature, soils, and seasonal fluctuations.

3.6.1 Fuels Buildup and Ecosystem Alteration

When trying to determine the effects of post-European human influence and management on the fire and fuels resource, the characterization of the fire regime condition class is an important index. A historical fire regime is defined by the natural patterns of frequency, predictability, seasonality, intensity, duration, and scale with which fire historically passed through the habitat

Fire regimes have been generally classified into the five groups that are summarized in Table 3.6-1.

Table 3.6-1 Fire Regime Condition Classes

Classification	Fire Return Interval	Severity	Example Habitats
Group I	0–35 years	Low	Ponderosa pine, other long-needle pine species, and dry-site Douglas-fir
Group II	0–35 years	Stand replacement	Drier grasslands, tall grass prairie, and some Pacific chaparral ecosystems
Group III	35–100+ years	Mixed	Interior dry-site shrub communities, such as sagebrush and chaparral ecosystems
Group IV	35–100+ years	Stand replacement	Lodgepole pine and jack pine
Group V	>200 years	Stand replacement	Temperate rain forest, boreal forest, and high-elevation conifer species

Sources: Hardy et al. 2001, Schmidt et al. 2002.

A corollary descriptor of fuel conditions addresses a fire regime's degree of deviation from historic conditions. The condition classes described below also measure general wildfire ecosystem risk.

- **Condition Class 1**: Fire regimes in this condition class are mostly within historical ranges. Vegetation composition and structure are intact. The risk of losing key components of the ecosystem from fire is low.
- **Condition Class 2**: Fire regimes in this condition class have been moderately altered from their historical range, either by increasing or decreasing the fire frequency. The risk of losing key components of the ecosystem from fire is moderate.

- **Condition Class 3**: Fire regimes in this condition class have been significantly altered from their historical return intervals. Vegetation composition, structure, and diversity have been substantially modified. The risk of losing key components of the ecosystem from fire is high. (Hardy et al. 2001, Schmidt et al. 2002).

The concepts of fire regime and condition class require an understanding of historical (pre-European) conditions to facilitate measurement of the departure from those conditions. For areas where pre-European vegetation maps are not available, one method to determine historical vegetation is to use information on soils, climate, and topography of the area to predict the potential natural vegetation (PNV). PNV groups represent the stable vegetation types that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions.

Although methodologies exist to arrive at PNV groups, these have not been determined for the AFO area at a useful scale. Therefore, the conditions of the various vegetation communities listed below are based on current vegetation and extrapolated information from personal observation and historical photos.

An important factor to describe conditions is the fuel loading and fuel model. This measurement takes into account the variety of available fuels within given fuel types. For example, forest stands may be very clean and open with little down material or could have decades of dead branches and a thick understory of smaller trees. Such diverse conditions would indicate different fire behavior and characteristics.

3.6.2 Fire Ecology of Major Vegetation Types

Aspen/Riparian Communities

Fire is not usually considered a key ecosystem component in these areas, although many riparian and wetland plants are fire-adapted species. These communities are usually small (but vital) habitat components of the vegetation communities discussed below. Generally, vegetation response to the presence of water or increased soil moisture creates conditions that act to inhibit the spread or reduce the severity of fire. Across the landscape, riparian communities often create breaks in fire spread. In some riparian systems, fire suppression has created fuel loads that exceed the surrounding habitat and consequently put the riparian area at higher risk than the surrounding community. Fire can act as the disturbance agent within aspen stands; some level of disturbance is an important component of aspen regeneration. Fire also reduces the encroachment of conifers, which over time can replace aspen stands. The fire regime of aspen/riparian communities is considered to be Group III with regard to frequency and severity. Fire managers do not give these communities a specific condition class rating, but they must be considered when looking at the larger vegetation type or hydrologic unit.

Herbaceous and Grassland Communities

A fire in these communities burns quickly and with a low intensity. The historical fire regime for these communities is Group II—frequent stand-replacing fires. The invasion of nonnative annual grasses has accelerated this cycle, creating communities that could burn every season. Native species typically burn but then experience several years of fire resistance because of high live-fuel moisture, lack of fuel continuity, and very small amounts of dead material. As these components change over time, the community becomes more fire-prone. A fire occurring too early in this cycle can be damaging to the native grasses.

Due to the expanse of exotic annual grasses in the AFO area, native herbaceous and grassland communities are at great risk of conversion to these exotic annual grass species. These exotic species have the ability to rapidly expand and colonize large areas following disturbance (e.g., wildfire); consequently, areas that have undergone such conversion are rated as Condition Class 3.

Low Sagebrush Communities

In low sagebrush communities, natural fire return intervals are historically 100 years or more, due to the shallow, rocky soils and sparse ground fuels. Because there is a lack of surface fuel continuity, fires tend to burn in a mosaic pattern with mixed severity, a fire regime characterized as Group III. Exceptions are where exotic annuals have invaded or where an unusually wet spring provides an above-normal crop of grasses and forbs sufficient to carry fire through the site.

Within the AFO area, a few low sagebrush communities could be considered to function within historical fire return intervals, and pose little risk of major disturbance or invasion by exotic grasses and weeds. These areas could be rated as Condition Class 1. (It should be noted that these types of low-risk areas are probably among the best locations for wildland fire use in future planning efforts.)

Other low sagebrush communities have been, or are at risk of being, invaded by exotic grasses. Like Wyoming sagebrush sites, some of these sites have experienced dramatically altered (i.e., shortened) fire return intervals to the point that the low sage component of the community has been virtually eliminated. These sites are considered Condition Class 3.

Conifer/Juniper Woodlands

Within the AFO area, there are stands of pine, fir, and/or cedar. These stands most typically occur on the Lassen and Modoc National Forests; however, this type also occurs on BLM-administered lands, particularly in the Fall River/Big Valley watershed. Many of these stands are located on boundaries between BLM land and National Forest system or private timber lands. Historically, many of these conifer communities experienced frequent low-intensity fire (fire regime Group I) or less frequent stand-replacing fire (fire regime Group IV). Because these areas have generally missed several fire return intervals and a wildfire probably would result in severe fire effects on major species, the areas are rated as Condition Class 3.

Juniper is a complex management issue for BLM. The species is widely scattered throughout the field office area. Most juniper issues involve either stand density or encroachment into adjacent habitats. The historical coverage and conditions of juniper in the field office area are unknown.

Prior to fire suppression and grazing, juniper probably occurred in two main stand types. One was an old growth stand condition with very infrequent, stand-replacing fires (fire regime Group IV); these stands would have occurred on rocky, shallow soils with limited accumulation of fine fuels.

Another stand type was juniper savanna, with younger trees at a low density (<30% crown closure) across the landscape and a more dominant shrub, herbaceous, and grass understory; these stands would have occurred on deeper soils and experienced more frequent mixed-severity fires (fire regime Group III). A continuum of stand types would have existed along with the various seral stages; however, these two stand conditions probably dominated. During the last 130 years, within the Intermountain West, juniper has increased its distribution and density (Miller and Tausch 2001).

On many sites that would have supported low-density juniper woodland, juniper has expanded to greater than 30% crown closure. This is considered a successional phase that, under pre-settlement conditions, would not have occurred or would occur very rarely.

In these areas, understory vegetation declines to the point where little if any surface vegetation is left, and there are substantial areas of bare ground. These sites have missed several fire return intervals and are losing key ecosystem components. A wildland fire in these sites could result in further degradation of the system and negatively affect soils. Therefore, these sites are rated as Condition Class 3.

Juniper with less than 30% crown closure is often found associated with other communities, such as mountain big sagebrush. Depending on influencing factors (especially soil characteristics), such sites might reflect historical conditions, in which case the community would be considered Condition Class 1. However, such sites can also reflect sagebrush vegetation into which juniper has encroached. In this situation, one or several fire return intervals have been missed. Wildland fires in such areas can result in both positive and negative effects; such areas are rated as Condition Class 2. These successional sites can also develop into Condition Class 3.

Oak Woodland/Gray Pine/Ceanothus Communities

The majority of this community type is only present in the western portion of the AFO area, in the Fall River/Big Valley watershed. Fires within this community are typically stand-replacing events with short to longer return intervals (fire regime Groups II and IV). Many of these communities have been altered through fire exclusion, grazing, and other management practices, and are considered Condition Classes 2 and 3. Several of the communities at risk and wildland urban interface (WUI) areas are within this community type (see the discussion of "Wildland Urban Interface" later in this section).

Basin/Wyoming Big Sagebrush Communities

BLM fire managers agree that these are probably the sites most at risk in lands in the eastern portion of the field office. This is also the vegetation type that has been, or is at risk of being, invaded by exotic annuals such as cheatgrass and medusahead. At some sites, sagebrush has been nearly eliminated and exotic grasses dominate.

Historically, fire return intervals for Wyoming big sagebrush communities were from 50 to 100 years, corresponding to fire regime Group IV (Miller et al. 2001); but there is still much debate over fire return intervals in the Basin big sagebrush types (Welch and Criddle 2003). Invasion by flammable exotics has dramatically shortened fire return intervals, in some cases to 1–2 years. This can lead to complete conversion of sites from Wyoming big sagebrush communities to annual grasslands. Consequently, these communities are rated as Condition Class 3.

Mixed Desert and Basin Shrub Communities

These communities are probably fire regime Group IV. In most watersheds, these communities have missed one or more fire return intervals, and some are at risk of invasion of exotic weeds and grasses following a wildfire that could easily result in a type conversion to these annual exotics. Where one or more fire return intervals have been missed, the community is at greater risk of loss from invasion by annual exotic grass and weed species following a disturbance. Accordingly, such areas are rated Condition Class 3.

In some areas, this community has not missed a fire return interval or been invaded by exotic grasses. These areas would likely be in good ecological condition and would be rated as Condition Class 1.

Mountain Big Sagebrush Communities

Historically, this community type would have burned with moderate frequency and mixed severity (fire regime Group III). In most watersheds, these communities have missed one or more fire return intervals. Some are at risk of invasion of exotic weeds and grasses following a wildfire, which could easily result in a type conversion to these annual exotics. Many of the current juniper stands may have become established recently in historical mountain big sagebrush communities. Due to the expanse of juniper and exotic grasses, this plant community is at great risk of loss and consequently has been rated as Condition Class 3. Wildland fires can result in both positive and negative effects in terms of plant and wildlife species. Important species in this community are aspen, mountain brush species, and curlleaf mountain mahogany.

3.6.3 Fire History

Fire frequency and type (lightning or human caused), as well as past fire sizes and locations on the landscape, are important for assessing effects and effectiveness of past management and for identifying appropriate future management.

Most wildland fires in the AFO area are ignited by lightning. An average of 26 fires has occurred annually over the last 20 years on BLM-administered lands in the field office area. Of these, 21 (81%) were caused by lightning and 5 (19%) were human-caused. This record has implications for both the timing and location of fire occurrences. Lightning ignitions generally occur from June to early September and can occur in more remote locations where access is difficult. Lightning storms are often accompanied by little or no rainfall. In these events, wildland fires can spread quickly and cover large areas, burning hundreds or thousands of acres in a single burning period. Wet lightning storms can produce several fires, but these are often much smaller. Human-caused fires tend to occur tend fires occur in areas that are accessible for fire suppression but can occur during periods of extreme fire conditions.

Over the last 24 years, the number of fires larger than 100 acres has varied substantially—from 1 to 12 per year (Table 3.6-2), depending on many weather-related variables and, to a lesser extent, the availability of fire suppression resources. An average of 7,800 acres per year, or less than 0.2% of the entire 4,117,341-acre field office area, burns annually as a result of larger fires. Most fires are small. Of the 519 fires on BLM-administered lands within the last 20 years in the AFO area, over 90% have been controlled after burning less than 10 acres.

3.6.4 Fire Management

Fire suppression involves using resources (e.g., aircraft, engines, and crews) to contain and control fires. The costs associated with suppression are determined by the type of resources used and the length of time they are attached to a given incident.

Direct Protection Areas

The State of California and major federal land management agencies entered into a wildland fire protection agreement several years ago to improve interagency cooperation, achieve objectives common to all agencies, provide a functionally integrated fire protection system, share fire resources, and make the best use of tax dollars.

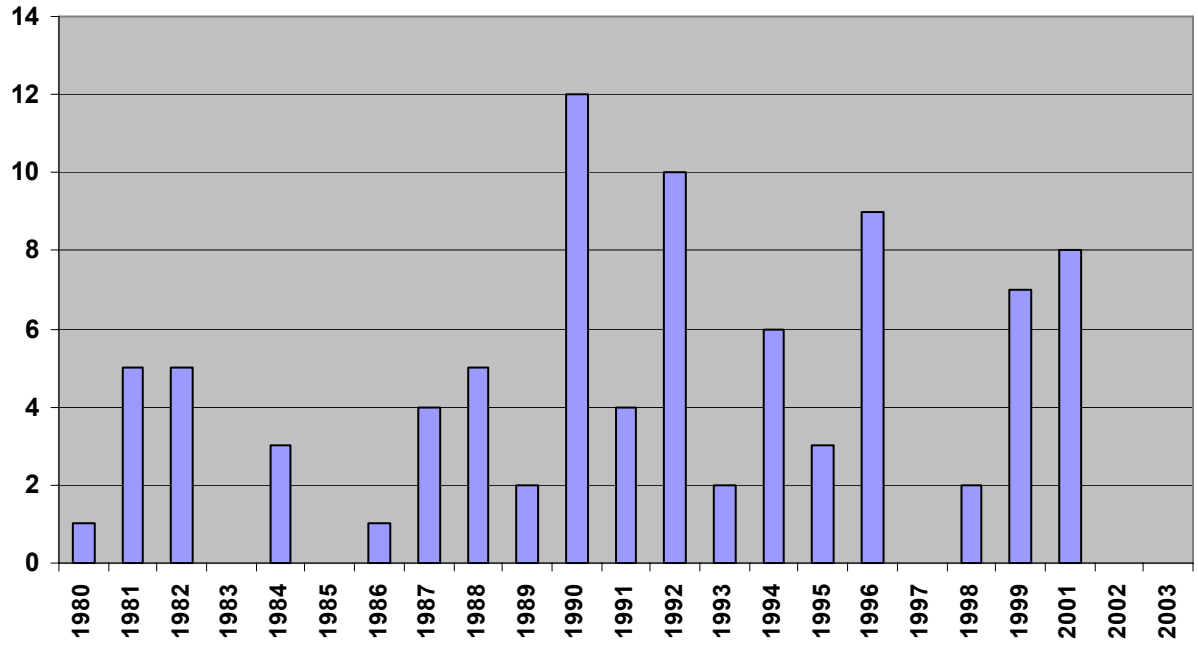
In California, State Responsibility Areas (SRAs) are lands for which the state is responsible for wildland fire protection under California Public Resource Code Sections 4125 to 4127. These lands are often referred to as state and private lands.

National Forest lands for which the U.S. Department of Agriculture (USDA) Forest Service is responsible, National Park lands for which the National Park Service is responsible, and public lands for which BLM is responsible, are referred to as federal responsibility areas (FRAs). These SRA and FRA lands are often intermingled or adjacent, and wildland fires on one type present a threat to the lands on the other.

To help resolve the management and fiscal complexities of wildland fires burning across intermingled and adjacent SRA and FRA lands, the federal and state fire protection agencies have developed the concept of direct protection areas (DPAs). Within these DPAs, federal and state agencies assume fire protection responsibility for the lands of another agency, along with their own. The agencies also, as nearly as possible, represent the other agencies interests and objectives. Consequently, each agency must possess the recognition, knowledge, and understanding of each other's mission objectives, policies, and authorities.

DPAs have delineated boundaries, or dividing lines, between lands that will be provided wildland fire protection by state or federal agencies, regardless of ownership within those areas. DPA boundaries are established by mutual consent between federal and state agencies. Existing protection organizations and facilities, response times, land ownership patterns, values to be protected, and pertinent statutes and regulations are considered when determining the location of the DPA boundaries. Boundaries often follow easily definable features, such as highways, roads, rivers, or well-defined ownership lines. DPA boundaries can be reevaluated. When the need for a change is identified, the affected BLM units and offices recommend the change to state-level administrators/directors for approval.

Table 3.6-2 Annual Number of Large Fires (> 100 Acres) in the AFO Area (1980–2003)



Suppression Strategies

Full Suppression

Full suppression is a response where wildland fire ignitions are aggressively fought with the least cost and least acres burned philosophy, using a full array of management actions available unless site-specific restrictions apply (e.g., WSAs and ACECs). Firefighter and public safety is the number one priority. Under this strategy, a fire that is achieving resource objectives (i.e., reducing fuels or restoring fire-dependent ecosystems) and is not causing resource damages or threatening public health or safety would still be required to be aggressively suppressed.

Appropriate Management Response

An appropriate management response (AMR) on wildland fires emphasizes firefighter and public safety; however, fires are prioritized based on values to be protected commensurate with cost.

Allocations designated for AMR will receive a suppression response in the event of a wildfire ignition, but "The response to a wildland fire is based on an evaluation of risks to firefighter and public safety, the circumstances under which the fire occurs, including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to be protected. The evaluation must also include an analysis of the context of the specific fire within the overall local, geographic area, or national wildland fire situation." (Review and Update of the 1995 Federal Wildland Fire Management policy, January 2001, page 35).

AMR is formulated by risk assessment, objectives, environmental and fuel conditions, and other constraints. Suppression objectives are based on the maximum allowable acres per ignition (at various fire intensity levels). Critical suppression areas, such as wildland-urban interface, recreation sites, critical habitat, cultural sites, unstable soils, and ACECs are predetermined and full suppression constraints are used in these areas. An AMR could include aggressive suppression on one portion of a wildland fire while monitoring another portion of the same fire. Another AMR could be simply monitoring a wildland fire.

Wildland Fire Use

Wildland fire use (WFU) is not technically a suppression strategy; a naturally ignited fire is used to achieve specific resource goals for designated areas. WFU areas are pre-identified areas where wildland fire will be used to protect, maintain, and enhance resources and—as nearly as possible—be allowed to function in its natural ecological role. Use of fire is based on the approved Fire Management Plan and follows specific prescriptions contained in operational plans. Areas designated as a WFU area are expected to have a wider range of conditions that would still result in a non-resource damaging fire. These areas typically have missed fewer fire return intervals and therefore have less of a fuel buildup and have not been substantial altered ecologically.

3.6.5 Post-Fire Restoration

The Burned Area Emergency Stabilization and Rehabilitation Handbook (H-1742-1) (BLM 2006) outlines the process for planning and implementing emergency, stabilization and rehabilitation (ES&R) projects following wildland fires and WFU. The Handbook is tiered to the Department of the Interior (DOI) Departmental Manual 620 DM.3 Wildland Fire Management Burned Area Emergency Stabilization and Rehabilitation

ES&R funds may be used to:

- Protect life, property, soil, water, and vegetation resources;
- Prevent unacceptable onsite or offsite damage by conducting assessments, and stabilizing soil and other critical resources;
- Facilitate meeting land use plan objectives and other federal laws; and
- Reduce the invasion and establishment of undesirable or invasive vegetation species through seeding or integrated pest management techniques.

As a part of the management of wildland fire incidents, the Field Office Manager, in cooperation with the fire management team and field office fire management officer develops and implements burned area ES&R. The BLM ES&R policy, found in the DOI Departmental Manual, 620 DM 3, Burned Area Emergency Stabilization and Rehabilitation (2004); Interagency Burned Area Rehabilitation Guidebook, Version 1.3, November 2006; Interagency Burned Area Emergency Response Guidebook, Version 4.0, February 2006; and BLM Handbook H-1742-1, Burned Area Emergency Stabilization and Rehabilitation, DOI, BLM, 2006 outlines procedures for writing and implementing Emergency Stabilization (ES) and Rehabilitation (R) Plans. The ES&R Plans are separate documents. See Chapter 2, Fire Rehabilitation and Stabilization.

Emergency stabilization (such as seeding to prevent erosion or the establishment of invasive plants) are actions taken within 1 year of a wildland fire to stabilize the site, prevent unacceptable degradation to natural and cultural resources, and minimize threats to life or property resulting from wildland fire.

Rehabilitation (tree planting, invasive plant treatments, fence replacement) includes actions taken within 3 years of a wildland fire to repair or improve lands unlikely to recover from wildland fire, or to repair or replace minor facilities damaged by fire.

3.6.6 Wildland Urban Interface

Another factor to be considered during fire management decisions is the location of human populations, the wildland urban interface (WUI). Most of the human development in the field office area consists of scattered homes, ranches, and their associated outbuildings. None of these would be defined as a community or considered a WUI. Nevertheless, these areas may still be at risk during wildfire events, and they consequently influence fire and fuels management.

Several exceptions to the above description are present in the AFO area. Several “communities at risk” are listed in the federal registry: Fall River Mills, MacArthur, Day, Pittville, Little Valley, and Bieber. These all are within the Fall River/Big Valley watershed. This area has seen a large increase in the WUI as a result of newer developments. Fuel breaks and prescribed burns have been conducted in this area to mitigate the fire risk, and future projects are planned. Firesafe councils have been used by residents as an educational and informational tool, showing how to protect their homes and community from wildfire.

Within the North Fork/South Fork watershed, the WUI exists as small communities (e.g., Likely, Alturas, and Canby) and scattered residences and ranches. Limited development has occurred in the last 20 years, with an increase in the last few years. WUI issues exist around many of these scattered residences and ranches in terms of defensible space, hazardous fuel buildup, hazardous materials, ignition risk, and public education.

3.7 Forestry

Forest resources in the AFO area consist of forestlands and woodlands. Forestlands are areas that are now, or in the future would be, capable of obtaining at least a 10% canopy cover of forest trees and are not currently developed for non-timber use. In northeastern California, these commercial species include Jeffrey pine, ponderosa pine, sugar pine, Douglas fir, white fir, and incense cedar. Woodlands are areas with at least 6% canopy cover and forested primarily with juniper, oak, aspen, mountain mahogany, and other non-commercial species.

Forestland is subdivided into commercial forestland capable of producing ≥ 20 cubic feet per acre per year of commercial species and low-site forestland producing < 20 cubic feet per acre per year of commercial species. Low-site forests generally occur where commercial forestland grades into juniper woodland. These forests are composed of scattered ponderosa pine, Jeffrey pine, western juniper, and occasionally oak.

There are approximately 4,764 acres of forestland and 213,182 acres of woodland and low-site forestland in the AFO area. Acreage in each watershed in the field office area is shown in Table 3.7-1.

Table 3.7-1 Forestland and Woodland Area by Watershed in the Alturas Field Office Area (acres)

Watershed	Commercial Forestland	Woodland and Low-Site Forestland
Fall River/Big Valley	180	27,966
Goose Lake	0	215
Madeline Plains	1,020	47,326
North Fork/South Fork	162	64,535
Tulelake	~100	23,663
Warm Springs	3,302	49,477
Total	4,764	213,182

Forestland owned and administered by BLM constitutes a small fraction of the AFO area. The majority of forested land (i.e., forestland and woodland) in the field office area is on the Modoc National Forest, with Shasta-Trinity, Klamath, and Lassen National Forests supporting lesser amounts in descending order. The timber harvest and value for the counties in the field office area (Lassen, Modoc, Shasta, and Siskiyou) ranged between 29.1 and 187.2 million board feet (MMBF) and $4.3–40.5 million dollars per county in 2002 (California Board of Equalization 2002). By comparison, combined timber sales from the Alturas and Eagle Lake Field Office areas averaged 1.9 MMBF per year during the same time period (BLM file data).

Forestland in the AFO area consists of approximately two-thirds Jeffrey and ponderosa pine and approximately one-third white fir. Sugar pine, incense cedar, and Douglas-fir are also present. Stands are multi-aged, although there is a large component of even-aged trees in most stands. Many stands originated after logging and fires in the late 1800s and early 1900s.

Areas that burned subsequently in the 1900s have been planted to ponderosa and Jeffrey pine; such areas now support even-aged stands. In the Warm Springs watershed, approximately 2,000 of the 3,302 acres of forestland there are plantations that originated in the mid 1960s.

From the origin of BLM in 1946 through the 1960s, logging activities were concentrated on selective removal of high-risk old growth trees. High risk was defined as trees likely to die within 20 years. These old growth trees were 200–400 years old and older.

During the 1940s through the 1960s, approximately one-half of the old growth trees were selectively harvested. From the late 1970s through 1993, timber operations entailed some old growth harvest and a considerable amount of commercial thinning, which concentrated on harvesting trees that had reached economic maturity (trees approximately 120 years old and 21 inches diameter at breast height [DBH]). Since 1993, the driving force for timber removal in the field office area has been salvage logging following fire and in the presence of insect infestations (primarily white fir engraver and pine beetles) and disease (dwarf mistletoe).

Recent thinning and salvage operations have created stands that are relatively resistant to insect attacks; however, hazardous fuels in the form of overstocked stands, needles, slash from previous logging operations, and bitterbrush and other shrubs remain a concern. Stands in the field office area have not been surveyed and rated for hazardous fuel loads.

Forestlands and woodlands are used for log, pulpwood, and biomass chip production; recreation; hunting; gathering fuel wood; scientific research; and wildling collection (e.g., mushrooms, juniper berries, evergreen boughs, pinecones, and lichen).

The productive timberland is part of the Sustained Yield Unit (SYU) 15 base and is managed for timber production, with multiple use and threatened and endangered species constraints. SYU 15 includes BLM-administered lands in the Redding, Alturas, Surprise, Eagle Lake, Folsom, Bishop, and Bakersfield Field Office areas. Timber management in SYU 15 promotes pre-commercial thinning, site preparation, and planting to maximize production on forestlands. The annual allowable cut for the unit is 11.9 MMBF. Logs, pulpwood, and biomass are harvested.

The woodlands and low-site forestlands are not included in the SYU 15 allowable cut and are managed for removal or fuel wood and log or biomass harvest. Prescribed fire in juniper woodland is used for fuels reduction and to improve forage (see “Fire and Fuels”). In the Tulelake watershed, the majority of the productive forestland is on Mount Dome, which has been managed as a wildlife area (a bald eagle roosting area) with no harvest activities.

Wildfire, blowdown, insects, and disease affect the condition of forestlands and woodlands. Commercial and sanitation thinning to minimize impacts of insects, disease and wildfire have been practiced throughout the field office area. In cases where substantial damage to the resource has occurred (e.g., due to outbreaks of the fir engraver in the mid 1990s), salvage logging and woodcutting have been encouraged. Consequently, such areas are no longer overstocked and are therefore resistant to insect attack. Although stands in the field office area have not been assessed with respect to fuel loading, most stands—including plantations—present a hazardous fuels condition or fire hazard.

3.8 Lands and Realty

The AFO administers approximately 503,045 acres of land in Modoc, Lassen, Shasta, and Siskiyou Counties (Table 3.8-1). The AFO area includes several large contiguous blocks of public land, such as on the Likely Tablelands, Tule Mountain, and the Silva Flat area. Much of the remaining public land is located in smaller, scattered parcels.

Table 3.8-1 Land Ownership in the Alturas Field Office Area

Ownership	Acres
U.S. Bureau of Land Management, AFO	503,045
U.S. Department of Agriculture Forest Service	1,914,803
U.S. Bureau of Reclamation	8,223
Indian land	12,493
National Park Service	46,566
U.S. Fish and Wildlife Service	103,416
State	14,919
Private	1,513,876
Total	4,117,341

The Land Tenure Adjustment Plan (LTAP) amendment identifies broad areas of BLM-administered lands for retention and intensive management in accordance with the resource management goals and objectives (see Appendix L; Map LAND-1). These areas are referred to as retention/acquisition areas and encompass the majority of the field office area. Within these areas, BLM would work with willing private landowners to complete land exchanges that would provide public land management benefits as well as management benefits for the private landowners. The retention/acquisition areas, where BLM wishes to acquire private land by exchange, are generally larger expanses of public lands with smaller private inholdings. These retention/acquisition areas are places where BLM intends to focus on long-term management of public lands in accordance with identified goals, values, and objectives.

3.8.1 Retention/Acquisition Areas

The LTAP amendment identifies broad areas of BLM-administered lands for retention and intensive management in accordance with the resource management goals and objectives of the plan (Map LAND-1). These areas are referred to as retention/acquisition areas. Within these areas, BLM would work with willing private landowners to complete land exchanges that would provide public land management benefits as well as management benefits for the private landowners. The retention/acquisition areas where BLM wishes to acquire private land by exchange are generally larger expanses of public lands with smaller private inholdings. These retention/acquisition areas are places where BLM intends to focus on long-term management of public lands in accordance with the goals, values, and objectives identified in this PRMP.

As described above, retention areas are generally larger expanses of BLM-administered lands with smaller private inholdings, or areas with special management considerations or significant resources. They are often portions of, and in some cases, all of specific existing management areas. Areas where BLM-administered lands would be retained include WSAs, ACECs/RNAs, rights-of-way (ROWs), and other special management areas.

The Alturas management area encompasses four WSAs, including:

- Lava, 10,770 acres
- Pit River Canyon, 10,984 acres
- Timbered Crater, 17,896 acres and
- Tule Mountain, 16,998 acres

Lands within the AFO WSAs would continue to be retained and managed as wilderness until a final decision by Congress. Other lands within the field office may be retained as custodial lands for resource values, including lands currently identified for disposal—should environmental review prior to disposal reveal any significant resource values that would warrant retention.

3.8.2 Disposal Areas

The LTAP amendment identifies broad areas of public lands where BLM generally intends to dispose of existing BLM-administered lands, either by land exchange or sale (Map LAND-1). These areas are referred to as disposal areas, and they represent areas where BLM would not seek to acquire any private lands by land exchanges or other methods. Within these disposal areas may be some specific parcels of BLM-administered land that BLM intends to retain in public ownership for a variety of resource management reasons. These BLM-administered land parcels would be in a custodial category within which BLM would continue to manage them for existing resource values. The BLM-administered lands to be exchanged or sold into private ownership in the disposal areas are generally smaller, scattered, isolated parcels surrounded by private land in areas where BLM does not generally intend to focus on long-term continued management.

Approximate acreage available for disposal in each County is as follows:

- Lassen 6,870 acres
- Modoc 9,980 acres
- Shasta 0 acres
- Siskiyou 1,720 acres

The following public lands would be held available for transfers to other federal and state agencies or appropriate private entities through withdrawals or exchanges initiated by those agencies or BLM.

Lava Beds National Monument: Approximately 200 acres of BLM-administered lands adjacent to the detached Petroglyph Point section of the monument. Inclusion of these lands in the monument would enhance resource protection and public use values. BLM would consult with the U.S. Bureau of Reclamation (Reclamation) to determine whether Reclamation lands adjacent to the Monument would be suited for transfer to the Park Service. During consideration of this transfer, the Park Service and adjoining private landowners would be consulted to determine whether equitable considerations require that portions of this area be sold or exchanged to the adjoining landowners.

Tulelake WWII Relocation Center: BLM-administered lands associated with the Tulelake Relocation Center around the Newell townsite. This land would be managed for preservation and stabilization, and may be transferred to another agency or appropriate private entity once long-term plans for preservation of historic lands are completed.

USDA Forest Service: (a) 400 acres of BLM-administered land in Cayton Valley are best managed by USDA Forest Service. These lands are adjacent to and nearly surrounded by Shasta National Forest lands (administered by the Lassen National Forest) northeast of Lake Britton in Shasta County. (b) 240 acres of BLM-administered land near Day and 360 acres of land near Big Lake in Shasta County are best managed by USDA Forest Service. These lands are adjacent to and similar in resource management issues to National Forest lands in the Shasta National Forest (administered by Lassen National Forest). (c) Approximately 1,300 acres of BLM-administered land near Rattlesnake Butte, south of Mt. Hebron, in Siskiyou County are best managed by USDA Forest Service. These lands are adjacent to, and similar in resource management issues to National Forest lands in the Klamath National Forest.

California Department of Fish and Game (CDFG): BLM-administered parcels that provide habitat for a sensitive species (sage-grouse) and are best managed as part of the adjacent CDFG Ash Creek Wildlife Area would be transferred to CDFG through an exchange or other action.

The AFO would consult with appropriate tribal governments prior to completing any proposed land exchange or sale. In accordance with existing laws and the policies of DOI, BLM would coordinate and cooperate with Native American tribes in their efforts to acquire land through an Act of Congress. The BLM AFO would continue to pursue cooperation and consultation through appropriate tribal consultation protocol agreements. Potential land sales would be examined on a case-by-case basis to evaluate equitable considerations and public policies that may be used to determine whether a tribe should be given consideration for purchase as an adjoining landowner, in accordance with Section 203(f) of the Federal Land Policy and Management Act (FLPMA).

3.8.3 Withdrawal Areas

Public lands administered by BLM may be withdrawn for specific purposes by agencies other than BLM. As part of the management of lands in the AFO area, BLM may be required to review current withdrawals to determine the need for continuation, modification, revocation, or termination of these withdrawals. Future withdrawals would be considered on a case-by-case basis in accordance with Section 204 of FLPMA. The Secretary of the Interior may act to terminate withdrawals other than those made by an Act of Congress.

3.8.4 Utilities, Transportation, and Telecommunications

A ROW grant is an authorization to use a specific piece of public land for certain projects, such as roads, pipelines, transmission lines, and communication sites. The grant authorizes rights and privileges for a specific use of the land for a specific period of time. In general, ROW applications are initiated by the public to address a need for access across BLM-administered lands. Other uses, such as communications facilities, require a ROW (lease) for use of public land.

ROWs are processed on a case-by-case basis. Although applicable land use plans may designate utility corridors, communication sites, and existing route upgrades and improvements, these ROW authorizations are subject to National Environmental Policy Act (NEPA) compliance prior to approval. Through the NEPA environmental analysis process, the ROW request may be either denied or substantially affected or altered to avoid impacts on other resources.

Utilities

Existing utility ROWs are shown on the Master Title Plats available in the AFO. The only designated utility corridor in the AFO area is a 200-foot-wide ROW for a Pacific Gas and Electric (PG&E) gas pipeline that runs through the Fall River Valley. This corridor was designated in the Four Rivers Area RMP. Designation of utility corridors is a highly controversial issue in the area, with the majority of residents strongly objecting to any corridor designations anywhere within the viewshed of their home, their recreation areas, or their normal driving routes.

Telecommunications

Management of communication sites has recently changed with the inception of the 1996/1997 regulations governing communication sites on USDA Forest Service and BLM management public lands. Any new or renewed ROW (lease) for a communication site will be managed under the new regulations (43 CFR 2800).

Four existing communications sites lie on public lands in the AFO area:

- Haney Mountain (in Shasta County), with a total of six authorized site users;
- Widow Mountain (in Lassen County), with a total of four authorized users;
- Little Valley (in Lassen County), with one authorized user; and
- Adin Hill (in Modoc County), with one authorized user.

3.9 Livestock Grazing

3.9.1 Historical Setting

The AFO is located in an area that has been grazed by livestock for more than 100 years. Heavy livestock grazing from the late 1800s to the 1930s contributed to changes in plant composition and a reduction in rangeland productivity within the field office area. The impacts of heavy grazing are exacerbated by effective fire suppression. Many of the Field Office's fire dependent ecosystems have not burned in over 100 years. As a result, some of the key rangeland issues we face today, including vegetation change and soil loss, are the legacy of earlier mismanagement. Improved livestock management began following the passage of the Taylor Grazing Act in 1934. Livestock numbers were again reduced during the adjudication period of the 1960s. Today, livestock grazing use adjustments are based on the interpretation of monitoring data and ecosystem management concerns.

3.9.2 General Management Approach

Grazing resources and livestock use are characterized according to three broad categories of information: the grazing animals, the management that controls their movements, and the range resources supporting grazing activities. Animals are described by species, age, numbers, breeding arrangements, herd sizes, herd sex ratios, and food preferences. Management is described by how and when animals are brought to BLM-administered land, the numbers turned out, the methods for controlling their movements, and how and when the animals are removed. These descriptors are defined in the grazing permits held by permittees. BLM rangeland is divided into grazing allotments, which are further divided into pastures. Within the allotments, animal movements are controlled through the use of pasture fences, drift fences, and locations of water sources. Permits are valid for 1–10 years, but permit conditions can be changed on an annual basis in response to BLM monitoring of range condition. Grazing resources also are affected by management practices when grazing animals are not present.

Range resources that support grazing activities consist of vegetation as well as other components such as water, minerals, and cover. The carrying capacity for grazing animals of a particular given area of rangeland, described in terms of animal unit months (AUMs), consists of the number of animals that can be supported by the range while meeting required standards. The relative composition and quality of forage species, in concert with animal food preferences, contributes to quantification of the carrying capacity (Heady 1975).

Rangeland and livestock are managed by establishing discrete allotments and issuing livestock permits for these allotments. Allotment management plans (AMPs) are developed based on the site conditions, including the availability of water and forage and other resource sensitivities within each allotment. AMPs are developed in a process that is compliant with NEPA and consistent with the broader governing RMP. Basic permit conditions are established based on the provisions of the AMPs and are adjusted annually, through a monitoring process, to reflect current rangeland conditions and sensitivities. Permits are generally issued for 10 years.

3.9.3 Current Livestock Grazing Conditions

Of the 503,045 acres of BLM-administered lands within the boundaries of the AFO, 457,519 acres (representing 91%) are presently in grazing allotments. Within these allotments, 54,881 AUMs are currently allocated to 24,379 head of cattle, 2,083 head of sheep, and 2 horses. Currently, 111 grazing permits are held by 108 permit holders on 145 allotments. The permits typically allow for use from May through September.

Rangeland Health Assessment Determinations

Rangeland health assessment (RHA) determinations rate grazing allotments according to the following four categories:

- Category 1 – Areas where one or more standards are not being met, or significant progress is not being made toward meeting the standard(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 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)

Table 3.9-1 shows the numbers and acreages of the allotments in each of the RHA categories.

Table 3.9-1 Allotments by Rangeland Health Assessment Category in the Alturas Field Office Area

Rangeland Health Assessment Category	Number of Allotments	Acres
1	18	150,000
2	19	112,529
3[a]	100	154,657
4	8	35,859

[a] Unsurveyed.

Historically, all allotments were placed in selective management categories. Based primarily on current rangeland condition, the three approaches are improve (I), maintain (M), and custodial (C). The criteria for applying each of these approaches are as follows:

- Improve – Allotments generally have the potential for increasing resource production or conditions, but are not producing at that potential. There may be conflicts or controversy involving resource conditions and uses, but there are realistic opportunities to enhance resource conditions.
- Maintain – Allotments are in satisfactory resource conditions and are producing near their potential under existing management strategies. There are little or no known resource use conflicts or controversies.
- Custodial – Allotments usually consist of relatively small acreage or parcels of public land. They are often, but not always, intermingled with larger amounts of non-federally owned lands. There should be no known resource conflicts involving use or resource conditions. Typically, opportunities for positive economic returns from public investments are limited on these lands.

BLM selectively directs funds, monitoring emphasis, and management efforts where they will be the most effective. The major emphasis for development is the "improve" category allotments. Table 3.9-2 shows the number and acres of grazing allotments in each of the management categories.

3.9.4 Current Livestock Management

The primary management objective for livestock management has been to increase perennial grass composition. Management to meet this objective has been accomplished primarily through the use of pasture fences and development of strategically placed water sources. Other management actions include defining the season of use and voluntary reduction of use by permittees.

Table 3.9-2 Grazing Allotments by Management Category in the Alturas Field Office Area

Management Category	Number of Allotments	Acres
Improve	17	192,744
Maintain	32	173,888
Custodial	96	90,277

Management on BLM-Administered Land

Present management includes turning out the permitted number of livestock onto designated pastures within an allotment and removing them according to the annual terms and conditions. Animal distribution and movements are controlled by fencing, water distribution, or active herding. "Deferred-rotation" is the primary grazing system being implemented. Under this system, all pastures are rotated and grazed at a different time each year. Livestock are generally herded between pastures and/or trucked between allotments.

Management on Adjacent Land

Alternative (off-season) pastures are obtained from USDA Forest Service allotments, leased private lands, home ranches, or out-of-area pastures or feedlots. Presently, approximately 50% of the stock that are permitted on BLM lands are pastured offsite in the Sacramento Valley during the winter. This proportion varies from year to year as a result of changing range and market conditions. The herd size ranges from 2 to 600 head. Family and small business owners control approximately 95% of the herd using BLM-administered land; the remainder is under the control of corporate entities.

3.9.5 Observed Trends

Range Conditions

BLM is enhancing range conditions by controlling animal numbers, regulating season of use, and resting ecosystems subject to catastrophic damage (principally fire). Monitoring the activities applied according to procedures and criteria laid out in the Standards and Guidelines provides information on relative rangeland health and identifies animal management actions needed to protect the resource.

Forage production and availability naturally fluctuate annually in the AFO area. Drought conditions can trigger alteration of annual permit conditions. Natural or management-associated processes that are considered to move range health away from the desired conditions include:

- Encroachment of juniper into low and big sage and oak woodland communities;

- Sheet erosion and pedestalling (loss of soil except where held as "pedestals" by the roots of individual plants);
- Increasing competition from invasive weed species;
- Decline of watercourse health;
- Decline of riparian area health and functioning;
- Trampling of soils and streambanks by livestock, and impacts from trails or roads along the drainages and in the riparian areas;
- Decline in important forage shrub species as a result of drought; and
- Wildfire.

Because invasive annual species are established in most pastures, implementing management practices would increase the extent of perennial grass species but likely would not restore historical levels of perennial dominance.

Grazing Management

BLM and permittees have committed to improving public lands so that livestock forage and ranching can be sustained. Despite inherent difficulties, many local ranchers have changed grazing methods and have begun using new grazing strategies, which have shown dramatic improvement in maintaining the quality of rangeland. In addition, the quality and extent of riparian and sensitive upland vegetation types have increased because of these new and innovative grazing management techniques, which include shorter grazing seasons, modified spring grazing/summer grazing, and intensive management in riparian areas or pastures.

Enhanced management of streams and riparian areas through creation of livestock exclosures and riparian pastures, and intensive livestock management programs (e.g., redesigned fence configurations, frequent pasture moves, changes in season of use, and herding) have reduced effects of livestock concentration in sensitive areas—resulting in improved rangeland conditions.

Maintenance of greater amounts of residual plant material (vegetation that remains ungrazed at the end of the grazing season) in upland and riparian habitats has enhanced watersheds by improving water infiltration and reducing soil erosion, and allowing increased seedling establishment to increase ground cover. Although these improvements have been positive, some areas continue to require management changes. The riparian and upland assessments have identified areas that need attention if rangeland health is to be sustained (see Chapter 3.16, "Vegetation").

3.10 Recreation and Visitor Services

The major recreation activities in the planning area include general sightseeing, driving for pleasure, scenery and wildlife viewing, hiking and backpacking, recreational horseback riding, photography, hunting and fishing, camping, picnicking, rock hounding, caving, and driving off-highway vehicles (OHVs). The highest level of recreation use occurs over Memorial Day and Fourth of July holiday weekends and during hunting seasons. Recreational use is generally heavier during summer, but the area also receives intense use during the various hunting seasons in fall and early winter. Fishing is a popular activity and takes place spring through fall. Self-contained camping in association with hiking, and sightseeing is also popular throughout the area. Campers concentrate where the hunting is good or nearby, where shade or water is available.

Three major highways and numerous county roads traverse AFO lands. This transportation system provides access to a number of roads (both primitive and maintained) on BLM-administered lands. Significant routes within this transportation network include two designated national scenic byways: portions of the Volcanic Legacy Scenic Byway All American Road and the Emigrant Trails Scenic Byway. Given the considerable means of access, dispersed recreation opportunities exist throughout the entire planning area. Although limited in number, there are also opportunities for developed recreation at several sites within the planning area. Adjacent areas of interest managed by other agencies include the Modoc and Lower Klamath National Wildlife Refuges (NWRs); the Ash Creek and Butte Valley State Wildlife Areas; Lava Beds National Monument; and the Modoc, Lassen, and Klamath National Forests. Although the majority of visitors to the AFO area are from California and Oregon, an increasing number are from other states. There is a wide variety of opportunities for self-reliant recreational pursuits in northeastern California.

The recreation opportunity spectrum (ROS) is a system of classifying areas where recreation occurs; the system recognizes that people want and need different recreation experiences, and that the resource base has a varying potential for providing recreation experiences. Through the ROS, management can characterize demand for various types of recreation experiences and direct management to provide a variety of opportunities. In the system, combinations of recreation experiences, settings, and activity opportunities are arranged along a spectrum or continuum—with six classes as the primary division points. The spectrum approach is used to allow for the fact that the activities and experiences in one class may often be found in others, depending on the site-specific situation. The ROS classes are ‘Primitive’, ‘Semi-primitive Non-motorized’, ‘Semi-primitive Motorized’, ‘Roaded Natural’, ‘Rural’, and ‘Urban’. Each class is defined in terms of a combination of the types of activities and recreation experiences one would generally expect in those areas. For example, a primitive area would be managed so that one could experience backpacking with little or no contact with other people and minimal evidence of management or improvements. Table 3.10-1 describes the current ROS designations for the AFO area.

Table 3.10-1 Recreation Opportunity Spectrum Designations for the Alturas Field Office Area

Designation	Acres
‘Primitive’	46,784
‘Semi-Primitive Non-Motorized’	64,972
‘Semi-Primitive Motorized’	283,949
‘Roaded Natural’	107,340

3.10.1 Special Recreation Permits

Special recreation permits are authorizations that allow for recreational use of the public lands and related waters. They are issued as a means to manage visitor use, protect natural and cultural resources, provide for the health and safety of visitors, and provide a mechanism to accommodate commercial recreational uses. For four types of uses, these permits are required: commercial competitive, organized groups/events, and individual or group use in special areas.

In most recreation areas, management to facilitate recreation opportunities is limited primarily to providing basic information and access. BLM sometimes recognizes the need to more intensively manage specific recreation activities by designation of a special recreation management area (SRMA). In terms of recreation, all public lands that are not identified as being within an SRMA are considered to be extensive recreation management areas; generally, there are minimal improvements or development to support recreation activities in these areas. People visiting extensive recreation management areas are expected to rely heavily on their own equipment, knowledge, and skills while participating in recreation activities. Currently, all lands within the AFO area are managed as an extensive recreation management area; no SRMAs have been designated. All of the WSAs and developed sites are included in the existing extensive recreation management area.

The Pit River Campground is the only developed campground; Dry Creek Station and Cinder Cone campgrounds are smaller and more primitive. Although these campgrounds have been the sites of BLM investment in facilities, the extensive recreation management area as a whole has not been given sufficient management attention to elevate these areas to SRMA status.

Lack of an SRMA designation does not indicate that an extensive recreation management area does not have unique resources and associated recreation uses. In the past, the mix of these resources, levels of visitor use, visitor use issues requiring special management attention, and agency funding to administer these areas did not warrant the need for BLM to designate an SRMA for the area.

3.10.2 Non-Motorized Activities

Pronghorn and deer hunting occur throughout the AFO area during the various fall hunting seasons. Upland game hunting is also popular for quail, dove, and rabbits.

The AFO area has public lands in four highly sought after wildlife hunting zones: X5b (southeast of Madeline), X3b (Warner Mountains), X3a (Nelson Corral Reservoir/Likely Mountain), X2 (Devil's Garden), and portions of western Zones X1 and X4.

Demand for antelope and deer tags in these zones far exceeds the available supply. Those hunters who draw a tag highly value their opportunity to hunt in these zones that extend into and, in some cases, are entirely within the AFO jurisdiction—as are the Likely Tables, which has the largest wintering population of antelope in California.

Waterfowl hunting is probably the highest single hunting use in the field office area, occurring from October through January on most of the larger or perennial reservoirs in the area. Modoc and Siskiyou Counties hold regional fame as the best waterfowl hunting in northeastern California.

Recreational fishing opportunities are widespread in reservoirs and streams, and fishing is one of the most popular resources uses in the AFO area. Recreational fishing in reservoirs on BLM lands is generally limited to warm water species in the western portion of the field office. Several reservoirs in the eastern lands contain coldwater fisheries, as well as others that are warm water fisheries.

Recreational shooting is popular throughout the AFO area. Target shooting commonly occurs at the Portuguese Flat allotment, the Day Cinder pit, and at most of the major reservoirs from spring through late summer. Gun ownership and firearms use are a traditional way of life for many rural area residents, which further increase the overall amount of shooting activity that occurs on public lands in the area.

Visitors to the public lands in the AFO area also participate in hiking and mountain biking, especially in areas with significant scenic values. The Pacific Crest Trail, which is a nationally designated hiking trail, enhances the hiking experience as it passes through outstanding vistas and rugged volcanic landscapes. Miles of dirt roads afford many mountain bike riding opportunities, including loop rides. The Likely Mountain Challenge, Woodland Jurassic, and Devil's Garden Bicycle Rides all offer a variety of challenging rides.

Exploration of areas in the AFO area provides a vast array of opportunities for mountain bike rides in the backcountry. There is high potential to develop single-track trails on BLM lands throughout the field office area. Routes in the Mahogany Mountain area provide bicyclists with excellent panoramas and diverse, challenging rides. Hiking also takes place on dispersed public lands throughout the field office area, as well as at identified recreation sites.

Two winter cross-country ski areas are located within the AFO area: the Nelson Corral High Country Trails and the Dead Horse Loop Area. Although neither area has facilities, the open country, primitive conditions, and scenic panoramas all contribute to the mystique of the area.

Extensive wildlife viewing opportunities exist in the AFO area, in part due to its proximity to the Lower Klamath NWR, Tulelake NWR, and large tracts of agricultural lands. In addition, two locations within the field office are included in the California Wildlife Viewing Guide: Kelly Reservoir near Alturas, and Beaver Creek southeast of McArthur. Wildlife, including wild horses, pronghorn, bald eagles, deer, wading birds, shorebirds, and waterfowl, attract numerous visitors to designated viewing locations throughout the field office area. Riparian corridors, such as Beaver Creek, are important for migratory, neotropical birds and other species dependent on riparian habitat—and attract many birding enthusiasts.

3.10.3 Off-Highway Vehicle Use

OHVs include motorcycles, all-terrain vehicles (ATVs), and four-wheel drive vehicles. Presently, OHV activity is allowed on BLM-administered lands only in areas where it has been determined that the activity will not adversely affect resources. Monitoring the effects of OHV use on heritage or cultural resources, soil loss on trail systems, and impacts on fish and wildlife are used to assess impacts of OHV use. The current designations for OHV use areas on BLM-administered lands are as follows:

- *'Open' areas* allow for all types of vehicle use, at all times, anywhere in the area.
- *'Limited' areas* are restricted at certain times, in certain areas, or to certain vehicle use. Examples include seasonal limitations, requirements to use only existing roads and trails, and requirements to use only designated roads and trails.
- *'Closed' areas* are areas where OHV use is prohibited.

In general, the public lands administered by the AFO area are fairly rocky and discourage off-road travel. Most vehicles travel on BLM system roads and stay within the road and shoulder.

However, new developments in OHV four-wheel technology have made the off-road landscape easier to navigate. In the AFO area, OHV use occurs throughout the year but is most intensive during hunting season.

Much of the AFO area is designated as open area unless specific management objectives or concerns were identified that would warrant OHV limitations. Concerns, such as sites listed in the NRHP, archaeological sites, presence of sensitive plant populations, riparian corridors, or areas adjacent to a national wildlife refuge have led to restrictions on OHV use—normally limiting use to designated roads and trails. Depending on the resource concern, an area may be completely closed to OHV use in the AFO area.

A route inventory was completed in the summer of 2004 that inventoried all roads and trails in the AFO area. Road designations of open, limited, or closed were applied to approximately 902 miles of roads and trails in the AFO area.

3.11 Social Conditions

This section describes the social conditions of counties that fall within the AFO area. As previously mentioned, the AFO encompasses portions of Modoc, Lassen, Shasta, and Siskiyou Counties. A characterization of the communities and placed-based values in the AFO area is provided below.

3.11.1 Communities

The AFO planning area includes most of Modoc County, except for an area on the east side of the county (generally east of the Warner Mountains) that is within the planning area of the Surprise Field Office. The planning area includes the City of Alturas, which is where the BLM administrative offices are located; and the communities of Adin, Canby, Davis Creek, Day, Likely, Lookout, Newell, New Pine Creek, and Tionesta.

In Lassen County, the planning area includes the communities of Bieber, Madeline, Little Valley, Nubieber, and Pittville; Termo is immediately adjacent to the area. It should be noted that although Modoc County has the largest amount of area within the AFO planning area (approximately 53%), the greatest share of actual BLM land managed by the AFO is in Lassen County. Approximately 52% of BLM land managed by the AFO is in Lassen County and 29.4% is in Modoc County.

Approximately 331,334 acres of the AFO planning area and 46,522 acres of BLM land are located in Shasta County. Shasta County communities in the planning area include Burney, Cassel, Dana, Fall River Mills, Glenburn, Hat Creek, Johnson Park, and McArthur.

Approximately 889,956 acres of the planning area and 42,712 acres of BLM land are located in Siskiyou County. The communities of Tulelake, Macdoel, and Mt. Hebron are located in the planning area. Dorris is immediately adjacent to the planning area.

The extent to which the management of BLM lands by the AFO benefits or otherwise affects communities varies substantially, depending on such factors as how close the communities are to BLM-managed lands; how much BLM land is in the vicinity of the community, and whether commercial operations, including ranches, in the community operate in association with BLM resources. For example, virtually no BLM-managed land is in the immediate vicinity of Tionesta. Some commercial services (e.g., restaurants and motels) in such communities may benefit from BLM staff or from travelers going to and from BLM lands (e.g., recreational visitors) that periodically patronize those services.

Other communities have a more substantial relationship with BLM's immediate presence because more BLM employees live there, more money is spent in those communities for BLM-related operations and activities, or the greater extent of public use of BLM-managed land in those areas otherwise stimulates economic activities and the use of local businesses. The Alturas Field Office is located in the City of Alturas. Consequently, Alturas and the immediate vicinity of Modoc County receive a greater share of the benefits and effects of BLM employees working and living in the area. For more information about economic conditions, see Chapter 3.3 "Economic Conditions".

3.11.2 Placed-Based Values

In the case of Modoc County, much of the prevailing attitude toward place-based values, local lifestyle and relationship of the community with BLM-managed lands—as summarized by the County Board of Supervisors—is characterized in the Comprehensive Land Use and Management Plan for the Federally and State Managed Lands in Modoc County (Modoc Land Use Plan), adopted in 1995. The following excerpt from the Modoc Land Use Plan describes in part why it was adopted:

> The Board is well aware that the historical, overriding and predominant goal of the County's citizens, and therefore its government, has been the continuation of a lifestyle which assures the highest degree of protection of these rights. Property rights and interests are important to the independent people who now live and work in this rugged, mostly remote County which has an enormous land mass larger than some states in the Union but a population as small as some villages. People who live in this County are reliant on the land and its productive use (Modoc Land Use Plan 1995).

In discussing the custom, culture, and economic base of Modoc County, the Modoc Land Use Plan states that, historically, the custom and culture of Modoc County is a story retold in many western counties. The settlement of the county is the history of the livestock, farming, logging, mining, and railroad industries—led by hardy individuals willing to work and develop the resources of the land to bring forth a community.

> The people of Modoc County have historically and traditionally earned their livelihood from activities reliant on natural resources. The economy of the County has always been and is today dependent on and economically related to the availability and utilization of natural resources and reasonably accessible water supplies. Either directly or indirectly, the majority of the persons employed in Modoc County are dependent on ranching and farming, forest production, mining, recreation, and other activities related to and reliant on the availability of natural resources (Modoc County Board of Supervisors 1995).

The Lassen County General Plan notes that, like many rural communities in the West, Lassen County has an historic and strong cultural background, socially and economically, related to the livestock industry and other rangeland uses. Many customs and general attitudes in the area, especially outside of the more urbanized areas, reflect that heritage. Many residents in rural counties to some degree embrace this heritage or theme whether or not they are actually involved personally in ranching or agriculture.

The Siskiyou County Comprehensive Land and Resource Management Plan states: Custom, as used in the context of the Comprehensive Plan, refers to land or resource usages and practices that have "acquired the force of a tacit and common consent". Such land uses and practices, livestock grazing, logging, farming, mining, recreation and hunting, to mention just a few, are concrete, readily identifiable and are the foundation of Siskiyou County's economy.

These attitudes or values are also subject to transition influenced by shifting demographics. As more people move into rural areas from urban areas to take government, service, and other non-agricultural jobs, they bring different expectations and opinions about the use of open space lands.

Many residents value the scenic quality, wildlife and open space values, and resources of the area's rangelands—much of which is land managed by BLM. The availability of open land for dispersed recreation, or simply the appreciation of looking out across undeveloped landscape, is an asset valued by a large part of the local population as well as by visitors from other areas of the world.

The Natural Resources Element of the Lassen County General Plan notes that, because of political responsiveness of county government to the people and communities within the boundaries of the county, Lassen County is also the agency having the most immediate concern with the social and economic needs of the citizens of Lassen County. The Natural Resources Element goes on to observe that the resource policies and management practices of federal and state agencies can significantly affect private land and the welfare of the people who live and work in Lassen County. These agencies need to coordinate with the County and with each other to be responsive to the range of social, economic, environmental, and other needs; impacts and ramifications relating to resource management issues that affect the economic and social well-being of the people of Lassen County, and the long-term value of the County's natural resources.

The issue of livestock grazing and the value to local ranchers of grazing permits on federal lands is often used by local communities to epitomize the relationship of public land use with the lifestyle and economics of these communities. Livestock grazing is permitted by BLM under terms and conditions set forth in grazing permits. A number of ranching operations in Lassen County and other counties in the area rely on such permits for grazing allotments on public lands. The Lassen County General Plan Agriculture Element states that the economic viability of these livestock operations is substantially dependent on the continued and economical use of these rangeland resources, and that there is a direct relationship between federal grazing privileges on dependent ranches and the economic viability and market value of the private real estate of those operations.

The Lassen County General Plan maintains that, if grazing allotments are no longer available or rendered economically impractical due to increased grazing fees, extensive management requirements, or reduced capacity, the home ranches that depend on them may, in turn, be rendered economically unviable. This may cause or contribute to the financial failure of small ranching operations which, in addition to being tragic at the personal level to the families involved, contributes to pressures for the conversion of land that is in agricultural production to other, more immediately profitable non-agricultural uses.

Similar attitudes and policy positions are prevalent with the Boards of Supervisors in Modoc, Shasta, and Siskiyou Counties—where there is general sympathy for the economic challenges faced by timber companies, farmers, and ranchers, as well as concern over the loss of jobs and tax revenues. There is general concern for the protection and stewardship of natural resources, but much of the concern is expressed in terms that economic considerations are high priorities in the making of resource management decisions (e.g., the need to supply mills with timber or to provide adequate grazing resources for livestock).

With the increase of tourism as a significant component of local economic vitality, and with continued appreciation for the scenic and recreation resources in all four counties, there is also general concern over the need to protect the natural resources and open space values that attract visitors to the area.

The Shasta County General Plan includes the following statement concerning attitudes toward the areas quality of life:

> Unquestionably, the most distinguishing characteristic of Shasta County is the quality of life enjoyed by its residents. Many terms are used to describe the nature of this quality of life, including rural living, small town atmosphere, or country lifestyle. The quality of life has and will continue to attract new residents to Shasta County. The irony of this situation is that the very attractiveness of this quality of life, if present trends are allowed to continue, could eventually lead to its destruction (Shasta County General Plan, Page 3.0.01)

Some sites in the AFO planning area are important to the cultural heritage and lifestyles of local Native Americans. Of particular concern are sacred or otherwise significant cultural sites.

The Rangeland Reform ’94 Draft Environmental Impact Statement (EIS) states that cultural resources can be divided into two broad categories: cultural properties and traditional lifeway values (BLM 1994). A traditional lifeway value is important for maintaining a specific group’s system of religious belief, cultural practice, or social interaction. Lifeway values may or may not be closely associated with definite locations.

In general terms and with broad geographic scope, the following excerpt from the Rangeland Reform ’94 Draft EIS provides a concise statement concerning Native American place-based values. Some of these points may be applied to consideration of place-based values relating to BLM lands in the AFO planning area:

> Native Americans use their local environment to gather native plants, animals, and minerals for use in religious ceremonies, rites of passage, folk medicine, subsistence, and crafts. In Native American religious practice, any environment can contain specific places that are significant for spiritual purposes. Those sacred places embodying spiritual values are often associated with indigenous rock art, medicine wheels; rock cairns and effigy figures, spirit trails and spirit gates, caves, and springs or lakes. Contemporary use areas are associated with traditional plant and mineral collection locales, vision quest sites, Ghost dance sites, shrines, and traditional trails (Rangeland Reform ’94 Draft EIS, Page 3-55.)

Chapter 3.2 “Cultural Resources” should be consulted for a more specific discussion of cultural resources in the planning area.

3.12 Soil Resources

The primary indicators for soil resources are soil/site stability and hydrologic function. These indicators are part of BLM's Land Health Assessment (LHA), and are used to assess soil health in the context of BLM's Standards and Guidelines (S&Gs). The LHA provides 12 indicators that are used to rank soil/site stability and hydrologic function into five categories: (1) slight to no deviation from what would be expected on a reference site, (2) slight to moderate deviation, (3) moderate deviation, (4) moderate to extreme deviation, and (5) extreme deviation.

For consistency with other assessments, ratings 1 and 2 are considered to be in 'Proper Functioning Condition' (PFC), rating 3 is considered 'Functioning At Risk', and ratings 4 and 5 are considered 'Non-Functional'.

Soil/site stability ratings reflect the capacity of a representative site to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water. Hydrologic function reflects the capacity of the site to capture, store, and safely release water from rainfall, runoff, and snowmelt (where relevant); to resist a reduction in this capacity; and to recover this capacity following degradation.

3.12.1 Geographic Relationships and Distribution of Soils in Major Land Resource Areas

Major land resource areas (MLRAs) are geographically associated land resource units (LRUs). LRUs are geographic areas, usually several thousand acres in extent, which are characterized by a particular pattern of soils, climate, water resources, and land uses. A unit can be one continuous area or several separate nearby areas.

LRUs are the basic units from which MLRAs are determined. They are also the basic units for state land resource maps. They are coextensive with state general soil map units, but some general soil map units are subdivided into LRUs because of significant geographic differences in climate, water resources, and land use (USDA 2003).

The AFO area falls within three MLRAs identified by the USDA: MLRAs 21, 22, and 23 (Earth System Science Center 1998). Most of the AFO area is located within MLRA 21.

MLRA 21 – Klamath and Shasta Valleys and Basins– California and Oregon (35,350 km^2/13,650 mi^2)

MLRA 21 is located within the AFO area. The dominant soils are Xerolls, Aquolls, Aquepts, Aquents, Xererts, Albolls, and Argids. These soils have a mesic or frigid temperature regime. Soils in basins and on floodplains and terraces are Andaquepts (Tulana series), Argialbolls (Goose Lake series), Pelloxererts (Pitts series), Durargids (Trosi series), Halaquepts (Lolak series), Natrargids (Rumbo series), Durixerolls (Bieber series), Haploxerolls (Mottsville series), Argixerolls (Trojan, Galeppi, and Drews series), and Haplaquolls (Ramelli and Deven series). Soils on upland plateaus and mountains are Argixerolls (McQuarrie series), Haplargids (Casuse and Saralegui series), Chromoxererts (Karcal series), and Durargids (Packwood series). Large areas of rock outcrop are on the plateaus and in the mountains.

MLRA 22 – Sierra Nevada Range– California and Nevada (65,190 km^2/26,170 mi^2)

MLRA 22 is located in a small section of the western part of the AFO area and in a small section of the extreme eastern part of the AFO area. The dominant soils are Xerults, Humults, Xeralfs, Xerolls, Ochrepts, Umbrepts, Andepts, Orthents, Psamments, and Boralfs. These soils have a mesic, frigid, or cryic temperature regime, depending largely on elevation. Soils at elevations below 3,900–4,900 feet are Haplohumults (Sites and Aiken series), Haploxeralfs (Secca, Holland, and Cohasset series), Xerochrepts (Chaix and Maymen series), Haploxerults (Josephine and Mariposa series), Vitrandepts (Iron Mountain and Jiggs series), and Haploxerolls (Shaver series). Soils at higher elevations are Xerorthents (Dinkey series), Xeropsamments (Corbett and Toiyabe series), Cryopsamments (Cagwin series), Cryoboralfs (Fugawee series), Cryumbrepts (Meeks series), Cryochrepts (Umpa series), Cryandepts (Meiss and Waca series), and Dystrandepts (Windy series). Large areas of rock land are scattered throughout the area and on broad expanses on ridge crests and peaks above the timberline (7,900 to 8,900 feet). Soils in mountain valleys are Haploxerolls (Oak Glen series), Xeropsamments (Elmira series), Haploxeralfs (Inville series), Humaquepts (Chummy series), and Cryaquents. Soil survey information is lacking for extensive areas.

MLRA 23 – Malheur High Plateau – California, Nevada, and Oregon (73,050 km^2/28,210 mi^2)

MLRA 23 is located in a small section in the southeastern part of the AFO area. Most of the soils are Argids or Orthids. They are shallow to moderately deep, with a medium-textured to fine-textured subsoil and a frigid or mesic soil temperature regime. Nearly level to sloping, well-drained Durargids and Durorthids have a duripan and are on lake terraces and fans. Somewhat poorly drained Durorthids in low areas are commonly saline and sodic. Sloping to steep, well-drained to excessively drained, shallow, stony Xerolls are on uplands.

3.12.2 Assessment of Soil Condition and Present Management of Soil Resources

The LHA indicators were used to evaluate how well the soils standards in BLM's S&Gs are being met. The two summary ratings, soil/site stability and hydrologic function, and the 12 indicators were reviewed for the following discussion. The 12 LHA indicators are listed below.

1. Rills
2. Water flow patterns
3. Pedestals and terracettes
4. Bare ground
5. Gullies
6. Wind scour, blowout/depositional
7. Litter movement
8. Resistance to erosion
9. Soil loss or degradation
10. Plant community composition/distribution relative to infiltration and runoff
11. Compaction
12. Litter amount

Soils are in relatively good condition in the AFO area. Seventy-eight percent of the sites are rated as PFC for soil/site stability, and 80% are rated as PFC for hydrologic function.

North Fork/South Fork Watershed

Of the sites evaluated in the North Fork/South Fork watershed, 53% are rated as having soil/site stability in PFC, 35% are rated as 'Functioning at Risk', and 12% are rated as 'Non-Functional'.
The summary hydrologic function rating had 53% of the sites in PFC, 41% 'Functioning at Risk', and 6% 'Non-Functional'. In descending order, pedestals and terracettes, soil loss or degradation, resistance to erosion, and bare ground were the primary indicators of reduced soil condition.

Warm Springs/Big Valley Watershed

Of the sites evaluated in the Warm Springs/Big Valley watershed, 70% are rated as having soil/site stability in PFC, 25% are rated as Functioning at Risk, and 5% are rated as Non-Functional. The summary hydrologic function rating had 80% of the sites in PFC, 15% Functioning At Risk, and 5% Non-Functional. In descending order, pedestals and terracettes and plant community composition/distribution relative to infiltration and runoff were the primary indicators of reduced soil condition.

Tulelake/Devil's Garden Watershed

Of the sites evaluated in the Tulelake/Devil's Garden watershed, 84% are rated as having soil/site stability in PFC and 16% are rated as Functioning at Risk. The summary hydrologic function rating had 84% of the sites in PFC and 16% Functioning At Risk. In descending order, pedestals and terracettes and soil loss or degradation were the primary indicators of reduced soil condition.

Fall River Watershed

Of the sites evaluated in the Fall River watershed, 100% are rated as having soil/site stability in PFC. The summary hydrologic function rating had 100% of the sites in PFC.

Goose Lake Watershed

No data are available to assess the soil condition in this watershed.

Madeline Plains Watershed

Of the sites evaluated in the Madeline Plains watershed, 93% are rated as having soil/site stability in PFC and 7% are rated as Functioning at Risk. The summary hydrologic function rating had 93% of the sites in PFC and 7% Functioning at Risk. In descending order, water flow patterns and resistance to erosion were the primary indicators of reduced soil condition.

3.12.3 Overall Trends in the Alturas Field Office Area

The natural factors listed below affect soils in the AFO area:

- Wildfires
- Wind events
- Floods and
- Noxious weeds

The management-related factors listed below affect soils in the AFO area:

- Wildfire suppression activities

- Livestock management
- Wild horse management
- Fuels management
- Noxious weed management
- Recreation/OHV management
- Mineral exploration/mining

Western juniper encroachment is severely affecting the soils of the AFO area by replacing natural sagebrush steppe ecosystems and crowding out pine forests and aspen groves. Juniper encroachment stems from fire suppression over the last 150 years. Juniper encroachment affects soils in riparian areas by competing with woody species such as willow and elderberry. Increasing juniper canopy is affecting soils in the uplands by shading out grasses and sagebrush, thus decreasing the extent of forage as well as soil stability.

3.13 Special Designations – Areas of Critical Environmental Concern

BLM uses several designations to identify areas that require special management to protect resources or provide unique recreation opportunities. The designations include ACEC, Scenic (Backcountry) Byways, Historic Trails, WSAs (prior to being declared Wilderness by Congress) and Wild and Scenic Rivers (WSRs). Maps ACEC-1, HT-1, SB-1, WSA-1, and WSR-1 illustrate these areas in the AFO, which are described in the following text.

ACECs are areas—designated and administered by a federal land management agency—that require special measures to (1) prevent irreparable damage to important archaeological/historic or other cultural sites, protect scenic values, fish and wildlife resources or other natural systems or processes; or (2) to preserve human life from natural hazards (DOI-BLM, ACEC Manual 1613.02).

43 CFR and BLM policy require that environmentally sensitive areas be evaluated and considered for special management as ACECs during the PRMP planning process. 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 must extend beyond the local level.

The designation of an ACEC is a BLM discretionary decision made through adoption of a PRMP. In order to protect the resource values that justified designation of each ACEC in this PRMP (see Appendix E. "ACEC Relevant and Important Criteria"), BLM is required to develop and implement an ACEC management schedule or an activity plan (BLM ACEC Manual 1613.6). Each ACEC's management schedule or activity plan will be unique to the resources to be protected and are "management measures that would not be necessary and prescribed if the critical and important features were not present" (BLM ACEC Manual 1613.1.12).

Designation of an ACEC does not automatically create land use restrictions that affect all ongoing or proposed land uses but rather, requires development of a set of management prescriptions tailored to protect the unique resource values for which the ACEC is established. Following adoption of this PRMP, a management schedule or activity plan for each ACEC will subsequently be developed, involving affected stakeholders, to set future management direction for the area. An ACEC designation applies to BLM lands and does not apply to private property rights and privately held water rights.

There is one existing ACEC in the AFO area, and one Natural Area. The Ash Valley ACEC consists of 1,322 acres and is located in the southern portion of the field office; it was designated to protect sensitive plants. The Baker Cypress Natural Area is located within the Timbered Crater WSA and has 1,448 acres.

3.14 Special Designations – Historic Trails

Pit River Canyon

Euro American Exploration

The first recorded Euro Americans who explored this region were members of the Hudson Bay Company, and established Fort Vancouver on the Columbia River as their western outpost and primary center of operations. From Fort Vancouver they established trade routes throughout the, Pacific Northwest, the Great Basin, the high desert country of northeastern California, and traveled as far south as the Kings River near Fresno, California. Their principal mission was to trap beaver in the rivers and streams of the Pacific Northwest. In 1826-1827, Chief Trader Peter Skene Ogden implemented the "fur desert policy" which was designed to denude the streams and rivers of beaver in an attempt to prevent the American trappers from invading their rich Oregon and Washington trapping areas.

During Peter Skene Ogden's first journey through the area, he lost several horses in the large pits that the Native Americans had dug into the river banks to trap large game, and accordingly he named this major river of the region the Pit River. In 1832-1833 Chief Trader John Work of the Hudson Bay Company was in the Pit River Country with a large fur brigade and covered much of the same area that Ogden had several years earlier. Both Ogden and Work trapped beaver on the South and North Forks of the Pit, as well as its major drainages. The first recorded American trapper was Ewing Young in 1832, once again exploring the Pit River country in Big Valley, and followed the Pit River down stream into Fall River Valley.

Emigrants

In the 1843, the first emigrant party passed through the Pit River country, led by Joseph Chiles. This group of men on horseback left the Oregon Trail, at the Hudson Bay Company post at Fort Hall, Idaho, traveled across the Oregon desert to Goose Lake in California, and generally followed the Pit River into the Sacramento Valley. In 1846 the Applegate brothers and Levi Scott forged the Applegate Trail, also known as the Southern Road to Oregon, from the west to the east. Once again, Goose Lake was a focal point in early exploration, and was named by Levi Scott due to goose feathers found along the margin of the lake. In 1848, Peter Lassen left Fort Hall, Idaho with a group of wagons and followed the Applegate Trail to Goose Lake, turned south towards the rich California goldfields, and eventually ended up near his rancho at Chico, in the upper Sacramento Valley. The California-Oregon Trail connected Oregon to the Lassen Trail in 1848, ran along the east side of the Tule Lake marsh, intercepted the Lassen Trail north of Big Valley, and followed the Lassen Trail to the upper Sacramento Valley. This Trail was pioneered by a group of gold seekers led by Peter Burnett, who later become the first governor of the state of California, and was guided by Thomas Mckay, a veteran of the Hudson Bay Company fur trapping brigades. In 1852, the Yreka Trail followed the tracks of the Applegate Trail to the Lower Klamath Marsh, turned westerly towards Yreka and the goldfields of the Klamath country. The Yreka Trail was used in the early 1870's, to freight supplies and troops to the Modoc War, and also became the Tichnor road, which was the main route from Yreka to Alturas. Trail traces from these Historic roads can be found on some of the public lands where development and impacts are at a minimum. Many of the old Emigrant roads have been re-aligned and incorporated into newer roads, and the trail traces have disappeared. The importance of these Emigrant Trails is evident in the directives, policies, and protection that federal land management agencies provide for the management of this vanishing resource.

U.S. Army Exploration

The U.S. Army Topographical Corps played a major role in the exploration of this region in search of railroad routes from the Mississippi River to the Pacific Ocean, particularly involving the surveys and expeditions that involved the Central Valley of California, Northern California, and the Columbia River. The first military expedition into Northern California was the U.S. Exploring Expedition, led by Commander Charles Wilkes of the U.S. Navy in 1841. They crossed the Lower Pit River after departing the Columbia River country enroute to San Francisco. John Charles Fremont made four expeditions to the west with the U.S. Army Topographical Corps; in both the 1843 and 1846 expeditions, he passed through the Pit River country and named many of the local and regional rivers, mountains, and features. It is thought that Fremont named Fall River. In the 1843 journey, the famous mountain man Kit Carson was the party's guide. In the1846 campaign, he had passed through the Fall River country when news of the Bear Flag revolt reached him near Klamath Lake, and promptly marched his force of 60 men back to central California and was instrumental in taking Alta California from the Mexican government.

John Fremont was a man of many talents: explorer, topographical engineer, U.S. Army officer, botanist, first governor of the territory of California, senator from California, and a presidential candidate for president of the U.S. But he is probably was known best for his expeditions and exploration of the west, and earned the name of the "Pathfinder". In 1849 Captain William Warner and Lieutenant R.S. Williamson of the U.S. Army Topographical Corps commanded a party of engineers and troops on an exploration of the upper Pit River country in search of a railroad route through the mountains to the east. Captain Warner and a small force of men were exploring the east side of the mountains, they were attacked, and Captain Warner and his guide were killed by Indians, and the mountains were named the Warner Mountains for Captain Warner. In 1854, Lieutenant E.G. Beckwith explored the Madeline Plains, Big Valley, and the Pit River, looking for railroad routes. In 1855, Lieutenant R.S. Williamson was once again back in the Pit River country looking for railroad routes, with two young lieutenants: George Crook, the quartermaster in charge of the pack train, who came into prominence later with his involvement in the Battle of the Infernal Caverns, the Sioux Wars, and the Apache Wars; and Phillip Sheridan, the officer in charge of the infantry and dragoons, who later came into prominence in the Civil war. This exploring party focused on the Fall River area, Big Valley, the Pit River, the Klamath Lakes, and then pushed north to the Columbia River.

U.S. Army/Native American Confrontations

Hostilities began as soon as the first wagons entered the Modoc homeland in 1846 and gradually escalated until the end of the Modoc War in 1873. After re-occurring depredations from both sides, organized volunteer groups patrolled the established roads to protect emigrants from Native Americans attacks. The situation was inflamed further with incidents in 1852, like the Bloody Point massacre of 36 Applegate Trail emigrants in the Tule Lake basin, the failed peace talks with the Modocs, where 38 Indians died in a hail of bullets from the Yreka Volunteers. The Applegate Trail, also known as the Southern Road to Oregon, had a far more sinister name, "The Bloodiest Trail west", due to the many attacks, depredations, and deaths along the Trail. Fort Crook was established in 1857 in Fall River Valley, and Major R.S. Williamson selected the site for Fort Bidwell in 1866 to protect pioneers, emigrants, and travel routes. Military patrol routes were established along major emigrant roads, like the Lockhart Wagon Road, the Yreka, the Lassen, and the Applegate Trails. Both the U.S. Army and volunteer militias provided protection and needed supplies to the emigrants coming from the east, whose supplies were generally exhausted by the time they reached northern California.

In 1861, Evans and Bailey, two cattle owners from Roseburg, Oregon, were driving 900 head of cattle along the Lassen Trail to the Comstock mines of Virginia City, Nevada. The cattle drive was halted east of Canby, California, by a renegade band of Pit River Indians, wanting to trade deer hides for gunpowder and lead. Bailey and Evans were both killed and two drovers were wounded when the talks failed and fighting broke out, and all 900 head of cattle were driven off by the Indians. Troops from Fort Crook recovered some 300 head as far away as Goose Lake near the Oregon border, and Honey Lake 150 miles south.

The white encroachment and continuing hostilities during the ensuing years forced the Paiute, Modoc, and Pit River Tribes into more and more confrontations with the U.S. Army, volunteer militias, and pioneers. In 1867, General George Crook and a force of 108 regular army troops consisting of cavalry, mounted infantry, and Warm Springs Indian guides had a three-day battle with Paiutes, Pit Rivers, Modocs, and Snakes in a rugged lava landscape near Likely, California. The Indians escaped through the lava under the cover of darkness, similar to the final flight of the Modocs during the Modoc War five years later. This conflict was the Battle of the Infernal Caverns, widely known as one of the major regional confrontations between Native Americans and the U.S. Army in Northeastern California. This battle was a turning point in relations between the local Native Americans, settlers, and the U.S. Army.

Tensions and hostilities between the groups diminished after the Battle of the Infernal Caverns. The Battle of the Infernal Caverns and the area associated with it has been identified by the Pit River Tribe as a traditional cultural property and is regionally important to local Native Americans.

The hostilities in the region between the Native Americans and the U.S. Army reached a peak in the late 1860s and early 1870s. Finally in 1872, after 25 years of white encroachment and hostilities, the Modoc Nation fought the U.S. Army in one of the costliest wars ever waged by the U.S. government. The Modoc War was a nationally famous Indian war between the U.S. Army and the Modoc Tribe of northern California and southern Oregon. The Modocs were led by Captain Jack and other prominent Modoc warriors, including Scarface Charley, John Schonchin, Curleyheaded Doctor, Hooker Jim, and Boston Charley, in and around the exceptionally rugged volcanic terrain south of ancient Tule Lake. The war raged on into 1873, with Army losses of 68 soldiers, while only 16 Modocs were killed during the war, including Captain Jack and three others that were hanged for the murders of General Canby and Dr. Thomas. The final fight of the Hot Creek band took place during late May in their traditional homeland near Mahogany Mountain and Coyote Ridge. The public lands in this area provided the landscape for a running fight and the last skirmishes of the Modoc War, where the Hot Creek Band surrendered at the Fairchild Ranch on May 20, 1873. Captain Jack and his band surrendered June 1, 1873, east of Tulelake on Devils Garden. The end of the Modoc War signaled the last of the hostilities between settlers, Indians, and the U.S. Army in Northeastern, California.

New inventories, surveys, and accurate trail mapping are being used as management tools to protect the national historic trails and historic resources in the AFO area. Work is being conducted to determine the exact locations and distances of all listed trails.

3.15 Special Designations – Scenic (Backcountry) Byways

Driving scenic byways has become a commonplace activity and an effective aid to rural tourism, especially where popular routes are conjoined. These routes may follow short, sinuous country roads or involve long-distance travel on major federal and state highways. They may include scenic vistas, points of interest, interpretive sites, and other attractions. Routes that qualify as 'national scenic byways' have more rigorously defined parameters.

Qualifying routes must be suitable for ordinary passenger vehicles and—in addition to outstanding scenery—require points of interest and other high-quality, tourist-oriented attractions and conveniences adjacent to the byway.

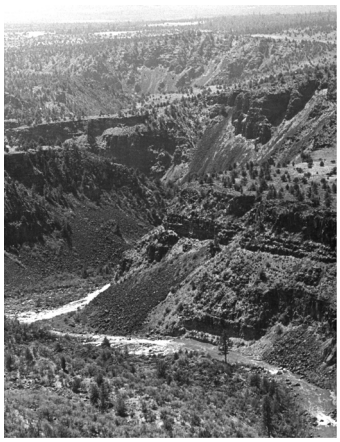
As previously mentioned, shorter routes are often narrow, winding country roads that offer outstanding scenery and other roadside attractions, such as wildlife-viewing, photography, picnicking, and the opportunity to explore historical or archaeological sites. Some routes are relatively rough, and more suited to adventurous drivers and high-clearance vehicles.

Other routes access trailheads for hiking or horseback riding, or rugged terrain requiring four-wheel drive. Such routes are associated with other recreational activities such as hunting, fishing, vehicular (self-contained) camping, rock-hounding, and caving. As one might expect, use is greatest on holiday weekends, particularly Memorial Day, the Fourth of July, and Labor Day. Peak use is in fall and summer; primarily for hunting and fishing (and self-contained camping associated with these activities) and, to a lesser degree, for sightseeing or hiking access.

No BLM Backcountry Byways are in the field office area; however, the Emigrant Trail Scenic Byway is a USDA Forest Service scenic byway that traverses public lands throughout the area. It was designated on March 31, 2003, because of its important historic, scenic, natural, and recreational resources. The scenic byway connects to the existing Outback Scenic Byway at the Oregon border and the Volcanic Legacy Scenic Byway All American Road in California. The Emigrant Trails Scenic route includes state and federal highways in Modoc and Siskiyou Counties, in California. Highways 395, 299, and 139 all lead to recreation designation areas. The roads are safe and open year-round.

3.16 Special Designations – Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 (Public Law 90-542, as amended) provides that WSR considerations be made during federal agency land use planning. To comply with the act, an eligibility determination for rivers and streams in the AFO area was completed in 2003 for 21 rivers and streams. Rivers and streams were evaluated with respect to the eligibility requirements for potential inclusion in the National Wild and Scenic Rivers System. To be eligible, a river or stream segment must be free-flowing and must have an outstandingly remarkable value in at least one of the following areas: scenic, recreational, geological, fish, wildlife, historic, cultural, ecological, botanical, hydrological, or scientific study.



Pit River Canyon

Three rivers and streams met the criteria for eligibility for potential inclusion into the National Wild and Scenic Rivers System and will receive further study. Eighteen rivers and streams did not meet the criteria for eligibility and will not receive further consideration; these are listed in Appendix J.

Lower Pit River Canyon

The Lower Pit River Canyon is approximately 2.5 miles long and covers approximately 400 acres from rim to rim, with dynamic geology, wildlife, recreation, and historic values. There are no water impoundments along this reach of the Pit River. This section of the river is popular with some kayakers and rafters. The area is also used for hiking and fishing. A historical road that crosses the Pit River at the western border of this unit provides a non-maintained access route through the canyon. The Lower Pit River Canyon provides a wilderness-like setting near a major population center of northern California.

More individuals and groups are exploring areas in increasingly remote settings. BLM, PG&E, local community members, and the Clearwater Lodge have initiated planning for a series of recreational trails to promote tourism and health. Some of these trails would utilize existing roads and trails as the basis for the trail system, and would emphasize trails in the Lower Pit River Canyon Wild and Scenic River study area.

Horse Creek

The three-mile segment of Horse Creek recommended for inclusion in the National Wild and Scenic Rivers System flows through a pristine canyon before entering the Pit River. This segment covers approximately 400 acres of uplands and riparian habitats, abounds in wildlife, fisheries, history, and wilderness like solitude. Cold and warm water recreational fisheries are present in the canyon, as well as native minnow populations. Fishing pressure is light due to limited access and rugged topography. The outstandingly remarkable values are in the following areas: botanic/ecologic, historic, and wildlife. This segment of Lower Horse Creek is included in the Pit River Canyon WSA, which is recommended for inclusion in the National Wilderness System.

Upper Pit River Canyon

The Upper Pit River Canyon is approximately 13 miles long and covers 1500 acres of uplands and riparian habitats. This segment of the Upper Pit River Canyon WSR is included within the Pit River Canyon WSA, and recommended for inclusion into the National Wilderness System.

The canyon has outstandingly remarkable values in the following areas: geologic, scenic, wildlife, recreation, and historic values, with wilderness-like solitude values. The Pit River bisects a large basalt tableland and has formed a spectacular canyon with unique geologic features and scenery along the entire river course. The plateaus, lava reefs, and flats above the canyon are concentration areas for wintering populations of deer and pronghorn. The canyon and cliffs provide exceptional nesting habitat for large numbers of birds of prey.

The National Historic Lassen Emigrant Trail has two branches within the WSR unit, and was one of the early Emigrant Trails into California. A warm water recreational fishery is present in the canyon, but receives light use due to limited access and difficult topography. Late summer and early fall flows can be quite low due to diversions and irrigation in three large upstream valleys. The Malacha hydro project has a small diversion dam and water intake on the upper portion of the canyon on private land outside of the proposed WSR segment.

An underground tunnel skirts the outside of the Pit River WSA/WSR segment, transports Pit River water to a holding reservoir, then a buried penstock transports the water to the powerhouse, which is located on private land outside of the WSA/WSR segment. Only flows exceeding a designated volume in cubic feet per second can be diverted into the tunnel for use at the downstream powerhouse.

As individuals want more challenging recreational pursuits without crowded conditions, they will migrate to these more remote locations for hiking, sight seeing, and fishing. This area is fairly close to the largest population center in Northern California and can be expected to receive more use as time goes on.

3.17 Special Designations – Wilderness Study Areas

WSAs are designated by a federal land management agency as having wilderness characteristics. The Wilderness Act of 1964 defines a wilderness as an area where the earth and its community of life are untrammeled by people and where people are visitors who do not remain. The act further defines wilderness as:

Timbered Crater WSA

"An area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed to preserve its natural conditions and that:

- Generally appears to have been affected primarily by the forces of nature with the impact of people substantially unnoticeable
- Has outstanding opportunities for solitude or a primitive and unconfined type of recreation
- Has at least 5,000 acres of land or is of sufficient size to make practicable its preservation and use in unimpaired condition
- May also contain ecological, geological, or other features of scientific, educational, scenic, or historical value"

Table 3.17-1 indicates the suitability of areas for designations as Wilderness in the AFO area, as determined in the 1990 California Statewide Wilderness Study Report (BLM 1990).

Table 3.17-1 Suitability of Areas for Designation as Wilderness in the Alturas Field Office Area

Wilderness Study Area	WSA Size (acres)	Recommended Suitable (acres)
Timbered Crater WSA (includes Baker Cypress Natural Area)	**17,896**	**0**
Pit River Canyon WSA	**10,984**	**6,703**
Tule Mountain WSA	**16,998**	**0**
Lava WSA	**10,770**	**10,770**
Total	**56,648**	**17,473**

Pit River Canyon WSA

The Pit River Canyon encompasses a section of the Pit River and is approximately 13 miles in length with dynamic geology, wildlife, and historic values. The National Historic Lassen Emigrant Trail is located within the boundary of the WSA. A recreational fishery exists for the entire length of the canyon. No legal access exists for the public. Roseberg Resources Company, a large timber owner in the area, has intermixed lands with BLM and controls the majority of the access. The area still receives visitor use, but there is no data available to indicate the exact numbers. A large portion of the study area has been identified as suitable for inclusion into the National Wilderness System. The WSA has 10,984 total acres, of which 6,703 acres are recommended suitable for wilderness. There is an additional 740 acres of lands currently in private ownership that could be included in the WSA if the land could be acquired.

Lava WSA

The Lava WSA is located in Shasta County; the northwestern corner of the WSA only 0.5 mile from the community of Fall River Mills. The WSA is an extremely rocky lava flow with no interior roads or trails, devoid of water sources except a few livestock reservoirs on the northern and eastern boundaries. The landscape is a mixture of dynamic lava reefs, islands of soil, and broken lava tubes. All areas of the interior have old growth Jeffrey/ponderosa pine, due to the lack of roads.

The area has three small wildlife guzzlers constructed by CDFG in the late 1960s, and all are located on the eastern periphery of the lava. One developed campground was located within the WSA. In 1990, all of the improvements for the campground were removed, and vehicle access into the site will be blocked. Popcorn Cave and Big Cave are both located in the southeast corner of the WSA. Each cave has over 800 feet of surveyed passages. A primitive trail was constructed from the end of the access road to Popcorn Cave in the 1960s. Both caves have been used for parties, with debris, bottles, and cans left in the caves. The Shasta Grotto, an official cave group, has cleaned up debris several times when visiting the caves. The Shasta Grotto was instrumental in the process of designating Big Cave as a significant cave under the Federal Cave Resources Protection Act. It was designated due to its length, height, width, and population of Townsend's Big Eared Bats. No precise numbers of visitor use are known. The WSA encompasses 10,770 acres of lands managed by BLM and is recommended suitable for wilderness.

Timbered Crater WSA

Timbered Crater WSA is also a mixture of lava reefs, pockets of soils, broken lava tubes, brush, Jeffrey/ponderosa pine, and Baker cypress. The Baker Cypress Instant Study Area (ISA) is located in the Timbered Crater WSA and contains 1,448 acres. FLPMA directed BLM to identify and study for wilderness characteristics those areas that were formally identified as natural or primitive areas prior to November 1, 1975. These areas are referred to as ISAs. Ahjumawi Lava Springs State Park is located on the southern end of the WSA and is accessed only by water.

The area has been subject to illegal flat rock collection, and some areas still exhibit the impacts of this activity. The Shasta Trinity and Lassen National Forests manage lands adjacent to the WSA that also have been identified as having roadless characteristics; these are under further study by the USDA Forest Service. The WSA includes 17,896 acres under BLM management and is recommended for non-wilderness.

Tule Mountain WSA

The Tule Mountain WSA is dominated by large expanses of big sage, juniper, and mountain mahogany. A unique stand of pine, fir, and aspen is located near the top of the mountain, on the south slope. The main feature of the WSA is Tule Mountain itself, which rises to 7,098 feet in elevation, with dynamic vistas in all directions.

Hunting activities occur throughout the appropriate seasons. The WSA has many primitive hunting camps that are generally associated with deer hunting season. Hunting activity has been decreasing in the area over the last 15 years due to the restricted number of permits allocated in X-designated mule deer hunting zones, and reduced time allocated for the seasons (X-zones are mule deer hunting areas in which the number of permits is restricted, and permit holders are selected by lottery). No numbers of visitor use are currently available. The WSA encompasses 16,998 acres under BLM management and is recommended for non-wilderness.

3.18 Travel Management

3.18.1 Off-Highway Vehicle Uses

OHV use within the field office includes motorcycles, ATVs, four-wheel drive vehicles, and snowmobiles.

OHV activity is allowed and encouraged on BLM-administered lands designated for the use and where the OHV use does not hamper attainment of land health standards.

Unregulated OHV use

The current designations for OHV use areas on BLM-administered lands are as follows:

- *'Open' areas* allow for all types of vehicle use, at all times, anywhere in the area.
- *'Limited' areas* are restricted at certain times, in certain areas, or to certain vehicle use. Examples include seasonal limitations, requirements to use only existing roads and trails, and requirements to use only designated roads and trails.
- *'Closed' areas* are areas where OHV use is prohibited.

Table 3.18-1 Existing Travel Designations in the Alturas Field Office

OHV Designation	Acres	Percent of AFO Area
'Open'	441,077	87.7
'Limited to Existing Roads and Trails'	38,722	7.7
'Limited to Designated Routes'	3,260	0.6
'Closed'	19,986	4.0
Undesignated	0	0
Total	503,045	100

Monitoring the effects of OHV use on heritage or cultural resources, soil loss on trail systems, and impacts on fish and wildlife are used to assess impacts of OHV use.

A complete route inventory was conducted for the AFO in 2004. This on-the-ground inventory—carried out by BLM staff riding or driving motorcycles, quads, and four-wheel drives and using global positioning systems—identified approximately 902 miles of routes on public land, including gravel roads, dirt roads, rough two-track four-wheel drive roads, ATV trails, and single track motorcycle trails used for various motorized activities.

The majority of OHV use occurs in conjunction with hunting. ATVs are now commonly used by many hunters to access hunting areas. Four-wheel drive pick-up trucks and Jeep-type vehicles were the primary means of access into a hunting area from the 1950s to the 1990s; however, hunters now commonly park their trucks on the primary access routes into an area, then unload their ATV and use that to travel further into a hunting area before beginning their hunting on foot. This improves their ability to travel along the rough rocky roads far into the hunting areas.

Off-route OHV cross country travel, mainly by motorcycle and ATV riders, occurs in locations that offer mineral material sites and soils acceptable for riding (usually these mineral sites are relatively small pit areas). A large part of the riding public stays on existing roads and trails, but some indiscriminate riding occurs in areas with less rocky terrain causing impacts to soil, vegetation, cultural resources, and wildlife habitat. Most of the off-road riding is occurring in the Fall River area where there are generally less rocks than on the eastern side of the field office. The Day Bench and Hogback Ridge areas are popular with local residents because of their proximity to Fall River Mills area. Riders from Redding are using the area more, as the Fall River Mills area is fairly close to Redding where many landscapes are closed or regulated due to impacts from OHVs.

The main OHV trail-riding on the east side of the field office occurs on dirt roads and single track trails in the hills to the south of Alturas and the Devils Garden area north of town. Other vehicle-based recreation activities include driving for pleasure and back road exploring in high clearance vehicles and on motorcycles and ATVs on the 902 miles of dirt road and trail network throughout the AFO area.

Snowmobile travel occurs very little in the field office due to the general lack of snow; however, the use that occurs on BLM lands is primarily at higher elevations areas such as the Deadhorse area and Nelson Corral south of Likely, and on Widow Peak, west of Bieber.

Motorized boating activities occur primarily on West Valley, Bayley, Nelson Corral, Antelope, Knox Gulch, and Lower Roberts Reservoirs, and Delta and Moon Lakes because these water bodies are large enough to accommodate and justify motorized boats. Most of this activity is associated with fishing, whereas West Valley reservoir caters to a multitude of water sports, with fishing and water skiing the primary activities. The Pit River has various segments that are used for whitewater rafting, but the primary areas are the Lower Pit River Canyon and the river near the Pit River Campground.

3.18.2 Non-Motorized Activities

Non-motorized activities within the AFO include hiking, mountain bike riding, cross country skiing, and horse back riding.

3.18.2.1 Hiking

The primary non-motorized use within the field office is hiking, or foot travel. Hiking is usually associated with hunting the various game animals found throughout the field office. This activity is strictly tied to the hunting seasons during the fall and winter months. Some hiking is also inherent to fishing.

Hiking for the joy of hiking also occurs throughout the field office. The vast majority of this recreational pursuit occurs on the Pacific Crest Trail south of Fall River Mills, although the field office only has 2 miles of this national hiking trail on BLM land.

Other identified hiking and non-motorized opportunities in the field office are:

- Devils Garden ride, 4 miles northwest of Alturas
- Woodland Jurassic ride, 6 miles south of Alturas
- Likely Mountain Challenge, 5 miles south of Likely
- Deadhorse loop cross country skiing area, and
- Nelson Corral High country cross country skiing area.

For a different experience, WSAs managed by the AFO afford hikers a wide variety of high desert primitive hikes in a landscape dominated by volcanic peaks, rims, and ridges. The mountain peaks and ridges afford expansive and spectacular vistas across the Great Basin Desert and west to the Sierra Crest and Cascade Mountains. There are numerous canyons to explore including some with perennial streams with established fisheries.

The WSAs are:

- The Pit River Canyon has one of the most spectacular and deepest canyons in the area, with outstanding vistas of Mount Shasta.
- The Lava WSA affords excellent cross country hiking through rugged broken lava flows with intermixed islands of pine and juniper. Many locations afford outstanding views of two of the higher peaks of the Sierra and Cascade ranges – Mount Lassen and Mount Shasta.
- The Timbered Crater WSA located in the northwestern portion of the AFO jurisdiction presents challenging hiking where numerous low volcanic rims and canyons afford broad vistas across the open landscapes. Many locations afford outstanding views of two of the high peaks of the Sierra and Cascade range– Mount Lassen and Mount Shasta.
- The Tule Mt. WSA offers spectacular vistas of the eastside at 7,000 feet, coupled with high desert stands of pine and white fir.

Other key hiking locations:

- The abandoned Modoc Line railroad grade, with 85 miles of track removed in 2003 and 2004, is now a packed gravel roadbed that extends from 1.5 miles north of Wendel to 12 miles south of Alturas. This railroad grade has excellent potential for conversion to a rail trail with three segments of particular interest for hiking – near Wendel to Viewland by Highway 395, Karlo to Crest south of Ravendale and Madeline to McArthur siding north of Likely (AFO segment).

Backpacking (overnight hiking) also occurs in the above areas as well as many other portions within the field office area, but there are no developed trails of sufficient length to facilitate the sport therefore this use is sporadic and mainly associated with hunting.

Cross country skiing occurs during winter months where adequate snow provides opportunities at higher elevation areas. Two areas have been identified in brochures for winter sports in the region. The Nelson Corral High country southwest of Likely and the Deadhorse Loop southeast of Likely in the south Warner Mountains usually have sufficient snow during years with normal precipitation.

3.18.2.2 Mountain Biking

Mountain biking continues to gain popularity on public lands administered by the field office. Visitors from many areas inquire about biking opportunities on the three mountain bike routes, as well as seeking other areas to ride.

Notable rides within the field office:

- the Devils Garden ride, 4 miles northwest of Alturas has an abundance of trail riding opportunities and challenges, with dynamic views of Rock creek canyon
- the Woodland Jurassic ride, 6 miles south of Alturas has great views of the Warner Mountains to the east and tours through juniper woodlands

- the Likely Mountain Challenge, 5 miles south of Likely has outstanding vistas of the South Fork Pit River Valley, the Warner Mountains, and has a variety of skill levels
- The 902 miles of dirt roads and trails throughout the field office offer a variety of riding experiences over a variety landscapes for every skill level.

Presently, mountain biking does not occur on many of the roads because the roads are in remote locations, the surfaces can be very rocky, but many provide looped riding opportunities. Most riders are not aware of the many miles of riding opportunity available on public lands within the field office.

Many riders prefer rides that afford loop rides on surfaces that are not excessively rocky and in scenic settings with low to moderate elevation gain. More highly skilled and fit riders, however, seek challenging rides on narrow trails that can be very rough in places. Few single-track trails currently exist on BLM-administered land. Such trails are highly sought by mountain bikers and could become destination attractions if a quality system of looped single track trails were constructed.

BLM lands have excellent potential to provide a wide variety of new scenic trails that could be designed and constructed to meet a broad spectrum of rider interests and abilities which would capture local rider interests and attract and hold visiting mountain bikers in the area.

The trackless roadbeds of the abandoned railroad grades of the Modoc Line provide gentle grade trails that serve local riders and, as they become known, should retain area visitors that come to the area for destination mountain biking experiences.

3.18.2.3 Horseback Riding

Interest in recreational horseback riding within the field office continues to increase. There are horseback riding clubs in Lassen and Modoc Counties and each club conducts some rides on public lands. There area also has many equestrians who do not belong to clubs who enjoy riding on public lands for special endurance rides and recreational rides in the high desert and Intermountain country of the AFO.

3.18.3 Human-Powered Boating

Travel by human powered watercraft occurs on:

Bayley Reservoir	600 acres
Nelson Corral Reservoir	200 acres
West Valley Reservoir	1500 acres
Antelope Reservoir	10 acres
Knox Gulch Reservoir	15 acres
Lower Roberts Reservoir	1000 acres
Moon Lake	4,200 acres
Delta Lake	600 acres

All reservoirs and lakes are primarily used for fishing. Human powered watercrafts on these water bodies include float tubes, pontoon boats, canoes, kayaks and rowboats. Use of these types of watercraft is increasing as sports such as fly fishing are gaining in popularity.

3.18.4 Transportation

Major improved transportation networks or public highways managed by counties and the California Department of Transportation in the AFO area have been established for many years. These highways and roads have been authorized by numerous Acts of Congress, including the Act of 1866 (Revised Statute [RS] 2477), FLPMA, and a wide variety of federal aid highway acts under the administration of the Federal Highway Administration.

Major roadways in the AFO area include U.S. Highway 395 and State Highways 89, 139, and 299. A limited number of improved dirt roads are maintained by the counties and BLM to provide additional area access.

Major BLM-maintained access roads in the AFO area include:

- Cinder Cone
- Tule access
- Knox Mountain
- Nelson Corral
- Antelope Reservoir

Numerous well-established casual-use roads also cross public lands in the AFO area. A comprehensive AFO route inventory and GIS were completed in 2004.

RS 2477, Section 8 of the 1866 Mining Act, granted a ROW for the construction of highways across public lands not reserved for public uses. Although RS 2477 was repealed with passage of FLPMA in 1976, highways constructed before FLPMA have valid existing rights.

RS 2477 contained no process for notifying the federal government of ROWs or for documentation in the public land records. Thus, the number and location of valid RS 2477 ROWs in the field office area is not known.

Under BLM's policies, all existing public roads, trails, and two tracks are open to public motorized use unless specifically closed for documented, specific resource protection needs. Such closures become effective upon final publication of a legal closure notice in the Federal Register.

3.19 Vegetation

For this PRMP/FEIS, the vegetation component of the affected environment addresses all terrestrial and aquatic vegetation communities, special-status plants, and noxious weeds. These three vegetation resource categories are described separately in this section. Additional information that relates to vegetation resources (primarily vegetation communities) is also provided in Chapter 3.6 "Fire and Fuels," Chapter 3.7 "Forestry," Chapter 3.9 "Livestock Grazing", and Chapter 3.25 "Wildlife and Fisheries".

Blueoak Woodland with Western Juniper & Medusahead invasion

3.19.1 Vegetation Communities

Overview of Existing Conditions

A majority of the lands administered by the AFO are located in the Modoc Plateau of the Great Basin Province, as described in The Jepson Manual (Hickman 1993). The remainder of the AFO area (i.e., the area along the western boundary) is within the Cascade Range region of the California Floristic Province. Because the AFO area is located within the transition zone between these two floristic provinces, a portion of the AFO area exhibits floristic elements of both the Great Basin and the Cascade Range foothills. In the transition zone, these elements mix, plant communities intergrade with little clear demarcation, and plant alliances become ecotonal.

The AFO does not have up-to-date information (e.g., written descriptions, GIS layers, or maps), for all of its vegetation communities. One source of vegetation data, in the form of GIS layers, available to the AFO is the CALVEG map and classification system, which describes the dominant or primary vegetation types or vegetation alliances (USDA Forest Service 1981). The CALVEG layer has only been minimally ground truthed. CALVEG is a statewide system for classifying vegetative and non-vegetative cover types. The USDA Forest Service developed the CALVEG system for use in describing and contrasting vegetation types (alliances) across the state and in mapping their general distributions. The information is typically used in land management issues such as forest-wide planning efforts, wildlife habitat mapping, and fire risk assessment.

Another source of vegetation data is the juniper canopy coverage, developed through the interpretation of contrast, brightness, and shadows of vegetation from digital orthophoto quadrangle maps by a private contractor. This source has not been validated on the ground for accuracy. Discrepancies between the juniper coverages exist because the juniper canopy cover overlaps shrub and herbaceous cover, it includes other species with a similar reflectance (Baker cypress, oaks and gray pine), and canopy cover classes below 20% are actually communities such as mountain big sagebrush and low sagebrush.

A description of the existing vegetative conditions in the AFO area corresponds with the vegetation types in CALVEG as well as the plant alliances that are used in the Vegetation Classification and Mapping Program (VCMP) (CDFG 2003). The VCMP plant alliances and corresponding plant associations are neither described nor mapped for the AFO area. They are mentioned in this document to provide the reader with the current vegetation classification scheme that will be used in the updated version of the Manual of California Vegetation, anticipated to be published in 2004/2005.

Biological crusts are often omitted from discussions of vegetation communities. Biological crusts, also known as cryptobiotic crusts, are made up of mosses, lichens, and cynobacteria (blue-green algae). Biological soil crusts are an important source of biologically fixed nitrogen on nutrient-poor soils of the Great Basin, and they protect the fragile and sparsely vegetated soils in this region from erosion. In addition, biological crusts may reduce the invasion of weedy, nonnative annual grasses such as cheatgrass (Kaltenecker et al. 1999). Recent research by Ponzetti and McCune (2001) shows that microbiotic crusts may be indicators (e.g., an early warning system) of rangeland health. Although no relationship between total vascular cover and crust cover has been found, there is a correlation between perennial bunchgrass cover and crust cover. Work is still needed for the AFO Resources Staff to fully analyze where biological crusts occur and where they have been damaged to the extent that they need to be restored to the landscape. Absence and presence of crusts is recorded as part of the functional/structural indicator when evaluating land health status. Biological soil crusts are also included in all fire effects monitoring studies.

CALVEG mapping shows 38 vegetation alliances on AFO area lands. Table 3.19-1 shows the vegetation alliances mapped in the AFO area. Map VEG-1 shows the distribution of mapped CALVEG communities in the AFO area.

A vegetation association is a plant formation presenting a uniform gross appearance of a kind of vegetation, ignoring its taxonomic composition (Daubenmire 1968). The three vegetation associations present in the AFO area are forest/woodland association, shrub association, and herbaceous/grassland association. A vegetation community is the basic unit of vegetation (Daubenmire 1968). A vegetation community is an assemblage of vegetative species that are ecologically interrelated.

The 38 vegetation alliances, or communities, are listed in Table 3.19-1, and are summarized below.

3.19.2 Forest and Woodland Associations

Fifteen communities are described within the forest and woodland association. Some of the communities are dominated by species that may assume either shrub or tree structure. They are included here because most of these species have the potential to achieve tree structure under supportive environmental situations and when seedlings or saplings are subject to limited herbivory. Sawyer and Keeler-Wolf (1995) define a tree as a woody plant with a tall final height, commonly with one stem [trunk] from the base.

CALVEG vegetation types in this association are eastside pine, Jeffrey pine, knobcone pine, and mixed conifer-fir, Baker cypress, mixed conifer-pine, gray pine, ponderosa pine, ponderosa pine–white fir, blue oak, Oregon white oak, California black oak, quaking aspen, western juniper, and white fir.

Knobcone pine and Baker cypress are restricted to the Timbered Crater WSA in the Fall River watershed. Baker cypress is a California Native Plant Society (CNPS) List 4 plant and a BLM special interest plant. Both Baker cypress and knobcone pine are fire-dependent species. Gray pine occurs primarily in the Fall River watershed but also occurs in the Dixie Valley area.

Blue oak is found in the Fall River watershed from an area along State Highway 299 above BLM's Pit River Campground, west of Saddle Mountain and extending west to Lake Britton, and south to near the town of Burney. This is the easternmost disjunct population of blue oak. Other oak species occasionally hybridize with blue oak. (The preceding three communities are not described in the CALVEG layer, but BLM recognizes their presence in the planning area.)

Table 3.19-1 Vegetation Types and Acres Mapped in the Alturas Field Office Area

Vegetation Type Description (CALVEG)	Total Acres by Vegetation Type [a]	Percent of BLM Acres
Agriculture[b]	1,008	0.2
Annual grass/forbs	17,696	3.518
Annual grass/ medusa-head[c]	21,387	4.252
Baker cypress	4,246	0.844
Barren rock/lava	11,382	2.263
Birchleaf mountain mahogany	334	0.066
Bitterbrush	109	0.022
Blue oak	69	0.014
California black oak	1,615	0.321
Ceanothus mixed chaparral	9,390	1.867
Ceanothus mixed chaparral/gray pine	6,726	1.337
Curlleaf mountain mahogany	2,184	0.434
Dune [b]	9	0.002
Eastside pine	18,494	3.676
Greasewood/big sagebrush	441	0.088
Gray pine	738	0.147
Jeffrey pine	617	0.123
Knobcone pine	112	0.022
Low sagebrush	52,593	10.527
Low sagebrush/annual grass [c]	4,218	0.838
Mixed conifer – fir	4,976	0.989
Mixed conifer – pine	3,609	0.717
Montane mixed chaparral	5,368	1.067
Mountain big sagebrush	178,572	35.499
Northern basalt vernal pool	47	0.009
Oregon white oak	2,653	0.527
Ponderosa pine	266	0.053
Quaking aspen	363	0.072
Rabbitbrush	924	0.184
Riparian shrub woodland	343	0.068
Silver sagebrush	1,378	0.274
Upper montane mixed shrub	94	0.019
Water	3,691	0.734
Western juniper [d]	132,338	26.308
Wet meadows-grass/sedge/rush	1,619	0.322
White fir	671	0.133
Willow	5	0.001
Wyoming big sagebrush	9,080	1.805
Unknown	3,316	0.66

[a] Acres are rounded approximations from GIS.

[b] Vegetation classification in CALVEG.

[c] Vegetation classification adopted by Alturas BLM.

[d] The BLM AFO considers this value to be in error. For planning purposes the AFO will use the figure of 304,666 acres as the total acres of juniper by canopy cover.

Oregon white oak is found in the Fall River and Big Valley watersheds; the eastern extent of this type occurs in the vicinity of Round Valley and Chace Valley, near the town of Adin. This oak species occurs either as pure stands or is mixed with juniper (mostly post-settlement western juniper), eastside pine, and mixed ceanothus chaparral.

Researchers have found that oak woodlands are maintained by frequent fire. Oaks have adapted to fire by sprouting from the root crown. Low to moderate intensity and frequent fires maintained oak woodlands as an open savanna. Fires reduced shrubby oaks and removed invading conifers. All the oak woodlands of the AFO are under the Direct Protection Area of the California Department of Forestry and Fire Protection (CDF). The CDF actively suppresses all wildfires in areas of oak woodlands on public lands administered by BLM. The reintroduction of fire is needed to enhance oak regeneration, encourage sprouting of young trees, saplings and sprouts, to reduce annual insects that predate on acorns and seedlings, to reduce annual grass invasions, and to reduce conifer encroachment. In addition, exotic annual grasses compete for water and light and rodent and other ungulate herbivory is negatively impacting oak regeneration.

The remaining forest and woodland communities are found throughout the AFO area. Eastside pine is primarily an eastern community but enters the Fall River watershed in Muck Valley (it was misrepresented on the CALVEG layer). Mixed conifer-fir and mixed conifer-pine occur primarily in areas with cool soil temperature regimes; these areas receive significant snow pack.

3.19.2.1 Juniper Woodland Communities

According to the juniper canopy cover layer for the AFO, there are 304,666 acres of juniper woodlands (again, this is by canopy cover class of juniper). As mapped by CALVEG, there are approximately 132,338 acres of juniper woodlands on BLM-administered lands in the AFO area. The actual acreage is somewhere between these values.

The juniper acreage includes old growth, juniper sagebrush associations, various seral stages of juniper woodland, mixed juniper-gray pine-Oregon white oak associations, and other shrub communities that are in a state of transition or have crossed a threshold to juniper or juniper/annual grass dominated communities. Old growth juniper is estimated to be between 34,000 and 182,000 acres, probably closer to the former. A description of the juniper woodland ecology is provided below.

Juniper woodlands have large ecological amplitudes and occupy a variety of parent materials, soils, topographic positions, and climates. This woodland community can occupy and dominate many different plant cover types. Adding to the spatial complexity of these woodlands are their temporal dynamics. Many juniper woodlands are in various stages of succession from early to late development. The stage of woodland development affects fuel loads, wildlife habitat, management operations, cost of conversion, and response to treatment (Miller, Svejcar, and Rose 1999). This overview also applies to the sagebrush steppe (shrub associations, below), as many of these communities have been converted to juniper dominated woodlands and/or annual grassland associations or are at an ecological state of transition that when a disturbance occurs, a threshold will be crossed. This overview will also complement the Fire and Fuels and Terrestrial and Aquatic Wildlife sections.

There has been an increase in both the distribution and density of juniper across the Intermountain West, starting in the late 1800s. Juniper has encroached into sagebrush steppe communities (mostly deeper, well drained soils with mountain big sagebrush), since the onset of European settlement.

Livestock grazing, fire suppression, and climate are the factors most frequently implicated in this historic expansion of juniper throughout the western U.S. As trees gain dominance and shrubs and herbaceous vegetation decline, fuel structure changes, which contributes to significant increases in the length of mean fire return intervals (MFRI)—(historically, 12–25 years; now greater than 100 years). Dense tree-canopied woodlands are now becoming susceptible to intense crown fires. The intensity of these fires can lead to dominance by exotics, further altering the successional dynamics of the site (Karl and Leonard 1996; Miller and Tausch 2001).

As sagebrush steppe and woodland successional stages have changed, their susceptibility to fire and the types of fire has changed (Tausch 1999a). Many studies indicate that a fine fuel component was necessary to maintain sagebrush communities. Seral communities were maintained by wildfires and with the change in structure and herbaceous layer the fire regimes have changed. Gruell (1999) describes how fires were frequent on deep soils that produced an abundance of fine fuels but infrequent on shallow soils and rocky sites. Big sagebrush/perennial grass communities burned frequently in mosaics thereby preventing tree encroachment. Low sagebrush sites burned infrequently (MFRI of 100+ years) and at low intensities, so juniper trees were able to persist on these sites.

Grazing and fire suppression have resulted in a shift from low intensity, frequent fires to high intensity, infrequent fires. This increased canopy cover and density of juniper, a buildup of woody fuels, and a decrease in the amount of fine fuels with an increase in fine fuel continuity (cheatgrass), it is apparent that the current and future situation will be one of continued high intensity wildfires as well as an increase in their frequency and magnitude (Gruell 1999, Whisenant 1990).

In the past, federal agencies had treated juniper woodlands to control their expansion, mostly for livestock forage; these efforts peaked from the 1950s to the late 1960s. However, wildlife and environmental concerns, and different perceptions of the intrinsic values of these environments recently have limited treatment of woodlands, including the use of prescribed fire. During the early to middle stages of development, when these woodlands contain understories of native shrubs and herbs, they can successfully be treated by various methods—particularly fire. However, once communities become tree-dominated woodlands, treatment becomes difficult and expensive (Miller and Tausch 2001). Currently, land management agencies and private interests in NE California are embarking on a sagebrush steppe restoration strategy to improve the health and productivity of rangelands that have been encroached upon by western juniper. A separate EIS is being prepared.

Factors most frequently attributed to the increase in both density and area of juniper are fire suppression, changes in climate, increased domestic grazing integrated with changed fire regimes, and post-industrial increases in atmospheric carbon dioxide (CO_2). Fire is considered to be the most important factor in maintaining shrub steppe communities and open juniper savannas prior to Eurasian settlement. A wet period, from 1850 to 1916, with milder temperature and greater precipitation coincided with the peak period of woodland establishment in the much of the Great Basin. The introduction of livestock during the 1860s through the early 1900s also coincided with the expansion of juniper woodlands. Grazing reduces the fine fuel loads that significantly altered the fire regime. With fewer natural fires, there was an increase in shrub density and cover that provided a greater number of sites for tree establishment. Rising levels of CO_2 have also been cited as causing the increase in woody species throughout the West. However, increased levels of CO_2 do not correspond with the initial increases in juniper woodland. It may be that elevated CO_2 levels are accelerating canopy expansion of juniper woodlands (Miller and Tausch 2001).

Old growth juniper woodlands are little understood. Miller, Tausch, and Waichler (1999) said the forestry, rangeland and ecology communities overlook the semi-arid old-growth woodlands. These ancient woodlands have some of the oldest trees in the Intermountain region, some exceeding 1,000 years.

Old growth woodlands are typically structurally more complex than post settlement woodlands adding biological diversity to the landscape and providing an important source of habitat for many organisms. Pre-settlement junipers are found on rocky ridges and low sagebrush tablelands. Canopy cover in these areas may reach as high as 20% but usually ranges below 5%. Mean fire return intervals of 80 to 100 years, together with heavy clay soils, slow growth rates, and possibly lower CO_2 concentrations in the low sagebrush/Sandberg's bluegrass communities were probably responsible for maintaining stands of widely scattered trees.

Management actions and fire policies could greatly alter old growth juniper woodlands in the AFO. Predicted post-disturbance successional trajectories are not well understood or used in managing old growth woodlands. Changes to the overstory and/or the understory, changes to the community composition and structure (this includes lichen communities), and the outcome of a disturbance, can alter the response of these communities (as well as seral juniper woodlands), to fire. Fire suppression may increase the potential for stand replacement fires. Fuel wood cutting on one hand may be a waste of this limited resource but may be needed to remove post settlement trees. Mapping and inventory of old growth woodlands (such as the proposed ACEC/RNAs) would be needed for developing management plans.

3.19.2.2 Aspen Communities

The quaking aspen communities included in woodland and forest types are also associated with riparian areas (see "Wetland and Riparian Communities"); the non-riparian or upland sites are found in areas that receive significant snowmelt. The latter are more common on the Modoc National Forest in the Warner Mountains. Aspen is one of the primary woodland species of concern for the AFO. Aspen is the most widely distributed tree in North America. Aspen is adapted to a much broader range of environments than most plants found associated with it and is one of the few plants able to grow in all mountain vegetation zones, from subalpine tundra to the basal plains (Daubenmire 1943). In the western U.S., aspen forms extensive forests, is found in scattered groves or small stands on suitable sites, or it is confined to riparian areas in drier climates. In the AFO area, aspens are found in scattered groves where soils, aspect, and climate create suitable habitat. The ongoing aspen delineation project has mapped existing aspen stands (updated December 2004), at 385 acres. Aspen landscapes provide forage for livestock and wildlife, habitat for wildlife, watershed protection, and water yield for downstream users, aesthetics, and sites for recreational opportunities, historical significance (silvaglyphs), and landscape diversity. Many aspen stands occur as pure clones but aspen is generally considered a seral species, successional to conifers and sagebrush (Sheppard 1996).

Aspens usually regenerate vegetatively through root suckers. Generally, disturbance or dieback is necessary to stimulate regeneration of aspen stands. Without periodic disturbance to kill old stems and trigger regeneration, aspens eventually disappear from the landscape. Some clones sucker without disturbance. Throughout the western U.S., approximately 60% of historical aspen stands have been eliminated since European settlement (in the past 150 years) (Bartos and Campbell 1998). Loss can be attributed to a combination of successional processes, reduction (or elimination) of fire, and long-term overuse by ungulates (hoofed mammals). If these current processes continue, aspens will be replaced by conifers, sagebrush, or other shrub communities (Bartos 1998). These processes are present in the AFO area, with aspen clones declining and dying—or moving toward a late successional stage with no young stem or suckers.

3.19.2.3 Curlleaf Mountain Mahogany Communities

Although curlleaf mountain mahogany (or mahogany) is technically a shrub, it matures into a tree-like form, and stands of curlleaf mountain mahogany are called woodlands. Mahogany is widely spread in the mountain brush zone of the Intermountain West. It usually occurs on shallow soils or dry, rocky ridges of all aspects, but is primarily found on southern or western exposures. In the AFO area, it can be found in association with rock outcrops in talus slopes, hilltops, and mountain tops and lava flows. Mahogany often occurs as pure stands, as groves surrounded by open sagebrush, or mixed with other shrub species (snowberry, service berry, and currant), western juniper, Jeffrey pine, and—in higher elevations—white fir.

Its presence in less rocky settings suggests that mahogany precedes conifers in succession, but these communities, however, tend to be stable or climax in nature (Davis and Brotherson 1991). It is somewhat shade tolerant. Mahogany is adapted to a wide range of soil textures, but is most abundant in dry, coarse-textured soils.

Mahogany provides good forage for all classes of browsing animals in both summer and winter; it is one of the few browse species that meets or exceeds the protein requirements for wintering big game animals. In mature stands, much of the mahogany foliage is out of reach of browsing animals but provides excellent winter cover. Also, because it fixes nitrogen, curlleaf mountain mahogany increases nitrogen levels in the nutrient-poor soils where it grows.

The ecotonal areas with juniper or Jeffrey pine often are occupied or are considered potential habitat for the special interest plant, Baker's globemallow (*Iliamna bakeri*). Many of the stands of mahogany in the AFO area are dominated by older individuals—trees with crowns that are nearly unreachable by wildlife. Ages of plants or stands vary. Davis and Brotherson (1991) found trees between 48 and 143 years old and they cited other studies where older trees were aged between 130 and 482 years. Older trees in western and central Nevada are up to 1,800 years old (Schultz, et.al. 1990). Basal crowns of individual trees in the AFO area have been observed up to 24 inches in diameter, where trees are growing in protected rock outcrops. It is estimated that these individuals are hundreds of years old.

Seedling presence varies throughout the AFO area—some stands have numerous seedlings, some have none. Studies have found that the greatest numbers of seeds of mahogany are found immediately under and in the litter of mature plants (Ibáñez et al. 1999). The greatest number of seedlings, however, has been found in the open interspaces and under sagebrush canopies; open canopies of curlleaf mountain mahogany are necessary for seedling survival (Ibáñez et al. 1999). Many of the mahogany stands provide the only source of shade for livestock (and deer), and these areas and the surrounding sagebrush (usually mountain big sagebrush) have been subjected to heavy grazing pressure. Some stands are being invaded by cheatgrass and noxious weeds, which apparently suppress seedling survival. The decadent condition of existing stands, lack of or poor recruitment, heavy ungulate pressure, juniper encroachment, and altered fire regimes leave many of the mahogany stands in the AFO area at risk.

3.19.3 Shrub Associations

A large number of shrub types have been identified in the AFO area. Shrubs are defined by Sawyer and Keeler-Wolf (1995) as woody plants with relatively short ultimate height, commonly with two or more stems from the base. There are at least 17 shrub community types identified in the AFO area.

Shrub vegetation types identified by CALVEG and AFO staff include birchleaf mountain mahogany, bitterbrush, black or Bailey's greasewood, Brewer's oak, basin big sagebrush, ceanothus mixed chaparral, greenleaf manzanita, Great Basin mixed scrub, low sagebrush, montane mixed chaparral, mountain big sagebrush, rabbitbrush, riparian shrub woodland, Bolander silver sagebrush, upper montane mixed shrub, wedgeleaf ceanothus, willow, and Wyoming big sagebrush.

Black greasewood is localized and found on BLM lands adjacent to the Lower Klamath NWR. It is also found on Modoc NWR lands south of Alturas and on private lands between Alturas and Canby. Greasewood is associated with basin big sagebrush in these areas.

Bitterbrush and rabbitbrush are found throughout the AFO area. Bitterbrush, which is underestimated on the CALVEG layer, is usually associated with mountain big sagebrush communities, commonly growing with snowberry at the higher elevations.

Bitterbrush stands are becoming decadent in many areas (i.e., most watersheds) due to fire suppression, season-long or fall grazing, and insect damage. Rabbitbrush is primarily a successional community, occurring after disturbances such as wildfires. There are silty clay sites with Washoe common rabbitbrush (*Ericameria nauseosa* var. washoensis), that are found within low sagebrush communities. These Washoe rabbitbrush/Cusick's sunflower associations are mostly devoid of vegetation and prone to medusahead invasion.

There is another plant that forms an undescribed plant association in the North Fork/South Fork watershed which is desert peach (*Peraphyllum ramosissimum*). Desert peach is either dominant or co-dominant with mountain big or Wyoming big sagebrush. Desert peach is known to occur south of Alturas on the Westside grazing allotment and on the Likely Tablelands. The Westside occurrence is heavily impacted by browsing and grazing and the Wyoming big sagebrush-desert peach associations on the Tablelands are impacted by browsing, grazing, and exotic annual grass encroachment. The MFRI is unknown but the existing one on the Tablelands is about 10 years.

Ceanothus mixed chaparral, Brewer's oak, and wedgeleaf ceanothus occur primarily in the Fall River watershed. These communities intergrade into each other and mix with sagebrush, oak, and pine communities. Greenleaf manzanita, deerbrush, snowbrush, and montane mixed chaparral are mostly higher-elevation communities of cooler soil temperature regimes; they are ecotonal with mixed conifer and pine. Both deerbrush and snowbrush are localized communities that could actually be a part of the montane mixed shrub community. Birchleaf mountain mahogany occurs primarily in the Fall River watershed in either pure stands or with Brewer's oak and wedgeleaf ceanothus. Greenleaf manzanita also occurs at lower elevations (3,000 feet and up) and is mixed with ceanothus mixed chaparral, skunkbush, and gray pine.

3.19.3.1 Sagebrush Steppe

The AFO has the following sagebrush species: basin big sagebrush, Wyoming big sagebrush, mountain big sagebrush, low sagebrush (2 subspecies), and Bolander silver sagebrush. Other shrub species that occur as dominants or co-dominants are snowberry, service berry, snowbrush (tobacco brush), greenleaf manzanita, mahala mat, rubber rabbitbrush, antelope bitterbrush, and gray horsebrush. In burned areas on suitable sites the Sensitive plant Baker's globemallow can be very common.

Each of the sagebrush species forms distinct plant alliances with various plant associations. A critical data gap in CALVEG is the failure to divide basin sagebrush into basin big sagebrush (*Artemisia tridentata* spp. *tridentata*), Wyoming big sagebrush (*A. tridentata* spp. *wyomingensis*), and mountain big sagebrush (*A. tridentata* spp. *vaseyana*).

The Great Basin mixed scrub alliance is also represented in the AFO area, although none of the plant associations are mapped. This community occurs either at higher elevations (McDonald Mtn., Tule Mtn., and Anderson Mtn.) or in transition to conifer or pine forests.

3.19.3.2 Basin Big Sagebrush

Basin big sagebrush is found on deep, well-drained loamy or sandy soils below about 5,000 feet. It is an erect, heavily branched, unevenly topped shrub with a trunk-like main stem. Shrubs are 3 to 6 feet high, but can reach heights of 15 feet. The presence of this subspecies has generally been considered indicative of productive ranges because it often grows in deep, fertile soil. Basin big sagebrush was once the most abundant shrub in North America on lowland ranges, which have since been converted to agriculture (Blaisdell et al. 1982). It is found on somewhat alkaline soils with greasewood adjacent to the Lower Klamath NWR and on toe slopes above valley bottoms and old floodplains south of Alturas. This subspecies is not mapped and its acreage is unknown.

Adult basin big sagebrush plants are killed by fires, but the prolific seed production from nearby unburned plants together with high germination rates enable seedlings to establish rapidly after fire (BLM 2002). The rate of recovery depends on the season of the burn but Blaisdell et al. (1990) estimates it may require up to 50 years. Site recovery and the presence of annuals will influence recovery. The MFRIs are intermediate between mountain big sagebrush and Wyoming big sagebrush. Fire history studies are few for basin big sagebrush. Although these communities probably had a mixed severity fire regime, they usually had stand replacing fires.

Stands in which the understory has been overgrazed to the extent that the perennial grass understory is lost are highly vulnerable to invasion by annual grass and to crossing the threshold to an annual grass–dominated community. Where juniper has encroached on nearby, steeper mountain big sagebrush communities, livestock tend to congregate in the flat basin big sagebrush areas. Basin big sagebrush stands with a cheatgrass understory can have fire frequencies of 5 years.

3.19.3.3 Wyoming Big Sagebrush

Wyoming big sagebrush is only known to occur on the lower bench of the Likely Tablelands, primarily on moderately deep, well drained, clay loam, cobbly clay, and gravelly loam soils between 4,500 and 4,700 feet. Wyoming big sagebrush is the shortest of the big sagebrushes normally ranging in height from 2 to 4 feet. It is a basally branched, uneven topped shrub with a canopy cover of 5 to 25%, the latter in communities that have been overgrazed or are in poor ecological condition (Miller and Eddleman 2001).

Wyoming big sagebrush is readily killed by fire but reestablishes from seedbanks, seeds produced by remnant plants, and seeds from adjacent plants. Because fuels are discontinuous in undisturbed Wyoming big sagebrush communities, mosaic burn patterns often prevail, leaving remnant plants that provide seed for recolonization (Bushey 1987). Postfire establishment of Wyoming big sagebrush has not been widely documented. Kitchen (2004) estimates it takes 25 to 45 years for stand recovery. Due to topographic, edaphic, and climatic variabilities as well as seed production and dispersal patterns (Kitchen 2004), it may take 60 to 100 years for Wyoming big sagebrush to recover on burned sites even under favorable conditions. The normal MFRI ranges from 50 to 70 years (FEIS), although Young and Evans (1989) estimate it to be between 10 and 110 years.

Wyoming big sagebrush, like other big sagebrushes, lacks specialized adaptations to survive fire or to insure rapid recolonization of burned landscapes; consequently sagebrush mortality is high and recovery slow following wildfires (Kitchen 2004).

Unburned patches and edges were probably very important in allowing reestablishment of sagebrush since seed dissemination is limited to several meters from parent plants (Miller and Eddleman 2001). Because Wyoming big sagebrush occupies drier soils and sites, historical overgrazing has easily removed much of the perennial grass understory on the Likely Tablelands. Following the removal of perennial grasses, cheatgrass easily invaded the understory.

Miller and Eddleman (2001) point out that Wyoming big sagebrush communities (and basin big sagebrush), are susceptible to exotic annual invasion. Beginning in the 1960s, medusahead replaced cheatgrass as the primary invader in the AFO area. With a medusahead understory, Wyoming big sagebrush was highly susceptible to increased fire frequency (MFRI is presently about 10 years), resulting in further medusahead domination of sites and the alteration of Wyoming big sagebrush communities to annual grass–dominated communities (Young 1992).

Wyoming big sagebrush and low sagebrush communities on the Likely Tablelands south of Alturas are being converted to medusahead grasslands. This is a matter of concern because some wildlife biologists feel the Likely Tablelands are one of the most critical wildlife habitats in the state of California, primarily because of critical sage-grouse and pronghorn habitat.

Wildfires on similar sites in Idaho not only have resulted in a reduction in shrub cover but also resulted in substantially reduced diversity and richness of crust taxa, increased cover of short mosses, and reduced cover of lichens and tall mosses growing on the shrub hummocks.

Bare ground is often inversely related to crust cover, which could mean that a decline in crust cover produces an increase in bare soil, rather than an increase in vascular vegetation (Kaltenecker et al. 1999; Leonard et al. 1995). It has been observed that medusahead quickly invades the bare clay soils on the Tablelands after wildfire.

Overgrazing and erosion, self-perpetuating medusahead invasion and large accumulations of litter, differential grazing of perennial grasses in medusahead-dominated pastures, removal of the microbiotic crusts, and increased fire frequency and subsequent loss of shrubs has also resulted in a loss of the subaerially deposited loam surface layers. The subsurface layers of clay are now exposed and the soils are suspected to have converted to Vertisols, with dramatically increased shrinking, swelling, and cracking. These sites are prone to more medusahead invasion and moisture is not available to native perennial seeds due to very high matric potential of the soils (Young 1992; Blank, personal communication 1995).

During heavy fire years in the West, desired seed species for rehabilitation or restoration are often limited or not available. A program is being explored with the local Natural Resources and Conservation Service, the Resource Conservation District, and BLM to collect, plant, and grow native seed to produce a seed bank of locally adapted plant species that would facilitate future seed planning programs for medusahead restoration efforts.

3.19.3.4 Mountain Big Sagebrush

The CALVEG layer shows over 178,000 acres of mountain big sagebrush occurring in the AFO area. This acreage is probably lower due to CALVEG underestimations of curl leaf mountain mahogany, antelope bitterbrush, Great Basin mixed scrub, perennial and annual grasslands, mixed eastside pine/sagebrush, and in the Fall River watershed, ceanothus mixed chaparral. Mountain big sagebrush occurs on deep, well drained soils above 3,500 feet. It is a spreading even-topped shrub that grows from 2 to 6 feet tall.

As discussed under Wyoming big sagebrush, mountain big sagebrush is not very adapted to fire—highest flammability of the 3 big sagebrushes, relatively low growth form, seeds developed at the end of the growing season, no mechanism for long distance seed dispersal, and a soil seed bank that is ephemeral or absent.

Estimates of recovery from fire vary from 20 years (Bunting et al. 1987), and 25 years (Kitchen 2004) to 30 years or more on severe burns (BLM 2002).

The average MFRI is 11 to 25 years (Miller and Tausch 2001). On good condition and upper elevation (mesic) sites, burns are usually discontinuous so the reestablishment is relatively rapid.

Adjacent unburned stands, fire-stimulated soil stored seed, suitable soil moisture conditions, and reduction of bunchgrasses all contribute to reestablishment after fire (BLM 2002). Staff from the AFO observed seedlings sprouting one month after the 2001Blue Fire at an elevation of 6,800 feet.

As discussed under the juniper woodlands section, overgrazing and subsequent reduced herbaceous layers, a wet climate from 1870 to 1916, increased CO_2 levels, increased seed dissemination of juniper and other unknown factors, increases in MFRIs and past fire suppression have contributed to a reduction in the range of mountain big sagebrush and an increase in western juniper. See juniper woodland section for further discussion.

Huber et al. (1999) found that when juniper canopy cover is below 20%, understory plant diversity and species richness is high enough to cause rapid recovery from fire. At 20-30% canopy cover, the understory begins to decline and response to fire is slower. At a canopy cover in excess of 50%, understory species are mostly removed from the site and invasive exotics easily invade. A threshold to a new state has been reached. Miller et al. (2000), however, concluded the influence of juniper canopy cover on understory diversity depends on the site conditions.

3.19.3.5 Low Sagebrush

In the AFO area, low sagebrush occurs from an elevation of 3,260 feet, south of Fall River Mills, to near 7,000 feet on Tule Mountain south of Likely. The Fall River Mills occurrences are on shallow clay loams and are associated with Oregon white oak, juniper, and wedgeleaf ceanothus. The high elevation occurrences are associated with perennial grasses and forbs, microbiotic crusts, and where conditions allow bitterbrush and pre-settlement juniper.

There are two subspecies in the Field Office area, low, or gray low, sagebrush (*Artemisia arbuscula* ssp. *arbuscula*) and cleftleaf sagebrush (*A. arbuscula* ssp. *thermopola*). Low sagebrush is generally a spreading, irregularly branched shrub up to 20 inches tall growing on dry, sterile, rocky, clayey, often alkaline soils (Blaisdell et al.1982). Typical low sagebrush is found on harsh, infertile shallow, gravelly, calcic soils growing about 4 to 20 inches high. It can grow at higher elevations than cleftleaf. Cleftleaf sagebrush often grows on dry, shallow, infertile, non-calcic soils in valleys, on benches or ridgetops from 6 to 12 inches high (Blaisdell et al.1982; BLM 2002). It is only known from Big Valley at an elevation of 4,700 feet. Both subspecies grow on soils that are 8 to 16 inches deep underlain by a hardpan, claypan, or bedrock.

The low sagebrushes are readily killed by fire and do not resprout. Recovery may take up to 10 years after fire. Because of significant amounts of rock, usually bare soil, and depauperate understory—low, fine fuel loading—these communities seldom burn (BLM 2002; FEIS 2004). Miller and Tausch (2001) estimate the MFRIs range from 90 to 200 years. Fires will occur on more mesic sites or where above average productivity results in increased herbaceous growth.

Overgrazing and other unknown factors have caused cheatgrass and medusahead to invade low sagebrush communities, particularly sites with heavy clays. Medusahead is a serious problem on low sagebrush and Wyoming sagebrush ranges.

Japanese brome is a common, codominant exotic annual grass in the Fall River Mills watershed. Low sagebrush, wedgeleaf ceanothus, blue oak, and Oregon white oak rangelands in the Fall River watershed are becoming dominated by medusahead.

Some communities, however, seem to be transitioning to a low sagebrush/bulbous bluegrass/moss association; droughts appear to favor these communities and reduce the density of medusahead.

Low sagebrush communities on the Beaver Creek rim, in Dixie Valley, throughout Big Valley, the lower slopes (north aspect) of the Tule Mountain WSA, tablelands or mesas on both sides of the South Fork of the Pit River and lower elevation slopes from Alturas to Davis Creek are either set to cross a threshold or have already type converted to medusahead dominated communities.

The MFRI on most of the medusahead-dominated communities, especially the Likely Tablelands, is estimated to be 10 to 15 years. Infested low sagebrush communities on the Beaver Creek rim and Likely Tablelands are critical pronghorn habitat. Dr. Young (1992) said medusahead is probably the greatest threat to biodiversity of the natural vegetation in the Great Basin.

3.19.3.6 Silver Sagebrush

Bolander silver sagebrush (*Artemisia cana* ssp. *bolanderi*) communities in the AFO are associated with small, somewhat alkaline playas (pluvial lakes) and meadows with a water table within 3 feet of the soil surface. Where it is associated with dry meadows, it can become an invader of floodplains that have been overgrazed; stream channels in these areas are many times deeply incised. Not all the silver sagebrush communities in the AFO are mapped.

Silver sagebrush is an erect, spreading, much-branched shrub 8 to 36 inches tall that sprouts from roots and stem layers. It is found on deep to moderately deep sandy or silt loam to extremely clayey, alkaline soils (BLM 2002). Bolander silver sagebrush tolerates seasonal inundation. Common associates are bluegrass (locally called Nevada bluegrass) and mat muhly. With overgrazing, the native perennial plants are significantly decreased and the interspaces become nearly bare.

Silver sagebrush sprouts vigorously from root crowns and rhizomes following top kill fires. Recovery is rapid, from 2 to 3 years. The ability of Bolander silver sagebrush stands to burn is low because of seasonally high water tables. Fire history studies for Bolander silver sagebrush are lacking. The MFRI for the other silver sagebrushes is 5 to 45 years.

Because certain disturbances affect each of the shrub vegetation types in approximately the same way, they are addressed here. Disturbance means the occurrence of a significant change in the resource base (i.e., an alteration of the plant community away from a stable state, and a compositional change in both plant species and life histories). The key functional elements of any disturbance are its timing (seasonality), intensity (resource loss), abiotic resources available (water and nutrients), biotic resources available (species and their attributes), frequency (recovery interval between disturbances), and regime (connectivity to other disturbances in time and space) (Sousa 1984).

Grazing and fire tend to raise issues surrounding ecological uncertainty: whether these disturbances will produce a feedback that enforces the stability of the present community or whether they will promote transitions to a more or less desired community. Given the present state of the sagebrush steppe ecosystem, key questions center on how to influence sagebrush communities through the presence or absence of grazing and fire.

The effects on vegetation and soils caused by overgrazing, high-frequency fires, and other factors (such as uncontrolled OHV use) may be rather obvious (Blaisdell et al. 1982, Bunting et al. 1987, Vavra et al. 1994). Less obvious are the effects on other biota.

Judicious grazing practices and prescribed fires are associated with varying degrees of uncertainty regarding short-term and long-term outcomes. These degrees of uncertainty can be expected because the key functional elements of disturbance vary widely through time. Further, in the presence of a highly variable climate, they function as a disturbance regime rather than as independent events (Eddleman and Doescher 1999).

A change in the MFRIs of sagebrush communities now dominated by juniper has been discussed above. The mountain big sagebrush communities and, depending on site conditions, low sagebrush communities, have crossed a threshold to a new stable state, a state with juniper as the new dominant species. The ecological condition or state of these communities (i.e., plant composition or community structure) transitions through various stages (McAdoo et al. 1993; Pellant 1996; Tausch 1999b). Basin and Wyoming big and low sagebrush are also in various stages of transitions and in some cases these are set by the presence of exotic annual grasses that share the understory with perennials. When disturbances such as fires occur, a threshold is crossed (the change has been activated), and a new state is reached, one with annual grasses as the dominant species. The change in MFRIs is almost opposite to what occurred in the mountain big sagebrush, it has been drastically reduced. Cheatgrass and medusahead have increased the frequency and type of fire.

While mountain big sagebrush, riparian, and aspen communities have been replaced by juniper due to the reduced occurrence of fire (Miller and Tausch 2001), basin big sagebrush, Wyoming big sagebrush, and at least in the AFO area, low sagebrush communities have been replaced by exotic annual grasses due to the increased occurrence of fire.

Management actions authorized or implemented by BLM would influence future vegetation composition. These actions may include season, intensity, and duration of livestock grazing within diverse vegetation communities, the influence of fire and associated suppression actions, emergency fire rehabilitation and the reintroduction of grazing following fire, the use of natural and management-created firebreaks to protect early seral communities from frequent fire intervals, rehabilitation and reclamation actions following soil-disturbing activities, management of noxious weeds, OHV use, wild horse management, recreational use, and mining. Aggressive suppression response to wildfires, prescribed fire, vegetation manipulation, increased fire frequency in exotic annual grasslands, livestock grazing practices not in compliance with land health standards, juniper and exotic annual grass encroachment into plant communities at risk, and other environmental or unknown factors will largely determine the future composition of vegetation communities.

3.19.4 Herbaceous and Grassland Associations

Herbaceous plants lack woody stems above ground; may be annual or perennial; and include aquatic species, forbs, and grasses (Sawyer and Keeler-Wolf 1995). Normally, herbaceous vegetation is treated as the lowest structure of an understory to trees or shrubs. In this document, the herbaceous types and communities discussed constitute the overstory or compose the dominant structure of the stand.

Most native herbaceous species found on the Modoc Plateau and in the Great Basin are capable of withstanding fire effects unless the fire burns very hot and kills the grass at both crown and roots. Herbivory by livestock and wild horses and burros, if not properly managed, over utilizes herbaceous plants, resulting in their removal from the stand. This adverse effect can result in replacement of native perennial herbaceous species with invasive annuals. Although effects of OHV use in herbaceous-dominated communities can be minimal, constant travel on the same tracks can remove the vegetation—creating susceptibility to erosion as well as to invasion of nonnative annual species.

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Herbivory by livestock and wild horses and burros, if not properly managed, can overuse herbaceous plants, resulting in their removal from the stand. This adverse impact can result in replacement of native perennial herbaceous species with invasive annuals. OHV use in herbaceous-dominated communities can be negligible; however, constant travel on identical tracks can remove the vegetation, creating opportunities for erosion or for invasive annuals to move into the site.

The persistence of exotic annual grasses (primarily medusahead and cheatgrass) is expected to continue, regardless of whether livestock grazing occurs. This persistence is due 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 invasion and dominance of annuals was accelerated by the loss or reduction of native perennial bunchgrass/shrub communities. Many factors contributed to the introduction of annuals, but frequent wildfire and previous intensive livestock grazing (both cattle and sheep) have been the primary causes. Sheep were the primary carrier of medusa-head in the AFO area; the primary expansion began in the 1960s.

The experience of BLM technical staff indicates that annuals will persist, but that it is possible to slow or reduce their spread by applying intensive grazing management techniques in the surrounding areas. These include 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. Grazing management techniques would include short duration, high intensity grazing. This would be accomplished with the construction of small pastures, viable livestock watering facilities, and close monitoring by BLM staff. BLM staff members have focused their efforts on designing a grazing strategy that recognizes areas where annuals dominate a plant community or site, as well as areas where annuals are a minor component. Improvement has been observed in both situations, evidenced by increased vigor and seed production of native perennial plants.

BLM has prioritized its efforts by stabilizing and improving the native plants that surround disturbed areas. Improvement in surrounding areas has created a natural barrier that has slowed the spread of annuals. BLM recognizes that many past and present factors stimulate and retard the spread of annuals, but efforts appear to have had some positive influence.

Herbaceous and grassland communities occur on BLM-administered lands in the AFO area. The seasonally dry meadows and meadow and seep communities are described under "Wetland and Riparian Associations."

CALVEG herbaceous and grassland communities include barren/rock, annual grass/forbs, and perennial grass/forbs communities.

The barren/rock community includes exposed bedrock, lava outcrops, bare ground, and sites with very to extremely shallow soils and little organic matter. These types are found in the forest and woodland, shrub, and herbaceous and grassland associations.

Annual grass/forbs include communities where annual forbs are dominant; *Vulpia* spp. is the dominant annual grass in those communities dominated by native species. Where exotic species dominate in herbaceous and grassland associations, they consist of three species: medusahead, cheatgrass, and Japanese brome. Where these grasses have invaded herbaceous and grassland, low sagebrush, basin big sagebrush, Wyoming big sagebrush, and mountain big sagebrush communities, the normal fire return intervals have been altered and the composition, structure, and dynamics of these communities are now changed (see the affected environment discussion for fire and fuels). Most of what CALVEG has mapped as annual grass/forbs is actually nonnative exotic grasses.

Perennial grass/forb communities have either been replaced by mountain big sagebrush or rabbitbrush due to absence of fire (suppression), type conversion, past heavy season-long grazing, or relatively recent cheatgrass invasion. The largest stand is located on Cold Springs Mountain. Pure stands larger than 100 acres are rare but do occur.

3.19.5 Wetland and Riparian Associations

Riparian and wetland communities generally occur along the edges and within creeks, lakes/playas, and irrigation canals. Due to their proximity to water, the plant species present in riparian areas are different from species found in the adjacent uplands. They can tolerate wet or saturated soil conditions that upland plants cannot. These communities can include marshes, swamps, lakeshores, wet meadows, estuaries, and springs or seeps.

Nationwide, riparian–wetland areas comprise less than 9% of the total land base but are the most productive and highly prized resources on BLM-managed public lands. Riparian–wetland areas play a significant role in restoring and maintaining the chemical, physical, and biological integrity of the nation's water. Wildlife species use riparian areas proportionately more than any other type of habitat. In addition, riparian areas are highly prized for their economic values and other uses, which include livestock grazing, various recreational uses (e.g., hiking, fishing, photography, biking, and OHV use), Native American cultural uses, and educational destinations for students.

Generally, the local riparian areas or zones occur in canyon bottoms and appear as thin green ribbons. Many of the high mountain drainages have a green strip less than 15 feet wide (including the creek channel); the largest streams in the area vary in width from 10 to 40 feet. The Pit River, however, is in excess of 50 feet wide in the Pit River Canyon. The width of riparian vegetation varies with the width of water present in creeks and streams, and is limited by the soil and water influence zone along the stream or creek. Riparian communities represent a relatively minor proportion of the total acres in the AFO area (<0.4%), but are considered extremely important as wildlife habitat and are popular for recreational purposes.

CALVEG wetland and riparian communities include wet meadows (grass/sedge/rush); tule-cattail-sedge; willow; quaking aspen; and willow-quaking aspen. The tule-cattail-sedge communities are locally rare and occur along slow-moving streams, in inundated meadows, and in silted-in livestock reservoirs.

The meadow or seep community comprises meadow, spring, or seep areas that are wet most of the year. It supports a rather dense community of primarily riparian grass-like plants, possibly with a few scattered medium shrubs (3–6 feet). Rushes and sedges dominate this community.

Other associated species include willows, golden currant, Wood's rose, Nebraska sedge, thickhead sedge, Baltic rush, swordleaf rush, common spikerush, short-awn foxtail, meadow barley, spike redtop, creeping bentgrass, western blueflag, hoary nettle, long-stalked clover, and seep monkeyflower.

Dry meadows or meadows that have been degraded support Kentucky bluegrass, California oatgrass, mat muhly, slender hairgrass, foxtail barley, Baltic rush, Douglas sedge, tanseyleaf evening primrose, common yarrow, western blueflag, and common dandelion.

3.20 Noxious Weeds and Invasive Species

Scotch thistle

Noxious weeds are now recognized worldwide as posing threats to biological diversity second only to direct habitat loss and fragmentation. Noxious weeds are known to alter ecosystem functions such as nutrient cycles, hydrology, and wildfire frequency; to outcompete and exclude native plants and animals; and to hybridize with native species.

All natural communities are susceptible to invasion by noxious weeds. The presence and abundance of noxious weeds in an ecosystem are highly dynamic, subject to changes in the local environment. The noxious weeds currently considered problematic in the AFO area—as well as their locations, infestation size, and ranking for control—can change in a short period (within 2 years) as new noxious weeds are identified, infestation sizes increase or decrease, and priorities change.

Factors used to describe the current condition of noxious weeds in the planning area include presence/absence, number of net acres (i.e., acres currently infested), and number of gross acres (i.e., acres susceptible to the spread of a noxious weed within a geographical area). For example, five occurrences of yellow star-thistle, totaling 10 acres, might be in an area roughly defined to be 100 acres. In this instance, the net acreage would be 10 acres and the gross acreage would be 100 acres. Most current noxious weed infestations are treated with an integrated weed management approach. Most sites are treated with a combination of manual, chemical, biological, and cultural methods. Because there is presently no contract to conduct noxious weed control in the majority of Lassen County, many weed occurrences are left untreated.

Currently, more than half the acreage administered by the AFO has not been inventoried for noxious weeds. The known noxious weeds, watershed, and approximate net and gross acres on the lands administered by the AFO are summarized in Table 3.20-1. Map VEG-2 shows the known distribution of noxious weeds in the AFO area.

The trends of noxious weeds in the field office area are measured in terms of the number, status, net acreage, and gross acreage occupying a certain area. Specific data on these measurements are lacking for the lands administered by the AFO. A positive trend for noxious weeds would constitute a reduction in any one of these factors, with the ultimate goal of controlling or eliminating the noxious weeds from the lands administered by the AFO. Table 3.20-1 summarizes the current trends observed in each of the AFO watersheds.

Possible changes in the condition of noxious weeds are difficult to predict because of the complex interaction of natural processes and management influences. There is a consensus that in the absence of continued inventory, coordination of weed treatments, and a yearly evaluation of each weed program, there will be a continued spread of noxious weeds. Certain noxious weeds have already reached a high level of infestation and are considered to be "too common to control." Without an emphasis on continued inventory and control, there is a high potential for other noxious weeds to increase dramatically on all watersheds and to ultimately become "too common to control" as well. A memorandum of understanding (MOU) has afforded to each land manager bordering BLM-managed lands the opportunity to coordinate all weed treatments. It is anticipated that the situation of noxious weeds on lands administered by the AFO will continue to improve or remain static with the aid of cooperating groups and agencies.

Table 3.20-1 Summary of Known Noxious Weeds in the Alturas Field Office Area

Noxious Weed Species	Watershed	Number of Net Acres	Number of Gross Acres
Barbed goatgrass (*Aegilops triuncialis*)	Fall River/Big Valley	<40	<500
Bull thistle (*Cirsium vulgare*)	Warm Springs	<20	500
	North Fork/South Fork	<10	1,000
	Madeline Plains	15	200
Canada thistle (*Cirsium arvense*)	Fall River/Big Valley	<40	<500
	Warm Springs	<20	500
	North Fork/South Fork	10	200
	Tulelake/Devil's Garden	5	200
Dalmatian toadflax (*Linaria dalmatica*)	Goose Lake	15	10,000
	Tulelake/Devil's Garden	5	2,000
Diffuse knapweed (Centaurea diffusa)	North Fork/South Fork	<1	1,000
Dyer's woad (*Isatis tinctoria*)	Fall River/Big Valley	<40	<500
	Warm Springs	<20	500
	North Fork/South Fork	20	50,000
	Goose Lake	15	10,000
Halogeton (*Halogeton glomeratus*)	North Fork/South Fork	<10	1,000
Hounds tongue (*Cynoglossum officinale*)	Fall River/Big Valley	50+	1,000
	Warm Springs	150	1,000
Jointed goatgrass (*Aegilops cylindrical)*	Fall River/Big Valley	<40	<500
Leafy spurge (*Euphorbia esula*)	Tulelake/Devil's Garden	N/A[a]	N/A[a]
Mediterranean sage (*Salvia aethiopis*)	Warm Springs	20	500
	North Fork/South Fork	300	50,000
	Goose Lake	15	10,000

Noxious Weed Species	Watershed	Number of Net Acres	Number of Gross Acres
Medusa-head (*Taeniatherum caput- medusae*)	Fall River	3,000	50,000
	Warm Springs/Big Valley	1,000	20,000
	North Fork/South Fork	10,000	100,000
	Tulelake/Devil's Garden	15	1,000
Musk thistle (*Carduus nutans*)	Warm Springs	<20	500
Perennial pepperweed (Lepidum latifolium)	Warm Springs	<20	500
	North Fork/South Fork	<5	50
	Madeline Plains	1	2-3,000
Poison hemlock (*Conium maculatum*)	North Fork/South Fork	<10	1,000
Puncture vine (Tribulus terrestris)	North Fork/South Fork	<10	1,000
Russian knapweed (*Acroptilon repens*)	North Fork/South Fork	<1	1,000
	Madeline Plains	1	200
Russian thistle (*Salsola tragus*)	North Fork/South Fork	<10	1,000
Scotch thistle (*Onopordum acanthium*)	Fall River/Big Valley	100	2,000
	Warm Springs	100	50,000
	North Fork/South Fork	100	20,000
	Madeline Plains	300	5,000
	Goose Lake	15	1,000
	Tulelake/Devil's Garden	5	3.000
Spotted knapweed (*Centaurea maculosa*)	North Fork/South Fork	<1	1,000
Squarrose knapweed (*Centaurea squarrosa*)	Fall River/Big Valley	200	10,000
	Warm Springs	100	20,000
St. Johnswort (*Hypericum perforatum*)	Fall River/Big Valley	<40	<500

Noxious Weed Species	Watershed	Number of Net Acres	Number of Gross Acres
Whitetop (*Cardaria draba*)	Warm Springs	<20	500
	North Fork/South Fork	<10	1,000
	Madeline Plains	<5	2,000
Yellow star-thistle (*Centaurea solstitialis)*	Fall River/Big Valley	200	50,000
	Warm Springs	10	1,000
	Goose Lake	15	1,000

[a] The Siskiyou Department of Agriculture has eradicated occurrences of this species.

3.21 Special Status Plants

Bakers Globe Mallow

In this document, special status plants are defined as plants requiring special management consideration. Special status plants include:

- Species listed or proposed for listing as threatened or endangered under the Endangered Species Act (50 CFR 17.12 for listed plants; and various notices in the Federal Register for proposed species);
- Species that are candidates for possible future listing as threatened or endangered under ESA (Federal Register 67:40657);
- Species that are federal species of concern (i.e., former U.S. Fish and Wildlife Service [USFWS] C1 or C2 candidates);
- BLM-designated sensitive and special interest species.
- California state-listed species, and CNPS List 1B species (plants that are rare, threatened, or endangered in California and elsewhere).

Based on the most current data, 12 special status plants are known to occur in the AFO area; an additional 10 species are also suspected to occur in the planning area. Since the writing of the Draft RMP, two special status species have been downlisted and are now designated as special interest or watch species. They are Baker's globemallow (*Iliamna bakri*) and Modoc milk-vetch (*Astragalus pulsiferae* var. *coronensis*).

Table 3.21-1 (at the end of this section) provides a list of these species with information on their regional distribution, local occurrence, legal status, habitat requirements, and threats to their populations. This table shows species that are both known and suspected to occur on public lands administered by the AFO. Suspected special status plants are those species (meeting the BLM sensitive plant criteria) that occur on adjacent lands and in habitats that occur in the field office area. Map VEG-3 shows the known distribution of special status plants in the AFO area.

Under BLM policy, special status plants must be given management consideration to avoid contributing to the federal listing of these species. Location of any special status plants during project clearances may require changes in the project to avoid disturbing the plant occurrence, or may require approval of the BLM State Director to proceed with the proposed action. Under California BLM Policy, all CNPS List 1B species automatically qualify for special status. Other species may be added to the sensitive species list upon approval by the State Director.

Invasion and encroachment by noxious weeds, wildfires, and drought are natural factors that could have an impact on special status plants. Wildfire is, or was formerly, a natural occurrence in many habitats occurring on BLM lands. In general, fire could affect any special status plant species associated with tree and shrub habitats and, to a lesser extent, herbaceous habitats. Fire is specifically identified as having an impact on only one special interest species occurring in the AFO area: *Iliamna bakeri*. This plant responds positively to fire by increasing in prevalence after fire; it occurs in sagebrush, juniper, and mountain mahogany–dominated communities.

Changes in the hydrologic regime caused by drought could affect special status plants that require moist or aquatic habitats or microhabitat sites. These plants are *Gratiola heterosepala*, *Mimulus evanescens*, *Orcuttia tenuis*, *Pogogyne floribunda*, *Polygonum polygaloides* ssp. *esotericum*, and *Potentilla basaltica*.

Habitat conversion (from sagebrush communities to nonnative annual grassland communities or to juniper woodlands) has a potential adverse effect on special status plants. Reasons for the changes in community structure can be found in the juniper woodlands section above. Habitat conversions may result from a variety of management activities, including but not limited to grazing activities, wildfire and fire suppression activities, and alteration of hydrologic regimes.

Several human activities have the potential to affect occurrences of special status plants. Disturbance from OHV use is identified as a specific threat, or potential threat, to the following species: *Astragalus anxius*, *Eriogonum prociduum*, *Ivesia paniculata*, *Lupinus uncialis*, *Gratiola heterosepala*, and *Potentilla basaltica*. Mining is not identified as a threat or potential threat to any special status plants in the AFO area. There has been mining exploration on the Big Tablelands in Siskiyou County; mining could affect special interest plants but not special status species.

Timber harvesting is a potential threat to special status plants in the AFO area. There have been negative impacts from logging truck traffic on *Eriogonum prociduum* plants that were growing in the old road bed. Livestock use can negatively affect occurrences of special status plants in several ways; these include grazing, which removes plant material and may prevent flowering and fruiting; and trampling, which can damage or destroy plants. Trampling can also negatively affect the habitats for special status plants, for example, by compaction of the soil or damaging stream banks. Grazing may be beneficial in removing or reducing the vigor of competing plants and preventing the establishment of shrub cover in open herbaceous habitats.

Table 3.21-1 Special Status Plants Known or Suspected to Occur in the Alturas Field Office Area

Plant Name	Status[1]	Occurrence in AFO	Locations[2]	Quads[3]	Habitat	Threats	Needs	Current-Relevant Information
Astragalus anxius Field milk-vetch Fabaceae	CNPS 1B	Known (1 site)	Ash Valley and vicinity. Also on Modoc National Forest.	675C, 676D Las	Barren rocky flats in sagebrush scrub, juniper, & conifer woodland.	Noxious weeds (medusahead), OHV, and livestock trampling are potential threats.	Continue to inventory. Monitor Ash Valley regularly for threats. Eradicate medusahead from Ash Valley ACEC.	Known only from Ash Valley area.
Eriogonum prociduum Prostrate buckwheat Polygonaceae	CNPS 1B	Known (10 sites)	Ash Valley ACEC & S of Alturas & in Warner Mtns.	658C, 675C, 676D, 691A, 692A, 692C, 708C Las, Mod. Also in WA & OR	Dry barren rocky slopes and flats usually in sagebrush scrub on soils of volcanic tuff.	Trampling by livestock and OHV traffic. Medusahead invasion in Ash Valley ACEC.	Continue to inventory for. Ocular monitor occurrences regularly for potential impacts.	Unique habitat: Occurs on BLM and Modoc National Forest.
Gratiola heterosepala Boggs Lake hedge-hyssop Scrophulariaceae	CE CNPS 1B	Known (5 sites, possibly more)	Green Place, Fall River Valley.	661A, 678B, 678D; on Lassen National Forest & Modoc National Forest Las, Mod, Sha Also in OR.	Vernal pools and flats. Often occurs in livestock pit reservoirs.	Changes in water regime. No current threats; one site is fenced. Potential threat with heavy spring grazing	Continue to inventory for.	CA State Endangered, common on Modoc Plateau
Ivesia paniculata Ash Creek ivesia Rosaceae	CNPS 1B	Known (6 sites)	Ash Valley area and Hwy. 139 near Willow Creek.	659A,675A 675C,676D Las	Rocky barren open areas in sagebrush scrub, juniper and coniferous forest woodland.	Trampling by livestock and OHV use may impact. Medusahead in Ash Valley ACEC.	Continue to inventory for. Ocular monitor BLM occ. regularly for potential threats. Eradicate medusahead in Ash Valley ACEC.	Ash Valley ACEC is prime habitat
Lupinus uncialis Lilliput lupine Fabaceae	CNPS 2	Known (5 sites, not in NDDB)	SW of Alturas.	674B,692A 692B,692D Mod. Also in NV & OR.	Dry volcanic gravelly flats in sagebrush/juniper scrub.	Livestock and OHV disturbance of habitat.	Continue to inventory for.	Disjunct from Great Basin populations. Micro-habitat: small rills in naturally erosive volcanic soils.

Table 3.21-1 Special Status Plants Known or Suspected to Occur in the Alturas Field Office Area

Plant Name	Status[1]	Occurrence in AFO	Locations[2]	Quads[3]	Habitat	Threats	Needs	Current-Relevant Information
Mimulus evanescens Ephemeral monkeyflower Scrophulariaceae	CNPS 1B	Known (2 sites)	Moll Reservoir and Lassen National Forest. Historic "10 mi south of Ravendale".	657B, 676A, 676D Las, Mod, Sis; Also in OR, ID, NV?	At the edge of reservoirs & lakes and vernally moist depressions in sagebrush scrub.	Changes in water regime and trampling.	Establish monitoring.	Only one AFO occurrence.
Orcuttia tenuis Slender orcutt grass Poaceae	FT CE CNPS 1B	Known (1 site)	Green Place; several on Lassen National Forest and new locations on Modoc National Forest.	678A,678B Sha, Sis, Las +	Vernal pools.	Change in water regime. Pool is excluded from livestock.	Continue to inventory for. Occasionally monitor BLM occurrences regularly for potential threats.	Species Management Guide developed.
Oryzopsis exigua Little ricegrass Poaceae	CNPS 2	Known (1 site)	Upper slope of Mt Dome.	730C Las, Sis. Also in NV, OR	Rocky outcrops in sagebrush steppe	On steep rocky slopes not subject to cattle grazing.	Continue to inventory for. 2 recent sites in CA: this one and Mt. Dome in Siskiyou Co. Should be in between.	To be looked for on talus slopes of basalt outcrops & on lava fields of steep slopes.
Pogogyne floribunda Profuse-flowered pogogyne Lamiaceae	CNPS 1B	Known (several sites)	Lava WSA, Strip Allotment north of Alturas, & Green Place.	660C, 662B 708B, 708C, Las, Mod, Sha	Vernal pools and vernally wet flats in sagebrush scrub.	Trampling by livestock in spring may impact.	Continue to inventory for. Occasionally monitor BLM occurrences biannually.	Eight occurrences in AFO
Polygonum polygaloides ssp. *esotericum* Modoc County knotweed Polygonaceae	CNPS 1B	Known (2 sites)	Strip Allotment and adjacent Devil's Garden area.	708B, 708C Mod, Sie	Mesic sites in sagebrush scrub, drying reservoirs and edges, and vernal pools.	Trampling by livestock. Changes in water regime.	Continue to inventory for. This plant is often difficult to identify and intergrades with other spp.	Only two occurrences in AFO. More common in Modoc National Forest.

Table 3.21-1 Special Status Plants Known or Suspected to Occur in the Alturas Field Office Area

Plant Name	Status[1]	Occurrence in AFO	Locations[2]	Quads[3]	Habitat	Threats	Needs	Current-Relevant Information
Potentilla basaltica Black Rock potentilla Rosaceae	CNPS 1B Fed Candi-date	Known (1 site)	Occurs in Ash Valley ACEC. Other occurrence at Soldiers Meadows, NV	675C Las NV	Moist usually alkaline meadows in sagebrush scrub.	Heavy livestock grazing or trampling in spring and OHV use.	Continue to inventory for.	Candidate sp., Fed. Reg. 67(114). 6/13/2002. Found in Ash Valley ACEC and adjacent private lands.
Stenotus lanuginosus Woolly stenotus Asteraceae	CNPS 2	Known (at least 4 sites)	Sagehen summit, Hayden Hill, south of Ash Valley. Also Lassen and Modoc National Forests.	659A, 674C, 675A Las	Moist sagebrush scrub.	Possibly livestock grazing.	Continue to inventory for.	Disjunct occurrences
Astragalus agrestis Field milk-vetch Fabaceae	CNPS 2	Suspected	Madeline Plains N of Termo.	570A, 657B, 658A, 658D Las; NV,OR+	Sagebrush Scrub flats.	None known but watch grazing practices.	Continued inventory on the Madeline Plains.	Madeline Plains north of Termo. Highly disjunct from other states' occurrences.
Astragalus lemmonii Lemmon's milk-vetch Fabaceae	CNPS 1B	Suspected	Ash Valley.	675C, 676D, Las, Mod, Plu, Sie, Mon; NV OR	Moist sandy flats in silver sage.	Land conversion.	Inventory for on BLM parcels in Madeline Plains.	Need more information.
Calochortus longebarbatus var. *longebarbatus* Long-haired star-tulip Liliaceae	CNPS 1B	Suspected	N of Canby, E Sha. Co. and N Fall River Valley None known on BLM.	662B, 662C 676D, 677B 680A, 693B, 693C, 694A, 694B, 694C, 694D, 695A, 695C, 695D, 696C, 696D, 710C, 710D, 711D Las, Mod, Sha, Sis. Also OR	Meadows and vernally moist usu. clay flats.	Plants and flowers are grazed by livestock. Changes in moisture regime.	Continue to inventory for. This plants was proposed to be down listed but remains a CNPS 1B.	Found on Modoc Plateau. Some potential habitat in AFO.

Table 3.21-1 Special Status Plants Known or Suspected to Occur in the Alturas Field Office Area

Plant Name	Status[1]	Occurrence in AFO	Locations[2]	Quads[3]	Habitat	Threats	Needs	Current-Relevant Information
Eriogonum umbellatum var. *glaberrimum* Green buckwheat Polygonaceae	CNPS 1B	Suspected	Along the slopes of the Warner Mtns. from Davis Creek to Ft. Bidwell. None known on BLM.	708A,724B 726B Mod, Sis. Also OR	Sandy or gravelly sites in sagebrush scrub and montane coniferous forests.	None known. Could possibly be grazed by livestock.	Continue to inventory for within habitat range.	Potential habitat in Alturas and Surprise FOs on lower slopes of the Warner Mtns.
Galium glabrescens ssp. *modocense* Modoc bedstraw Rubiaceae	CNPS 1B	Suspected	E slope of Warner, Twelvemile Creek area.	673B, 690B, 690C,707C, 724A Mod	Gravelly slopes and near rock outcrops in sagebrush/juniper.	None apparent but may be grazed by sheep and possibly some livestock grazing.	Continue to inventory for in CA.	Occurs on Warner Mtns.
Galium serpenticum ssp. *warnerense* Warner Mtns bedstraw Rubiaceae	CNPS 1B	Suspected	Warner Mtns, mostly w. slope. None known on BLM.	724B,725A Mod OR	Steep talus slopes around bases of rocks.	Probably not grazed by livestock.	Continue to inventory for especially on steep slopes on west side of Warner Mtns.	Potential habitat on western slopes of Warner Mtns.
Lomatium roseanum Adobe parsley Apiaceae	No CA status	Suspected	Tablelands south of Alturas. Occurs on the Sheldon NWR & also SE OR. Possibly CA.	? 691C; Hum Co NV?, Was; OR	Probably dry open rocky clay flats and slopes in sagebrush scrub.	Probably grazed to some extent by sheep and cattle.	Be aware of plant and continue to inventory for. Taxonomy being studied at University of Illinois.	AFO could have several occurrences.
Phacelia inundata Playa phacelia Hydrophyllaceae	CNPS 1B	Suspected	SE side of Eagle Lake, nw Modoc Co, NW Nevada.	640B,640C 712A,728C Las, Mod. Also NV & OR	Moist alkaline playas and meadows.	Trampling by livestock.	Continue to inventory for.	Northwest Modoc Co.
Rorippa columbiae Columbia yellow cress Brassicaceae	CNPS 1B	Suspected	None known on BLM.	642D	Vernally wet flats in sagebrush steppe.	Livestock trampling, hydrologic changes.	Be aware of this plant and search for in suitable habitat.	None known on BLM administered lands. Small potential for this plant in AFO.

Table 3.21-1 Special Status Plants Known or Suspected to Occur in the Alturas Field Office Area

Plant Name	Status[1]	Occurrence in AFO	Locations[2]	Quads[3]	Habitat	Threats	Needs	Current-Relevant Information
Thelypodium howellii var. *howellii* Howell's thelypodium Brassicaceae	CNPS 1B	Suspected	Known from east edge of Madeline Plains, and Ash Valley (private).	656A,656C	Moist alkaline meadows and flats in sagebrush steppe.	Could be potentially impacted by livestock grazing and habitat manipulation.	Continue to inventory for. Occasionally monitor occurrences biennially for potential impacts. Relocate Madeline Plains, Dixie Valley occurrences.	Known from east edge of Madeline Plains. Potential habitat elsewhere.

CNPS Inventory 2001. FT=Federally threatened, CE= California endangered. All plants are BLM sensitive (special status species).

[2] Locations refer only to the locations within the AFO. For suspected occurrences, other lands and all known quadrangle maps are given.

[3] Quads means U.S. Geological Survey topographic maps or quadrangles and are only those in or near BLM lands. The quad numbers are from the CNPS Inventory, Sixth Edition.

3.22 Visual Resources

Visual resources are scenic features of the landscape that include land, water, vegetation, structures, and other objects. BLM uses a visual resources management (VRM) classification system during planning activities to manage the quality of the landscape and assess the level of potential impacts on visual resources resulting from development activities. These classes, Class I through Class IV, are developed through an inventory process and are based on the visual quality of an area, the sensitivity of the landscape to change, and the distance from which the landscape is viewed. The results of the VRM inventory process performed for the PRMP are shown in Table 3.22-1.

Table 3.22-1 Visual Resources Management Inventory in the Alturas Field Office Area

VRM Class	Acres
I	56,648
II	157,177
III	104,006
IV	185,214

The visual landscapes in the AFO area are varied and diverse, ranging from dense forests of white fir and pines, to open grasslands/sagebrush steppes, to deep volcanic canyons. Lava fields with oaks and redbud vegetation provide fall color in some areas and contain cinder cone landforms.

AFO lands include four WSAs composed primarily of volcanic features of cinder cones and plateaus. These areas include interesting geologic visual resources as well as riparian areas that support a variety of wildlife populations. In addition, the WSAs support dense juniper forests, mountain mahogany-covered slopes, and pine- and white-fir topped highlands.

A vista overlook west of Fall River Mills provides excellent views of the Winters Toll Road, the military road to Fort Crook, old Highway 299 (proclaimed as the Yellowstone Cutoff in 1929), and Pit River Falls. However, large expanses of juniper have been removed from the landscape in recent years without considerations for visual or other resource values. Many of these removal projects are visible from U.S. Highway 395, State Route 299, and local country roads—and often substantially alter the visual character of the landscape.

3.23 Water Resources

The following discussion gives a general overview of the AFO area water resources and regulations pertinent to the resource.

3.23.1 Climate and Precipitation

The AFO area is generally a high desert climate, with mild summers and cold winters. Precipitation is mainly in winter months and falls as either rain or snow. The 10-year, 24-hour precipitation quantity ranges between 1.8 inches in the eastern portions of the study area to 4.0 inches in the western portions. The 100-year, 24-hour precipitation quantity ranges between 2.5 and 4.5 inches (Western Regional Climate Center 1973). Annual precipitation ranges between 7 and 22 inches.

3.23.2 Surface Water

Hydrology

For this discussion, the AFO area has been divided into six watersheds: North Fork/South Fork, Warm Springs/Big Valley, Fall River, Madeline Plains, Goose Lake, and Tulelake/Devil's Garden. No data were available for the Tulelake/Devil's Garden watershed.

BLM has very little information on water quantity on public lands in the AFO area. Reservoir capacities are known, but little monitoring of their levels has been conducted. Few surface waterbodies within the AFO area have permanent gauging stations, and no historical flow records were available for this report. However, flows in AFO area streams were measured by BLM staff during low flow (i.e., summer and fall) in 2002 and 2003. These measurements are the source of information in the discussion that follows. Flows are most likely significantly higher in streams unaltered by reservoirs during spring due to snow melt and higher precipitation. Consequently, the flows reported herein may be considered conservative. Flows taper off rapidly as summer and fall approach, and when precipitation is slight and snow is gone. Flows coming out of reservoirs may not fit this pattern and do not reflect the natural hydrology of the watershed.

In total, AFO area streams have been measured to average approximately 120 acre-feet of discharge per day. Educated estimates for high yields (early spring) will be approximately 10-fold of this number, or 1,200 acre-feet per day.

Water Diversions and Hydrologic Modification

BLM has traditionally developed various forms of direct diversion in association with its livestock grazing program. Developments for the benefit of wildlife range from the development of guzzlers to wetlands and reservoirs. Subtle changes in surface water conditions have occurred over many decades as a result of roads and past heavy livestock use. Relatively large irrigation dams have been built under permit on public lands as well.

Reservoirs collecting water within intermittent or ephemeral drainages are the main source of hydrologic modification. Other modifications include stock ponds, spring developments, and a small number of diversions. The modified hydrology is considered necessary to maintain livestock distribution and to provide for wildlife, recreation, fire management, mining, and irrigation use.

The AFO area holds 618 water rights actions in the form of 110 applications, 211 stock pond certificates, 135 statements of water diversion and use, 95 permits, and 67 licenses. Most of the diversions out of streams in this area are minimal—except for North Fork Fitzhugh Creek. During low flow, half of the flow is allowed to be diverted out of this creek.

3.23.3 North Fork/South Fork Watershed

The North Fork/South Fork watershed is located on the western slopes of the South Warner Mountain Range and is part of the Sacramento River Basin. This watershed includes many of the AFO area's perennial streams, such as Fitzhugh Creek, Dry Creek, Cedar Creek, Pine Creek, and Stones Canyon. Important intermittent streams include Crooks Canyon and Jim Creek.

Surface Water Hydrology

In 2002 and 2003, Fitzhugh Creek flows ranged from 60 cubic feet per second (cfs) during late spring to 2 cfs during fall. Pine Creek flows ranged from 80 to 5 cfs during a similar timeframe. These streams are fed in spring and early summer by snowmelt and are maintained through the rest of the year by groundwater contributions. Dry Creek is fed by one primary spring and maintains a fairly constant flow throughout much of the year—around 1 cfs during late spring and around 0.1 cfs during fall. Stones Canyon is fed by groundwater contributions and by Cottonwood Spring, and maintains a flow around 0.2 cfs during late summer. Cedar Creek flow was measured at 8.3 cfs during early summer and was estimated at 3 cfs during late summer. The Cedar Creek headwaters consist of a series of springs maintaining a constant flow of about 1.5 cfs. This contributes a substantial amount to the overall flow of Cedar Creek especially during summer months. Intermittent tributaries, snowmelt, storm water runoff, springs and groundwater recharge contribute to the remaining flow. Cedar Creek is monitored every year as per the Cedar Creek/Tule Mountain Plan of 1989.

Geomorphology

The streams in the North Fork/South Fork watershed are contained primarily within stony outcrop canyons, and banks are stable due to high boulder substrate composition. Fitzhugh Creek contains both canyon/boulder reaches and meadow reaches. The stream is somewhat incised in the meadow reaches, with a substrate mix of boulder, cobble, sand, and silt. Lower Cedar Creek is primarily located in a meadow area with silty loam soils and is for the most part severely entrenched due to grazing practices. The headwaters are exclosed and restored to a properly functioning condition with stable banks and little entrenchment. A portion of the middle reach is located within a narrow canyon and is fairly stable due to high boulder composition. However, the majority of the creek is severely entrenched due to unstable soils and livestock use.

3.23.4 Warm Springs/Big Valley Watershed

The Warm Springs/Big Valley watershed is located between the confluence of the North and South Fork of the Pit River and the Big Valley Mountain Range, and is part of the Sacramento River Basin. Perennial streams, such as Rattlesnake Creek, Ash Creek, Holbrook Canyon, Willow Creek, and Juniper Creek, are contained within this watershed. Important intermittent streams include Dutch Flat Creek, Spring Gulch, Noble Creek, Upper Holbrook Canyon, and Rye Grass Swale.

Surface Water Hydrology

Rattlesnake Creek flows out of Big Sage Reservoir at around 50 cfs during summer. During the middle of October, flow is reduced to approximately 1.5 cfs. The branch of Ash Creek that runs through BLM land flows at approximately 1 cfs; the main stem of Ash Creek maintains significantly higher flow at around 15–20 cfs during fall. Holbrook Canyon Creek flows out of Holbrook Reservoir at about 0.2 cfs during midsummer months. Juniper Creek flows in and out of Iverson Reservoir at 1 cfs during summer. Willow Creek flows at about 6.5 cfs during midsummer months. Dutch Flat Creek, Spring Gulch, Noble Creek, Upper Holbrook Canyon, and Rye Grass Swale are typically dry during summer and fall.

Geomorphology

The streams in the Warm Springs/Big Valley watershed are contained primarily within stony outcrop canyons in the upper reaches, and banks are stable due to high boulder substrate composition. Rattlesnake Creek and Ash Creek flow into meadow systems in the lower reach and become somewhat entrenched within less stable loamy soil. Juniper Creek in the upper reaches is heavily vegetated by wood species and dominated by boulder substrate. Juniper Creek flows in the lower reaches through a stable rocky flat meadow. The intermittent streams are all stable due to high boulder and cobble composition. Lower Holbrook Canyon Creek is contained within a stony canyon and is very stable due to high boulder and cobble content. Upper Holbrook Canyon has more of a meadow composition and is severely entrenched where the county road inhibits the natural hydrology of the creek. Willow Creek flows through a low-gradient canyon, and the substrate is composed of gravel and sand. Banks are stabilized by thick colonization of woody and riparian species.

3.23.5 Fall River Watershed

The Fall River watershed is located west and south of the Warm Springs/Big Valley watershed, and is part of the Sacramento River Basin. This watershed is situated between the Shasta and Lassen volcanoes; consequently, much of the area is volcanically influenced. It contains some of the AFO area's perennial streams, such as Horse Creek, Beaver Creek, and Russell Dairy Creek. One intermittent stream contained in the watershed is Spring Gulch.

Surface Water Hydrology

Flows in Horse Creek were measured at 8 cfs during mid-summer. Beaver Creek flows were estimated at 3 cfs during midsummer. These streams are fed in spring and summer by snowmelt, and are maintained through the rest of the year by groundwater contributions. Beaver Creek is fed by a major spring about mid-length along its path. The upper reach becomes dry in summer. Russell Dairy Creek is fed by one primary spring and maintains a fairly constant flow throughout summer—around 1 cfs. Spring Gulch is dry in summer but probably transmits significant flow during winter and spring due to snowmelt and storm water runoff.

Geomorphology

Beaver and Horse Creeks are contained primarily within stony outcrop canyons. These canyons have widened enough to allow meadow areas to form adjacent to the creek beds in some areas. Horse Creek substrate is mostly cobble and gravel. Beaver Creek in the lower reach is mostly boulder and cobble, with primarily sand in the upper reach. Areas in narrower parts of the canyons are stable due to high boulder composition, but areas in the silty/sandy meadow areas are somewhat entrenched. Russell Dairy Creek exhibits canyon reaches and meadow reaches. The upper reach is meadow due to a high riparian vegetative component and is very stable until the gradient starts to increase. The lower reach is similar but is contained within a stony outcrop canyon. Substrate consists primarily of boulder in the upper reach and mostly cobble in the lower reach.

3.23.6 Madeline Plains Watershed

The Madeline Plains watershed is located on the western slopes of the extreme South Warner Mountain Range, below the North Fork/South Fork watershed, and includes the northern part of the Madeline Plains. This watershed is located within the Lahontan Basin. Dry Creek (a different feature than the Dry Creek in North Fork/South Fork watershed), an intermittent stream, is located in this watershed.

Surface Water Hydrology

Dry Creek had no flow during summer months but maintains pools fed by spring sources throughout summer. These streams are fed in spring and summer by snowmelt, and are maintained through the rest of the year by groundwater contributions or incidental flowing tributaries. Dry Creek is fed by a series of springs, although they are not enough to maintain flow in the creek during summer.

Geomorphology

Dry Creek is a stable system with lots of riparian vegetation and high boulder composition. The creek does not seem to be entrenched but is located within a shallow stony canyon.

3.23.7 Goose Lake Watershed

The Goose Lake watershed is located on the western slopes of the Warner Mountain Range and includes Goose Lake and the Rocky Rim to the west of Goose Lake. It is located within the Sacramento River Basin. Lassen Creek is the only creek in which data have been collected.

Surface Water Hydrology

Flow in Lassen Creek was estimated at 2 cfs during mid-summer. It is expected that flow increases approximately 10- to 20-fold during spring and early summer months, and is reduced during the drier and hotter parts of the year as snowmelt decreases.

Geomorphology

Lassen Creek is located in a stony canyon, and is heavily armored with boulder and woody shrub species.

Table 3.23-1 Water Quality Conditions for Key Streams in the Alturas Field Office Area

Stream	Meets State Standard?	Meets Beneficial Use Needs?	Meets Standards and Guidelines[a] Water Quality Criteria?
North Fork/South Fork Watershed			
Fitzhugh	Mostly	Yes	Yes
Pine	Yes	Yes	Yes
Dry	Partially	Partially	Partially
Cedar	Partially	No	Probably
Stones	Partially	Probably	Probably
Crooks	No	Partially	No
Jim	Yes	Yes	Yes
Warm Spring/Big Valley Watershed			
Rattlesnake	No	Partially	Partially
Willow	Probably	Probably	Yes
Ash	Probably	Probably	Probably
Noble	No	No	No
Rye Grass	Insufficient data	Insufficient data	Insufficient data
Dutch Flat	Insufficient data	Insufficient data	Insufficient data
Juniper	Partially	Partially	Partially
Fall River Watershed			
Russell Dairy	Mostly	Probably	Yes
Beaver	Yes	Yes	Yes
Horse	No	Probably not	Probably not
Spring Gulch	Yes	Yes	Yes
Madeline Plains Watershed			
Dry	Probably	Probably	Probably

[a] Based on BLM 1999.

3.23.8 Water Quality

Water quality in the AFO area is discussed in terms of water quality indicators and waterbodies listed as impaired. Primary indicators used for management of impacts on water resources are temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen (DO), and stream channel condition. Indicators were chosen based on the S&Gs. A summary of water quality conditions for key streams is given by watershed in Table 3.23-1. No data were available for the Goose Lake and Tulelake/Devil's Garden watersheds. For a more comprehensive discussion of water quality in the AFO area, please refer to the Analysis of the Management Situation (Jones & Stokes 2004) and associated specialist's reports.

Surface Water Quality

In general, water quality is good. The following percentages of samples meeting the standards identified above reflect data collected in 2002.

- Temperature = 100%. All temperature data collected were 21.1degrees Celsius (ºC) or below.
- pH = 80%. None of the data were below 6.5 but some were above 8.5. While this represents the best available data, it bears noting that the pH meter was not calibrated on a regular basis.
- DO (milligrams per liter [mg/L]) = 87% of samples were above 7.0 mg/L.
- DO (% saturation) = 69% of the samples were above 75% saturation.

- Nutrients: Many of the creeks are nitrogen-limited, as evidenced by low nitrate concentrations and high phosphate concentrations. Although no study has been conducted to determine whether biostimulatory substances are a problem, such is suspected for many of the streams.
- Turbidity = 89% of samples were below 50 nephelometric turbidity units. Sites with higher turbidity are supplied by reservoirs that are extremely turbid. Turbidity is generally low and not considered problematic.
- Fecal coliform = 34% of the sites were below 200 colonies per 100 mL, and 72% of the sites were below 40 colonies per 100 mL. Note that samples were taken only once per site (less than the standard requires).
- Additional details for each of these water quality categories are given below.

Water Temperature

Historic use of the land and resources including livestock grazing, roads, timber harvest, recreation, and water diversions have resulted in:

- a reduction in shade-producing canopy;
- the degradation of stream banks, making streams wider and shallower;
- a reduction of the water table in meadows through incisement, with reduced coldwater inflow into streams; and
- altered flow regimes.

With changes in management since the enactment of FLPMA and the federal Clean Water Act (PL 92-500), many of these conditions have been improving. While elevated stream temperatures are the most ubiquitous water quality problem in the AFO area, they are fairly easy to correct. Causative conditions are also improving in several streams through the implementation of management measures.

Thermal data recorders have been used throughout the resource area for a number of years to better understand the conditions and variability of stream temperatures. While providing a great deal of data, only cursory analysis of this data, primarily comparing observed temperatures to the State of California's temperature objectives, has been possible. The influence of coldwater inflow and dispersion is not accounted for in any study. A study of dispersion effects on Smoke Creek (Eagle Lake Field Office) is currently in progress. Initial results suggest that aquatic vegetation has a dramatic affect on temperature loading. In turn, heavy aquatic vegetation traps sediment, a process that leads to the narrowing and deepening of channels.

Key data needs include:

- a better understanding of the optimum balance of aquatic vegetation and open channels;
- a better understanding of how BLM's management affects nutrient loading and consequent vegetation growth to determine if the regional water quality control board's (RWQCB's) *nuisance* objectives are being met;
- additional normalization of the temperature data with factors such as net solar radiation, discharge, and segment length needs to be completed to allow the data to be comparable and to establish trends; and
- temperature modeling needs to be conducted to determine a stream's potential to meet the state's standards and the needs of desired beneficial uses.

Dissolved Oxygen

The most recent data were point-in-time observations. These data provide some reference to compare saturation percentage with temperature data and some general idea of oxygen concentrations. Due to diurnal fluctuation and organic decomposition variables, continuous sampling of DO would be needed to determine if state standards are being met or if those of the desired assemblage of aquatic species are being met. Water temperature modeling is needed to determine the desired future condition.

Turbidity and Suspended Sediment

Samples were collected by isokinetic depth-integrated techniques whenever possible. As with dissolved oxygen, these point samples are usually taken only once per season, and many stations are inaccessible during peak runoff periods; hence, some sediment-producing events were probably not documented. However, turbidity and sediment fluctuations are small and gradual throughout the year except where some acute disturbance occurs. Existing sediment data combined with bed condition data (this was documented during the stream assessment, riparian assessments, and land health assessments) are sufficient to evaluate BLM's management impacts on sediment yield in the streams monitored. Recent climatic conditions limit the ability to extrapolate this information to wetter hydrologic conditions.

Nutrients

In isolated situations, nutrient loading can occur from concentrated livestock and wild horse and burro use of a water body. Discharge from recreational vehicles along shorelines is another potential source of nutrient loading.

Samples were collected by isokinetic depth-integrated techniques whenever possible, and analysis was conducted under laboratory conditions. There are probably some unaccounted laboratory errors in the results, however, due to the skill level of some of the analysts.

Pathogens

Direct fecal inputs to surface water from concentrated livestock and/or wild horses and burros will cause water quality to be out of compliance with state standards.

Samples were collected by aseptic-grab sample techniques and analyzed for fecal coliform bacteria using membrane filter techniques. Bacteria samples were generally collected only once or twice per season. While some samples fell far short of the Basin Plan objective to utilize a geometric mean of at least five samples per month, the results are disparate enough to contrast those streams that probably do not have a problem with those that do.

3.23.9 Impaired Waterbodies

The only waterbody listed Section 303(d) as impaired within the AFO area is the mainstem of the Pit River, which extends from the town of Alturas to Shasta Lake (U.S. Environmental Protection Agency 2003). The Pit River is listed as impaired for nutrients, DO, and temperature. BLM does not manage a significant amount of land adjacent to the Pit River; however, it manages a significant amount of land adjacent to tributaries to the Pit River. These tributaries pass through private land before entering the Pit River. BLM activities would be required to not contribute to the identified impairments.

3.23.10 Groundwater

In the BLM-managed areas, groundwater is found in defined aquifers, as well as in areas without such aquifers. Defined aquifers in the region mainly consist of weathered and fractured basalt, other volcanic deposits, and alluvial and lake deposits. In undefined areas, subsurface formations tend to be more highly consolidated and tend to have lower yields. Groundwater in these areas is often found in fractures, or weathered portions of rock between consolidated materials. Groundwater yields from fracture systems depend on the extent of fracturing, the connectivity between the fractures, and the transmissivity of the fractures (California Department of Water Resources 2003). Groundwater serves as a source for some surface waterbodies, as discussed below. Because a negligible amount of groundwater is used as a water source within the BLM-managed areas, it is not discussed in further detail.

3.23.11 Regulatory Setting

State of California

The State Water Resources Control Board (SWRCB) and its nine RWQCBs are responsible for regulation of water quality and water rights in California. The SWRCB signed an MOU with BLM in 1993 to ensure the coordination of nonpoint source policies and activities, and to pursue the development of a Management Agency Agreement (MAA) and Water Quality Management Plan for nonpoint source pollution control on BLM lands. The MAA with BLM has not been completed.

The AFO area falls within the jurisdictions of three RWQCBs. Areas in the northwest, within Siskiyou County, lie in the Klamath River basin, and are under the jurisdiction of the North Coast RWQCB (Region 1). The majority of the AFO area, including all of the BLM-managed lands within Modoc County and a portion of those within Lassen County, lie in the Sacramento River basin, and are under the jurisdiction of the Central Valley RWQCB (Region 5). Areas in the southeast of the AFO area, also within Lassen County, lie in the North Lahontan basin, and are under the jurisdiction of the Lahontan RWQCB (Region 6). Each RWQCB has adopted a Basin Plan to implement plans, policies, and provisions for water quality management in the region. Beneficial uses of surface waters are identified and described in each Basin Plan. In addition, the Basin Plans identify water quality objectives for the protection of the beneficial uses of the basin.

Beneficial Uses and Water Quality Objectives

Beneficial uses define the resources, services, and qualities of the aquatic system that are the ultimate goals of protecting and achieving high water quality. Beneficial uses of waters in the AFO area include municipal supply, agricultural supply, groundwater recharge, contact and non-contact water recreation, warm and cold spawning and freshwater habitat, and wildlife habitat.

The RWQCBs have set water quality objectives for all surface waters in their basins concerning bacteria, biostimulatory substances, chemical constituents, color, DO, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Additional objectives are applied to bodies of water based on their designated beneficial uses and basin.

Beneficial uses of all groundwater in the project area have been designated as follows: municipal and domestic supply, agricultural supply, and industrial supply. Certain groundwaters have also been designated as supplying freshwater habitat, where groundwater makes contributions to and supports the flows in surface water. Water quality objectives applicable to all groundwaters have been set for bacteria, chemical constituents, radioactivity, tastes and odors, and—in Region 5, toxicity.

3.24 Wild Horses and Burros

Wild, free-roaming horses have a long history of occurrence within lands administered by the AFO since the Spanish era in California. Wild horse populations are characterized by their genetic predecessors, animal numbers, sex and sex ratios, and herd descriptors--such as average size, age classes, and foal crop (number of foals/total population). No burros occur with the AFO Area, but the resource is nonetheless referred to as Wild Horses and Burros.

3.24.1 Herd Management Areas

Wild horse herds are designated and managed according the areas, in which they occur, referred to as herd management areas (HMAs). (See Map WHB-1). The Red Rock HMA is located in the extreme northwestern corner. Table 3.24-1 shows the current information for the HMA and the animals found there.

Table 3.24-1 Wild Horse Herd Management Areas in the Alturas Field Office Area

Herd Management Area	Herd Number	Acres of BLM-Managed Land (Other Lands)	Appropriate Management Level (No. animals)	Estimated Population (October 2003)
Red Rock	CA-251	12,475 (4,420)	16-20	35

Presently, HMAs account for 12,475 acres of BLM-administered land in the AFO area. Non-BLM lands surrounding the Red Rock HMA consist primarily of large ranches. BLM cooperatively administers the Emigrant portion of the USDA Forest Service's Devil's Garden Wild Horse Territory. This herd mostly occupies Modoc National Forest lands. Non-BLM lands surrounding the Red Rock HMA consist primarily of large ranches.

The appropriate number of wild horses for an HMA, referred to as the appropriate management level (AML), is established through an analysis of forage and water conditions, in consideration of other competing animals (i.e., livestock and wildlife). Forage is allocated for wild horse use by the assessment of available forage and water and in consideration of competing uses. The AML is a standard used, following horse censuses, to determine whether excess animals must be removed ("gathered").

The present total AML for the Red Rock HMA in the field office area is 20 head of horses. Herd sizes estimated in October 2003 were 30 to 35 head, exceeding the aggregated AML by 50–75%. Individual band size ranges from 7 to 14 animals, there may be a variation of the ratio of males to females between the herds, but approximately 1:1. Assuming an average foaling rate of 20%, which is typical for herds in Northern California, the estimated 30 to 35 head in the Red Rock HMA would produce approximately 6 to 7 foals the next foaling season if the feed is adequate.

3.24.2 Horse Management

Control of animal numbers is the principal ongoing management action for horses in the AFO area. In addition, baseline genetic data are being collected that will be used to refine current herd management. Animal movement and distribution are controlled by fencing and the distribution of watering sources, but decisions regarding these facilities are generally made through AMPs for livestock management.

Horses generally need to be gathered on a 3 to 4 year schedule to maintain animal populations at appropriate management levels; however, funding limitations have not allowed this schedule to be met. The need to gather animals is determined when monitoring indicates that populations exceed AML criteria. Future horse gathers would be supported by NEPA analyses subsequent to this PRMP. During gathers, animals are selected for return to the HMA or are determined to be excess and placed into the adoption program or put into long-term holding.

Animal numbers do exceed the AML which, with the drought of the last five years, has adversely impacted resources. An effort is made to implement gathers every three to five years to stay within the AMLs when budget permits.

3.25 Wildlife and Fisheries

The terrestrial and aquatic wildlife resources known or suspected of occurring in the AFO area are described in the following sections. The descriptions have been arranged in the sequence of wildlife resource goals contained in the Preferred Alternative of the PRMP for the AFO area.

The current baseline vegetation mapping for AFO is a modified version of CALVEG, and the juniper mapping GIS layer developed and maintained by the BLM AFO. To determine habitat types available to wildlife, information was taken from CALVEG. However, this mapping does not accurately describe the existing condition for much of the shrub and woodland community types as they presently exist on the landscape. Many of the riparian communities are not mapped by CALVEG. A more detailed description of the vegetation in the AFO area is contained in Chapter 3.19 "Vegetation".

The general terrestrial habitat types were "fit" from the numerous vegetation community types, as shown in Table 3.25-1, primarily using information from CALVEG and the juniper mapping layer in the AFO area GIS. Aquatic habitats are discussed in a separate component of this section.

Wildlife habitat types on lands managed by the AFO have not been quantified. Most of the area (approximately 50% as depicted from CALVEG, but the actual amount is probably much higher) is sagebrush habitat, with an additional estimated 2-4% of antelope bitterbrush and snowbrush ceanothus. Western juniper has invaded much of the sagebrush range sites and can be found in approximately 70% of the field office lands. Historic (pre-invasion) juniper woodland only occupies about 8% of the field office area. Permanent and seasonally wet meadows comprise roughly 1 to 1.5% of the lands in the field office boundaries; however, more of these habitats are on private lands interspersed between public lands. The tall woodland types, white fir and ponderosa pine, comprise a very small portion of the field office lands, approximately 2% scattered throughout the field office area. Quaking aspen habitats are even fewer in number, accounting for about 0.1 %, although the actual extent is likely higher because many small aspen stands are too small to be captured in the mapping. Curlleaf mountain mahogany habitats, which are also considered woodlands, comprise about 0.5% of the area.

3.25.1 Habitats

White Fir

White fir habitat in the AFO area is located in small parcels along the north slopes of mountain peaks and in other scattered areas. White fir habitat is considered to be the coolest, moistest non-riparian habitat in northern California (Mayer and Laudenslayer 1988). The habitat serves as important cover for large mammals such as mule deer and blue grouse, cover for bat species like the Yuma myotis, and foraging habitat for several birds like black-headed grosbeak and mountain chickadee. Much of this habitat may be in danger of being lost to wildlife due to over-stocking, lack of recent fire, and recent droughts in northeastern California.

Eastside Pine

Although this habitat type has a low occurrence on the AFO, it is an extremely important habitat for bald eagle and, to a lesser extent, golden eagle. Bald eagles use large ponderosa pine trees for nesting and roosting.

All known bald eagle nests on the AFO are in ponderosa pine trees which number between 15 and 20. Additionally, this habitat is important in the five established bald eagle roosting areas, including the major bald eagle roost at Mount Dome. This habitat type is also important to mule deer, when found in association with brush in migration areas; as habitat for several bat species; and as foraging and nesting habitat for the juniper titmouse, red-breasted nuthatch, and mountain chickadee.

Ponderosa pine tolerates drought and fires much better than white fir. Most ponderosa pine habitat on BLM-administered land is located in many remote or non-accessible areas although, in some cases, it does occur near drought-killed stands of white fir. Some stands are in little danger of being lost, except possibly through catastrophic fire where it is found close to white fir or juniper woodlands.

Western Juniper

Western juniper habitat is widespread throughout the AFO area. It is increasing in density and is further expanding its range. Western juniper is used by a variety of wildlife including hiding cover for deer and pronghorn. The juniper titmouse is highly associated with this habitat type and seems to prefer it over adjacent riparian woodlands. Other birds associated with the juniper dominate woodlands include Townsend's solitaire, mountain chickadee, mountain bluebird, American kestrel, pinyon jay, black-throated gray warbler, and dusky flycatcher. Swainson's hawks prefer to use scattered juniper for nesting. Many raptors, including ferruginous and red-tailed hawks, and golden and bald eagles, use juniper for roosting and hunting perch sites nesting. Some of the myotis bat species found in the AFO area may also use juniper for roosting.

Throughout the field office, juniper is considered an invasive species on those sites that are not true juniper woodland sites as mapped in the soil surveys. Where present over an extended period of time, juniper may increase to the point of excluding important brush, grass, and forb components. Juniper has encroached into nearly all vegetation types, soil types, slopes, and elevations. Due to the large number of acres that juniper is invading into (not true juniper woodlands), management activities have increased to remove invasive juniper though fuels treatments. Most recently, the AFO has removed juniper from riparian areas, aspen stands, mahogany stands, and other areas—but treatments are needed across many areas within sagebrush ecosystems.

Quaking Aspen

Quaking aspen habitats exist as scattered stands and clumps along the landscape of the AFO area often, but not always, associated with dry and wet meadows and rim rock. Aspen commonly occur in riparian areas, snow pockets, and high elevation areas with good moisture. The aspen provides habitat to the most diverse number of animal species throughout the West. Mule deer forage in aspen and use it as thermal and hiding cover important to mule deer fawning. Quaking aspen generally support high densities of breeding birds, including tree swallow, house wren, orange-crowned warbler, western tanager, Bullock's oriole and warbling vireo. Snags are very important to cavity-nesting birds—such as bluebirds, sapsuckers, woodpeckers, and chickadees—and are important foraging areas for insectivorous birds. Several bat species use very old and decaying aspen for roosting and nursery colonies. Accipiters such as northern goshawk and Cooper's hawk nest in aspen. The only known goshawk nests on the AFO have been found in aspen stands.

Table 3.25-1 Correlation between Plant Community Types and Wildlife Habitat Types

Plant Community Type	General Habitat Type Used in This Document	Source Information[a]
Tree-Dominated Plant Communities		
White fir Mixed fir	White fir	CALVEG
Ponderosa pine Mixed pine Grey pine	Eastside pine	CALVEG
Jeffrey pine Knobcone pine	Eastside pine	CALVEG
Western juniper/big sagebrush/bearded bluebunch wheatgrass Western juniper/big sagebrush/Idaho fescue	Western juniper	CALVEG, Juniper Map
Western juniper/low sagebrush Quaking aspen/mountain big sagebrush Quaking aspen/grass	Quaking aspen	CALVEG Delineation project Delineation project
Black oak Oregon white oak California black oak	Oak woodlands	CALVEG
Ceanothus mixed chaparral Ceanothus mixed chaparral and gray pine Montane mixed chaparral	Ceanothus mixed chaparral	CALVEG
Shrub-Dominated Plant Communities		
Curlleaf mountain mahogany/mountain big sagebrush/bunchgrass Curlleaf mountain mahogany/mountain snowberry/grass Curlleaf mountain mahogany/Idaho fescue (bunchgrass) Curlleaf mountain mahogany/bearded bluebunch wheatgrass/Idaho fescue Birchleaf mountain mahogany	Curlleaf mountain mahogany/shrub and bunchgrasses	CALVEG
Basin big sagebrush/bunchgrass Mountain big sagebrush/bunchgrass (Thurber's and western needle grasses or needle and thread) Wyoming big sagebrush/bunchgrass Silver sagebrush/bunchgrass Snowbrush ceanothus Antelope bitterbrush	Tall sagebrush/ bunchgrass (includes rubber rabbitbrush); also antelope bitterbrush and snowbrush ceanothus	CALVEG
Low sagebrush/bunchgrass Black greasewood/big sagebrush	Low sagebrush/ bunchgrass Black greasewood/big sagebrush	CALVEG
Grass/Forb-Dominated Plant Communities		
Permanent wet meadows Seasonal wet meadows	Permanent and seasonally wet meadows	CALVEG
Riparian shrub woodland Willow	Riparian shrub/willow	CALVEG
Annual grass/forb Annual grass/medusahead	Annual grasslands	CALVEG

Note: This table shows how plant community types have been combined to form general "habitat types" used in this document. Plant community types were drawn from the CALVEG and juniper mapping layers for the AFO. The vegetation types that occur in very small acreages are not included in this table. See the vegetation types table (Table 3.19-1) for the exact communities, estimated acres, and percent of BLM-administered acres in the AFO area.

[a] Source information for communities and habitat types was derived from A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988), Matrices for Wildlife–Habitat Relationship in Oregon and Washington (O'Neil et al. 2001), and Wildlife Habitats in Managed Rangeland– the Great Basin of Southeastern Oregon (Maser and Thomas 1986).

This habitat type has been degraded through extensive livestock use and lack of fire. High-quality aspen habitat has multiple-age classes. Most stands in the AFO area have only one or two age classes evident, with few saplings present. Recently, this habitat type has received more attention on a national basis. Cool fires and mechanical thinning of juniper have helped to invigorate many stands, and several have been fenced off from cattle.

Oak Woodland

Several types of oak are found in the southwest portion of the field office; they are usually found in combination with pines, ceanothus, chaparral, and other brush types. Highly diverse in wildlife, these stands are important to a wide array of songbirds and the acorns are important to deer and turkey. They are used for cover by big game, mainly deer.

Many of the oak woodlands are overgrown in brush and contain a single age class. Treatment of these oak woodlands would be necessary to maintain or improve the health and reproduction in these areas. Carefully planned prescribed fire would benefit this habitat in providing a diverse understory of forbs, grasses, and young shrubs.

Ceanothus Mixed Chaparral

The vegetation communities that make up the ceanothus mixed chaparral habitat type occur primarily in the Fall River watershed. These communities integrate with sagebrush, oak, and pine communities. In higher elevations with cooler soil temperatures, this habitat type includes montane mixed chaparral, snowbrush, and manzanita, birch-leaf mahogany, and a variety of oak species. This habitat type often occurs following fire in conifer communities. Typical bird species found in this habitat type include fox sparrow, green-tailed towhee, and yellow warbler.

Curlleaf Mountain Mahogany

Curlleaf mountain mahogany habitat occurs across the landscape, generally at mid-elevations, and may exist as dense shrub habitats either in association with rocky areas along ridge tops or very near to it. Depending on the habitat association (Table 3.25-1), this habitat may be found on any aspect and in association with several shrubs and bunchgrasses. Mountain mahogany is an important forage and thermal cover for mule deer; and many other mammals and birds. It is often used as an intermediate, spring, or fall habitat by deer. Mule deer fawn in these habitats. Because mountain mahogany often occurs with other large shrubs, such as mountain big sagebrush, it is important in providing additional vertical and horizontal structure. This structure increases species diversity of birds and small mammals by supporting species such as Say's phoebe, sage thrasher, lesser goldfinch, western harvest mouse, and least chipmunk.

In rocky areas, curlleaf mountain mahogany habitat is in good condition and generally occurs as mature stands mixed with juniper. In many locations, these stands are very dense—reducing their value as forage. In many areas where the topography is flatter, this habitat was used heavily by sheep and cattle in the past. In some areas, it has been lost due to fire. Mountain mahogany does not survive fire well and can be burned easily on high-productivity sites. Currently, this species has received some treatment to increase production of new growth and make sites more fire safe. Most of this management has occurred in important deer transition ranges.

Tall Sagebrush, Snowbrush Ceanothus, and Antelope Bitterbrush

Mountain big sagebrush habitats make up a high percentage of the acreage in the AFO area. Big sagebrush is extremely important for wintering greater sage-grouse and mule deer; also important to a whole host of sage obligate wildlife species. This habitat type generally occurs in higher elevation areas and is fairly resistant to noxious weeds and other invasives except juniper.

Juniper has reduced the quality of mountain big sagebrush habitat type across a majority of the area, and has disrupted the natural sage/grass/forb relationship. Sage-grouse, mule deer and pronghorn use sagebrush types as fall forage. Because of its presence on higher productivity soils and within varied plant associations, this habitat can be very susceptible to wildfires. In the past, it was common practice to remove sagebrush in favor of seeding grasses for livestock.

Ceanothus species are considered very important browse and cover for deer, elk, and rabbits—as well as for many small birds, including the California quail. This habitat occurs at higher elevations, mixed with sagebrush and bunchgrasses in deer summer range, and in the higher areas around Fall River. Most of these habitats appear to be in good condition except where they occur near water and where they are browsed heavily by deer and livestock

Bitterbrush is one of the most important fall forages for mule deer in northeastern California. Other animals that use this habitat include California quail, gray flycatcher, green-tailed towhee, and squirrels and chipmunks. In many cases, heavy livestock use of sagebrush has resulted in hedged plants that are difficult for wildlife to use and that are reduced in palatability (taste) and nutrition. Bitterbrush also does not tolerate higher intensity fire; in areas of wildfire, it is generally lost for at least several decades. Many of the bitterbrush stands on the AFO are older decadent stands with low diversity in age class and structure.

Current management for these habitats focuses on appropriate management of livestock. Conversions of sagebrush to other habitats ("type conversions") to enhance livestock grazing and habitat for other wildlife have been halted because of greater concern for the greater sage-grouse and other sagebrush-obligate species. Bitterbrush stands are monitored and managed to achieve standards of no more than moderate utilization by livestock and wildlife.

Wyoming Big Sagebrush

Wyoming big sagebrush habitat type is important to a wide variety of sage-obligate species but is probably in the worst overall condition of any vegetation type in the AFO area. This low-elevation sagebrush type has been affected by long- term heavy grazing, lack of fire, and invasion of noxious and exotic plants. Many of the Wyoming big sagebrush stands have a pure annual grass component rather than the native bunchgrass/forb understory. Sage-obligate species occur in low-density within this vegetation type due to its overall poor condition in the AFO area. In its natural condition, the heavy native grass understory of Wyoming big sagebrush provides habitat for birds, such as grasshopper sparrow, vesper sparrow, chipping sparrow, and loggerhead shrike. This habitat type can also be important to wintering big game animals and small mammal such as the black-tailed jack rabbit.

Low Sagebrush

Low sagebrush is highly nutritious and palatable forage. Pronghorn antelope, mule deer, and sage-grouse are known to prefer this forage and often wait to migrate from it until heavy snows force them to move onto less palatable forages (e.g., Wyoming and mountain big sagebrush). In the late winter/early spring, sage-grouse are often found strutting in low sage habitats, and pronghorn can often be seen close by. Low sage is very important to pronghorn, as they are adapted to areas with low vegetation because they afford a better view of potential predators. Birds of prey make particularly good use of this habitat as it affords a good view of prey and, depending on site, few obstructions for low-level flight. Low sage often occurs in association with gravels or boulders and therefore is fairly fire tolerant, except in very dry years or where in proximity to taller sagebrush species. Current management focuses on appropriate control of livestock.

Black Greasewood

Black greasewood can be one of the taller shrub communities. In that capacity, it can provide excellent nesting cover and food for birds and small mammals. Very little black greasewood is in the AFO area. If the habitat is in good condition and plants are relatively tall, black greasewood habitat can be used as thermal cover for big game species. Northern junco, Townsend's solitaire, and mountain bluebird use this habitat. Pygmy rabbit use this habitat as well, but probably not to any great extent. Rodents found in this habitat include the chisel-toothed kangaroo rat, Great Basin pocket mouse, various ground squirrels, and Townsend's pocket gopher. Bat species found in the AFO area only infrequently use this habitat, except possibly in areas that have water.

Permanent and Seasonally Wet Meadow

Permanent and seasonally wet meadow habitats are especially important in desert environments, as many wildlife species require "free water." Meadows provide important foraging habitat for mule deer, pronghorn, small mammals, and shorebirds. Depending on the availability of shrubs, these habitats serve as important birthing grounds for large game. Many songbirds nest fairly close to meadow systems, and all the bats known in the AFO area—except Townsend's big-eared bat—feed on the abundant flying insects associated with wet meadow environments. This habitat type is also important to bank swallows, which feed on insects taken over open riparian areas. Drier meadows provide habitat for many of the rodents found in the AFO area, including deer mouse, Townsend's pocket gopher, and long-tailed meadow mouse.

Meadow habitat is highly favored by livestock, both sheep and cattle, and wild horses. In most cases, this habitat type has been the most heavily affected habitat on BLM-administered lands. In several cases, wet meadow systems have been dewatered due to erosion and lowering of the water table. In other cases, riparian vegetation has been slowly replaced with upland species such as sagebrush due to overgrazing. In the most severe cases, small meadows and springs have been converted to muddy watering holes. In some meadows, juniper invasion is also a threat. Current management involves changing grazing practices, fencing out livestock, providing offsite water for livestock, and treating noxious weeds and removing juniper.

Riparian Shrub, Willow

The riparian shrub and willow habitat makes up the least amount of potential habitat in the AFO area; however, these habitats are important for many wildlife species. Mule deer, pronghorn antelope and, occasionally, elk use this habitat type. Mule deer are known to use these areas for fawning. This habitat can easily be damaged by excessive livestock use. Willow and other woody riparian plants have been overgrazed and eliminated from many miles of streams in the field office area. Good willow presence provides habitat for a large variety of songbirds, small raptors, and small mammals, and can provide bank stability in streams that provide water to all wildlife. This habitat is also important to native fish for resting, shade, and foraging. Loss of willows and other woody vegetation from grazing has altered these habitats that are important to a wide variety of wildlife, especially songbirds.

Annual Grassland

Most of what CALVEG has mapped as annual grassland is actually nonnative exotic grasses. The dominant species are medusahead and cheatgrass. This habitat often occurs in association with dry and wet meadows and springs, and can invade and eventually dominate shrub habitats that are disturbed by ungulate grazing or frequent fires. Annual grasslands support a wide variety of native birds, rodents, and small mammals.

Perennial grassland habitats have either been replaced by mountain big sagebrush or rabbitbrush due to absence of fire (and high suppression effort), type conversion, past heavy season-long grazing, or relatively recent cheatgrass invasion. The largest stand is located on Cold Springs Mountain, resulting from a prescribed burn and where sagebrush has been slow to return into the perennial grassland. Pure stands larger than 100 acres are rare, but do occur in Mount Dome area.

3.25.2 Federally Listed Threatened and Endangered Species

The following paragraphs describe the current status and distribution of wildlife species that are known or suspected to occur in the AFO area and have been listed or are candidates for listing as either threatened or endangered under the federal Endangered Species Act. These species are included because they have been identified for protection and management in the AFO area. Habitat relationships of these species are identified in Table 3.25-2, at the end of this chapter.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is currently listed as threatened under the Endangered Species Act, although it is proposed for de-listing. Suitable habitat for bald eagles includes large trees for perching and nesting near lakes and large rivers. Polite et al. (1990) stated that 87% of bald eagle nest sites in California are within 1 mile of water, and that bald eagles require “large bodies of water, or free-flowing streams with abundant fish...” Shimamoto and Newman (1981) suggest that bald eagles require their food supply to be within a mile of their nest. Bald eagles are frequently seen utilizing carrion (dead cows), waterfowl, and fish; however, ground squirrel and snake remains also have been found under active nests. According to Shimamoto and Newman, suitable winter feeding sites are usually within 12 miles of bald eagle roosts.

The following information was excerpted from the Pacific Bald Eagle Recovery Plan (DOI 1986) and from Lehman (1979). Nest stands are more likely to be active if located a short distance from a persistent water body. Nest stands had 20% to less than 40% canopy cover. The nest tree is situated upslope from the water body in an exposed, prominent position, which allows for visibility in all directions. Nest tree height ranged from 76 to 150 feet, and the average diameter was 43 inches DBH. In California, 71% of the trees used were pine.

Noise and potential harassment of eagles from management activities is a concern. In a model that assesses the effects of disturbance on breeding bald eagles, researchers found that eagles responded differently to stimuli depending on the type and duration of disturbance (Grubb and King 1991). Other researchers have found that the time of year and the eagle's activity affect disturbance and have made subsequent recommendations on the need for buffers around eagles. Recommended buffer widths from human disturbance have ranged from 1500 to 1800 ft (500-600 meters) (Fraser et al. 1985, Grubb and King 1991). In the western portion of the field office, bald eagle is relatively common—many nesting territories and winter roost sites occur throughout. The large winter population uses BLM-administered lands as significant roosting areas. Consultation on bald eagle management occurred in 2001, applying all of the conservation measures necessary to protect nesting and roosting eagles. One of the main roosting areas is located in the Lava WSA.

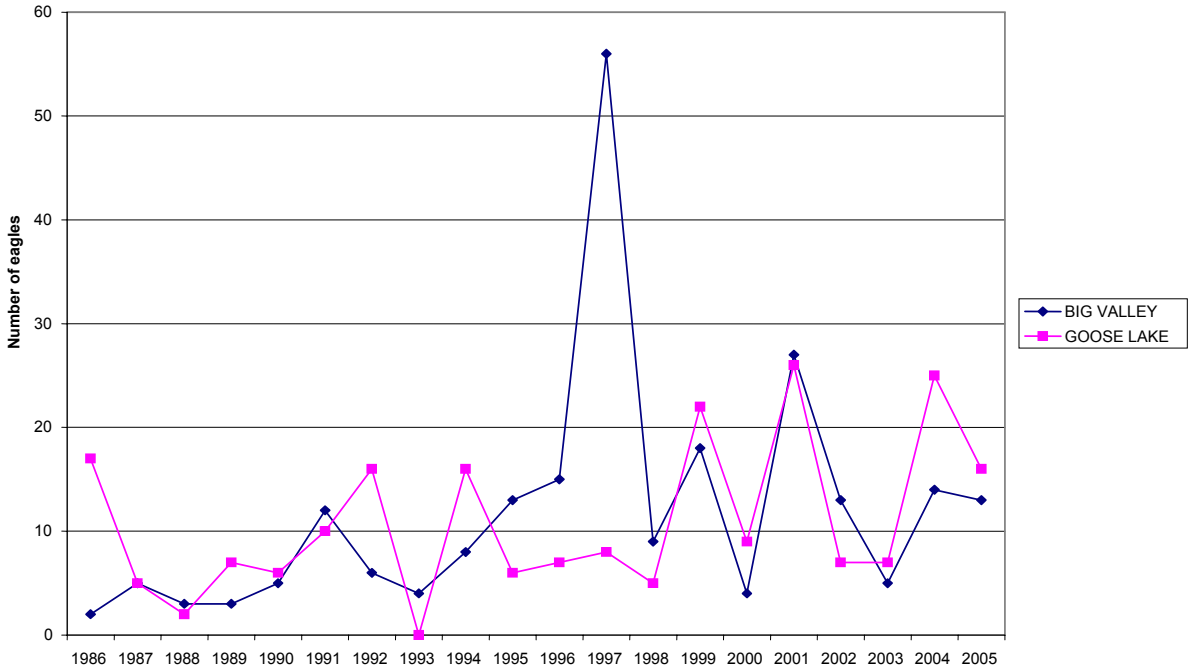
As many as 15 bald eagle nest sites occur on BLM-administered lands in the Fall River planning unit (see the Fall River Bald Eagle Management Plan). In addition, multiple nests occur in the southern portion of the planning area. Nest monitoring occurs almost yearly by various sources.

The bald eagle is common throughout the year in and around Mt. Dome BLM-administered lands. Nesting occurs on Mt. Dome, but this area is best known as one of the largest winter roost sites in California. This area, which supports between 250-300 wintering individuals, is managed under the Mount Dome Management Plan (BLM 1985).

In the eastern portion of the field office area, bald eagle also is relatively common year-round. BLM-administered lands provide important foraging habitat for bald eagle in this area. The eagles that use this area prey on waterfowl on stock ponds, human-made reservoirs, and lakes on private lands. They also prey on ground squirrels in cut agricultural fields. Nesting occurs on the Modoc National Forest in the southern portion of the Warner Mountains—approximately 10–25 miles away from common foraging areas.

A large wintering population of bald eagles uses several areas throughout the AFO (Table 3.25-2). The wintering population has increased substantially over the last 25 years, consistent with the species recovery throughout its range. During the January 26, 2006 survey a record high number of bald eagles were found on the Goose Lake survey route.

Table 3.25-2 ANNUAL MIDWINTER BALD EAGLE CENSUS (Conducted January 7-13)



Northern Spotted Owl

The northern spotted owl (*Strix occidentalis caurina*) is federally listed as threatened. Historical and current northern spotted owl habitat has not been identified in any of the specific land use plans in the AFO area. None of the BLM-administered lands in the AFO area are in the northern spotted owl range identified in the Northwest Forest Plan (USDA Forest Service and DOI BLM 1994) or in the extent of USFWS-designated critical habitat. Northern spotted owls have, however, been found in the high-elevation timbered portion of the Widow Peak area, in the AFO area. Multiple surveys have failed to locate any nests, and three separate consultations with USFWS personnel have been conducted for this area. In the most recent consultation, current range, timber, and recreation management was identified to pose no threats to the owls using Widow Peak. There are no historical records of this species in Modoc County.

There are not enough data to indicate a population trend or range expansion for northern spotted owl in the AFO area. It is likely that small populations have persisted in southwestern Modoc County, in forest similar to that occupied by owls to the west.

Modoc Sucker

The Modoc sucker (*Catostomus microps*) is federally listed as endangered. It is found in the Pit River and several of its tributaries. In the AFO area, Ash Creek and Rush Creek have Modoc suckers year round. These small creeks are in the Warm Springs/Big Valley watershed near Adin. In the Fall River watershed, there is very little occupied, historical, or potential habitat and there is no designated critical habitat on lands administered by the AFO. It is believed that the Modoc sucker does not currently reside in the Fall River planning unit (Reid, personal communication).

Consultation with the USFWS for Modoc sucker occurred in 2001. During that consultation, it was agreed that very little occupied, historical, or potential habitat and no designated critical habitat is on lands administered by the AFO.

The 0.25 mile of potential habitat on BLM-administered lands that occurs on Dutch Flat Creek has been fenced from livestock grazing to improve riparian habitat for Modoc sucker. Other small sections of potential habitat on Ash and Willow Creeks have not received management applications due to the large amount of private lands in these areas.

Lost River and Shortnose Suckers

Both the Lost River sucker (*Deltistes luxatus*) and shortnose sucker (*Chasmistes brevirostris*) are federally listed as endangered. There currently are no known occupied habitats on BLM-administered lands in the AFO area. Periodic monitoring is performed to determine whether these suckers exist in the AFO area.

Shasta Crayfish

The Shasta crayfish (*Pacifastacus fortis*), a federally listed endangered species, is present in the Fall River watershed in the AFO area. This species is found mainly in the Pit River, where BLM-administered land is a minor component of the area. Recent Endangered Species Act consultation with the USFWS (2001) reported the only potential effects on this species on BLM-administered land could occur at the Pit River Campground.

Pygmy Rabbit

The pygmy rabbit (*Sylvilagus idahoensis*) recently petitioned but was denied federal listing (2005). The species depends on sagebrush, primarily big sagebrush (*Artemisia tridentata*) located in deeper soils (Csuti et al. 1997). Soil types can be loamy to ashy, and burrows are generally found greater than 72 centimeters (20 inches) deep. In Oregon, overall shrub cover at pygmy rabbit sites ranged from 21 to 36%, while bunchgrass cover was less at burrows than at random sites. Pygmy rabbit burrows are almost always under big sagebrush and only rarely in the open. In some instances, they are known to use the old burrows of badger and marmot—as well as other natural cavities or holes in rock or in the ground.

Soil and vegetation that fit the normal requirements of the pygmy rabbit exist in many locations in the AFO area, but these have not been systematically surveyed. The paucity of recent sightings suggests that the species is currently rare or extirpated in the region. Populations of this rabbit have been declining throughout its range over many decades, associated with conversion of sagebrush habitat to agricultural uses on privately held lands. At present, there are few documented sightings on lands managed by the AFO. There is little information on historical or current population sizes; trends on BLM-administered lands cannot be determined at this point (Washington Department of Fish and Wildlife 1995).

Yellow-Billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*) is a candidate for federal listing. There are no known records for this species on BLM-administered lands in the AFO area. Yellow-billed cuckoos breed in mature riparian forests dominated by cottonwood and willow. There are two records from the nearby Modoc NWR from the 1980s, but these pertain to vagrant individuals. There are no known populations in northeastern California.

An account from the Surprise Valley (Mailliard 1927) provides some evidence of historical breeding populations, but there was no indication of the size of the population or its trends. Given that there are no known populations, it is reasonable to assume that the species had at least some presence in northeastern California up until the 1920s, but has since been extirpated.

The lack of mature riparian forest that would provide suitable habitat for yellow-billed cuckoos may be tied to current grazing management; if so, this management would not likely facilitate the development of sufficient habitat to encourage cuckoos to become reestablished in the field office area.

Oregon Spotted Frog

The Oregon spotted frog (*Rana pretiosa*) is a candidate for federal listing. At present, there are no known spotted frog populations on lands administered by the AFO. This is one of the most widely distributed amphibian species in the western U.S.; its known elevation range is 3,200–4,800 feet. California historical records indicate that this species was present on the Modoc Plateau, Pit River drainage, and in the Warner Mountains; however, on a field survey in 1995 to these historical sites, Jennings and Hayes found no individuals present.

Spotted frog is a highly aquatic species typically found in permanent water, such as streams, rivers, marshes, springs, pools, and small lakes. Spotted frogs do not occur in stagnant wetlands dominated by cattails. They prefer areas with thick algae and sparse emergent vegetation (sedges, rushes, and grasses). In this region, where snow and ice accumulate, spotted frogs are inactive during winter; most hibernate and aestivate. There are no specific data on feeding; however, the diet varies with individuals' age and size—and includes insects, arachnids, and mollusks.

Because there is no information on historical or current population sizes or range, trends cannot be determined at this point. It is likely, however, from the paucity of recent sightings (including the results of the 1995 survey by Jennings and Hayes) that the species is currently rare or extirpated in the region. Loss of habitat associated with development of agriculture and use of surface waters for irrigation, as well as large-scale grazing are likely responsible for the lack of sightings.

3.25.3 California State-Listed and BLM Sensitive Species

Species status and habitat associations for the California-listed and BLM sensitive species described below are presented in Table 3.25-3.

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is state-listed as threatened. This species nests in juniper and individual conifer and hardwoods (Woodbridge et al. 1995), especially along agricultural fields and will also roost on the ground if no trees are available (CDFG 1999). Nests are often located in low-density stands of trees. Open areas of meadows or croplands are used for foraging. This bird feeds on small rodents, rabbits, birds, and arthropods—either by catching them in the air or jumping along the ground.

Banding studies have been performed in the South Pit River watershed and in the Mount Dome area. Studies were conducted to determine nest success and distribution, but there are no recent data on population size nor is there current monitoring of known pairs. Formal surveys have not occurred in recent years, but past studies demonstrate that the AFO area supports numerous Swainson's hawks and provides habitat characteristics suitable for breeding. The encroachment of juniper into formerly open habitats provides additional nesting habitat for Swainson's hawk but has reduced foraging area.

Willow Flycatcher

The willow flycatcher (*Empidonax traillii*) is state-listed as endangered. Willow flycatchers are found in larger riparian and wet meadow systems from 2,000 to 8,000 feet, and generally nest in large willow thickets over or near slow-moving water (CDFG 1999). Although there are no known breeding records on BLM-administered lands in the AFO area, recent and historical records indicate that breeding of willow flycatcher is possible in suitable habitat. Willow flycatchers breed in willow thickets, in riparian areas and wet meadow systems. There are not enough data to indicate population trends of willow flycatchers in the planning area.

Bank Swallow

The bank swallow (*Riparia riparia*) is state-listed as threatened. Bank swallows depend on vertical to near-vertical banks, cliffs, bluffs, quarries, and road cuts that they use to excavate their nests. Their nests, which are dug into cliff faces, are generally near the top of the face and near a source of water such as a stream or lake, or in a riparian area. Cliff substrate is generally of a fine-textured or sandy soil. Locally, bank swallow nesting habitat is found in stream systems with the deep "head-cuts" associated with past excessive livestock use and heavy spring runoffs and in sites used to quarry sand and gravel. This species feeds primarily on insects captured aerially over open wet meadows and other riparian areas. In migration, this species flocks with other swallows over many open habitats. (CDFG 1999)

Scattered, local breeding colonies of bank swallow are found in bank habitats associated with eroding streams and sand mining areas in Modoc County (Airola 1980). It is possible that some are established in BLM-administered wetlands in the AFO area, but the habitat is likely highly localized. There is no information on historical or current status of this species on these lands. One known colony of bank swallows occurs in the Fall River area.

Greater Sandhill Crane

The greater sandhill crane (*Grus canadensis tabida*) is a state-listed threatened species. It is commonly found in wetlands—especially along margins of shallow water, where the birds assemble a nest of floating materials over water. Nesting has been documented on islands as well. When feeding, this subspecies prefers wet meadows (especially during the breeding season) and croplands. Sandhill cranes feed on roots, tubers, grasses, and grains in croplands and also will also take earthworms, mice, snakes, frogs, crayfish, and various insects (CDFG 1999)

Several pairs of cranes have been found nesting on BLM-administered lands and in taller, wet, grassy private pastures within the AFO area. Nesting areas and nest success have not been well documented. The population trend for greater sandhill cranes overall has been increasing throughout Modoc County; this is the probable trend on BLM-administered lands as well.

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is on BLM's list of sensitive species. Golden eagles are long-lived and loyal to their territories (Steenhof et al. 1997). Locally, most golden eagles use cliffs for nesting, although some may use large trees (Menkens and Anderson 1987). A study by BLM biologists in northeastern California showed that jackrabbits and cottontail rabbits comprised over 90% of the biomass consumed by golden eagles in the breeding season (Bloom and Hawks 1982).

Many golden eagle nest sites occur in the AFO area and the species is present within all watersheds. Management for this species is restricted to applying limited operating periods (LOPs) during the nesting season around known active nests. No dates are fixed for these LOPs; the BLM Wildlife Biologist relies on past survey data to determine the dates for each project. Habitat quality may vary between the west and east and northern portions in the AFO area due to wetter conditions and different vegetation types in the Fall River area. Juniper encroachment is probably degrading habitat value by reducing foraging conditions in the AFO area. Additional occupied nests could likely be found with additional survey effort. Currently, it is unknown how many of the known nests are occupied. The golden eagle population trend is unknown, but there is no evidence of decline.

Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is a BLM sensitive species. It is commonly found in association with open grasslands, sagebrush flats, desert shrub, and juniper woodland fringes. The ferruginous hawk is uncommon but is found locally during the winter months at lower elevations. It generally nests in lone trees, but may also use low cliff faces, buttes, cut banks or shrubs; it is also known to nest in other natural or human-made elevated structures. This bird roosts in open areas in lone trees, on utility poles, and sometimes on shrubs. The most common food sources are rabbits, ground squirrels and mice; but this hawk may also take birds, reptiles, and amphibians. Water requirements are probably met from prey. (CDFG 1999)

There are a few historical records of this species during the breeding season and several old records of pairs in Modoc County for several years during the 1980s and 1990s. Ferruginous hawk is currently an uncommon winter visitor and migrant through northeastern California; although it has been documented in most of the watersheds in the AFO area. No known formal surveys have been conducted for ferruginous hawks in the AFO area.

Burrowing Owl

The burrowing owl (*Athene cunicularia*) is a BLM sensitive species. It is a year-round resident of open grasslands and sagebrush stands. It was once found locally in the Madeline Plains area. This small owl uses the burrows of ground squirrels and other small mammals to make its home and hunts from low perches where it may pounce on its prey. Prey items are commonly insects or very small rodents. Burrows and shrubs are important to this species for thermo-regulation. Rodent-eradication campaigns often lead to abandonment of the area by burrowing owls. In areas where burrows are scarce, human-made structures such as pipes, culverts, and nest boxes have been used for nesting. Water requirements are not well understood, but they do take free water when available (CDFG 1999).

Burrowing owls are known to occur at the Madeline Plains, but no other documented sightings have been made in the past few decades. Most observations have been in association with culverts and other disturbed areas. This species has likely declined in northeastern California, as there are very few records in Modoc County since the mid-1980s. The cause of this species' decline in Modoc County is unclear, although ground squirrels have been poisoned in the past on private lands and are "locally controlled by shooting."

Large areas of private land have also been converted to agricultural uses in the Madeline Plains area, causing loss of habitat for burrowing owls. There are no consistent and systematic surveys for these owls in the AFO area.

Greater Sage-Grouse

The greater sage-grouse (*Centrocercus urophasianus*) is currently listed by BLM as a sensitive species and is recognized as sensitive by the State of California. As the name implies, this species is heavily dependent on sagebrush habitats, and is considered a sagebrush obligate species. Historical and active breeding strutting grounds ("leks") on BLM-administered lands are located primarily in low sagebrush habitats. Sage-grouse use sagebrush stands as both winter and nesting habitat; leks are often located in open areas surrounding sagebrush (Connelly et al. 2000). Sage-grouse most often nest under sagebrush shrubs; successful nesting habitat contains tall grass cover (Gregg et al. 1994) in association with this sagebrush. Although many nests have been found in lower quality habitats, these are almost always unsuccessful due to nest abandonment and predation. Brood-rearing habitat is wet meadow and riparian habitats where the young can find abundant insects. These insects are a critical food source to young sage-grouse during their first few weeks of life.

The sage-grouse occur throughout the AFO planning unit and has a long history of presence in the Madeline Plains. Currently, seven active strutting grounds are monitored yearly and another dozen or so historical strutting areas that are no longer used by grouse.

Radio telemetry studies by CDFG determined the "plains" to be a significant summering area for sage-grouse. These studies showed that some birds that use the plains during summer have moved more than 50 miles between seasonal use areas. Upland habitat quality is declining in sagebrush, and only about 10% of the planning unit is in good condition for sage-grouse and other sage-obligate species. The spread of noxious weeds, many decades of heavy grazing, and juniper encroachment have contributed to considerable degradation of sagebrush/grassland habitat. Projects to improve sage-grouse habitat will be necessary to maintain this population of grouse.

Sage-grouse have a long history of decline in Modoc and Lassen Counties (Hall personal communication). Sage-grouse are commonly found throughout the range of big sagebrush, but numbers have been declining throughout the West for many years. Anecdotal information from older generation ranchers suggests that several thousand birds existed in Modoc and Lassen Counties during the 1940s and 1950s. Historical information about sage-grouse in these counties is not available before 1980; however, accurate lek count information has been obtained since the early 1980's.

The AFO contains three sage-grouse population management units (PMU): 1) Buffalo-Skedaddle, 2) Likely Tablelands/Rocky Prairie, and 3) Devil's Garden/Clear lake. These PMUs cover several million acres of potential sagebrush habitat in northern California and Nevada. These sub-units are being analyzed in a conservation planning effort by BLM's Eagle Lake, Surprise, and AFOs, in cooperation with the CDFG and the Nevada Division of Wildlife.

Current survey efforts have found active historical leks and a couple of previously unknown active leks. Currently, only 10% of all known historical leks are documented to be active, 60% are thought to be inactive, and there is not enough information to determine the status of the remaining 30%. The population of sage-grouse in the Cold Springs area has been increasing during the past few years due to improved habitat from prescribed burning. The Likely Tablelands population is less than 50 total birds and is at risk of extirpation. The Hayden Hill population is currently less than 30 birds and it too is in danger of extirpation.

Juniper Titmouse

The juniper titmouse (*Baeolophus ridgwayi*) is a BLM sensitive species. It is common in a variety of habitats but is found primarily in association with juniper and desert riparian areas. It seems to prefer juniper woodlands rather than riparian woodlands. The juniper titmouse roosts in cavities of trees or snags, nests in natural or human-made cavities (e.g., woodpecker holes or other natural cavities, or nest boxes). Its nest is generally lower than about 30 feet and it often breeds near water. Juniper titmouse feed on spiders, insects, berries, and seeds gleaned from twigs, branches, and the bark of trees. It is vulnerable to the usual woodland predators: hawks and small mammals (CDFG 1999).

Little is known about this species beyond its occurrence in particular habitat types. These habitats are plentiful on lands managed by the AFO.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a BLM sensitive species. There are scattered, local breeding colonies of tricolored blackbirds in Modoc County; it is possible that some are established in BLM-administered wetlands in the AFO area. Yearly sittings are common, however, there is no information on historical or current status of this species in these wetlands or any other habitats in the AFO area.

BLM Sensitive Bats

A variety of bat species, including BLM sensitive Yuma myotis (*Myotis yumanensis*), fringed myotis (*Myotis thysanodes*), long-eared myotis (*Myotis evotis*), small-footed myotis (*Myotis ciliolabrum*), pallid bat (*Antrozous pallidus*), spotted bat (*Euderma maculatum*), and Townsend's western big-eared bat (*Plecotus townsendii*) may be found throughout the field office area due to a high amount of suitable habitat. Rock outcrops, canyon cliffs, trees, and mineshafts provide roosting and maternity habitats. Northeastern California—unlike other areas of the west—have relatively low mineral potential; therefore, historic mining shafts that provide important bat habitat elsewhere are very limited on lands managed by the field office. A variety of bat surveys have been conducted on BLM-administered lands in the AFO area and a large variety of species have been found. Significant nursery caves have been found, but there is much more potential habitat where survey has not been conducted.

Yuma Myotis. Yuma myotis inhabit open woodlands and forests with streams, stock tanks, and ponds over which they feed and drink. They roost in buildings, bridges, mines, caves, and crevices, as well as abandoned swallow nests. These sites also are used for maternity colonies. This species has a relatively poor urine-concentrating ability and must therefore drink water regularly. Winter habitat is poorly understood, but apparently this species hibernates (Nevada Bat Working Group 2004 and CDFG 2002).

Fringed Myotis. Fringed myotis occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinyon-juniper woodlands, and pine forests. They forage primarily on beetles on or near vegetation but also will prey upon moths and other flying insects over water and open areas. Fringed myotis have poor urine-concentrating ability and must therefore drink water regularly. Day and night roosts are often in buildings and mines but also in rock crevices and in snags. Trees are probably the most important day roosts; caves and mines are used only at night. This species usually forms nursery colonies numbering up to 200 adult females, but males are often found roosting alone or in small groups. This species does not migrate and hibernates in caves and mineshafts (Nevada Bat Working Group 2004, CDFG 2002).

Long-Eared Myotis. Long-eared myotis are found primarily in juniper and higher-elevation coniferous forests. Long-eared myotis feed along open habitat edges, in open areas, and over water. They avoid highly arid areas and are closely associated with water, as this species has a relatively poor urine-concentrating ability. Nursery colonies and roost sites consist of buildings, crevices, snags, and the spaces under bark. Caves are used primarily as roost sites. The long-eared myotis forage on beetles, moths, spiders, and flies over water, trees, and shrubs. This species does not migrate, but little is known of its winter hibernation habits. (Nevada Bat Working Group 2004, CDFG 2002)

Small-Footed Myotis. Small-footed myotis occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinyon-juniper woodlands, and pine forests. Summer and winter ranges appear to coincide. Often seen foraging over water and trees, these bats prey on aerial moths, flies, beetles, and bugs. Small maternity colonies are found in buildings, caves, and mines. These sites, as well as bridges and bark crevices can be used for roosting. Often seen drinking water soon after emerging, small-footed myotis prefer humid roost sites. They have a high tolerance for cold and can be found in drafty sites less tolerable to other myotis. The species is known to hibernate and often can be found feeding or roosting with other bat species. (Nevada Bat Working Group 2004, CDFG 2002)

Pallid Bat. Pallid bats occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinyon-juniper woodlands, and pine forests. They prey primarily on large arthropods on the ground, including beetles, crickets, and centipedes, but also will take moths in flight.

Their day roosts include trees, rock outcrops, mines, caves, buildings, and bridges. At night, they roost primarily under bridges, and in caves and mines. They do not migrate and sometimes awake from hibernation during winter to forage and drink. (Nevada Bat Working Group 2004, CDFG 2002)

Spotted Bat. Spotted bats occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinyon-juniper woodlands, and pine forests. They are closely associated with cliff faces, where they primarily roost. They sometime roost during winter in caves and have been documented roosting in buildings. Spotted bats prey on moths and other flying insects, most often over canyons, riparian vegetation, or open meadows and shrublands. They are not known to congregate as they often forage and roost alone. They do not migrate and sometimes awake from hibernation during winter to forage and drink. (Nevada Bat Working Group 2004, CDFG 2002)

Townsend's Western Big-Eared Bat. Townsend's western big-eared bats occupy a variety of habitats, including late-seral stage forests and riparian areas. Foraging habitats are varied, but they primarily prey on moths. These bats roost exclusively in caves, mines, and buildings. Caves need to meet specific microclimatic conditions for successful roosting, and this species is very susceptible to disturbance (Campbell and MacFarlane 2000). Potential habitats for this species include almost all vegetation types; however, the presence of caves, mines, buildings and other human-made structures is essential (Nevada Bat Working Group 2004, CDFG 2002).

Other than buildings, potential roosting and reproduction habitats (e.g., small caves, habitable mines, and other human-made structures) have not been inventoried in the AFO area. Because potential habitat for this species includes almost all vegetation types, quantifying acres of potential habitat for the species is difficult. This bat could forage over literally tens of thousands of acres, depending on the presence of caves and other features.

Northern Sagebrush Lizard

The northern sagebrush lizard (*Sceloporus graciosus graciosus*) is a BLM sensitive species. This lizard is widely distributed in the Great Basin shrub and juniper woodland habitats. It almost exclusively eats small arthropods, especially ants and beetles. When disturbed, it takes cover in low shrubs, boulders, and crevices. It uses the ground, low branches, and rocks for basking. Eggs are laid in a small hole dug a few centimeters deep in loose soil at the base of a shrub. This lizard may use crevices and small rodent burrows for hibernating. It is believed that this lizard does not need free water; it is considered an important prey species for some snakes and predatory birds (CDFG 1999).

Northern sagebrush lizard is common in the region; however, there is little to no information available beyond common sightings regarding lizards on BLM-administered lands in the AFO. No surveys have been conducted for sagebrush lizard or its habitats in the AFO area.

3.25.4 Ungulates

The principal ungulate species that require management consideration in the AFO area include mule deer, black-tailed deer, Rocky Mountain elk, pronghorn antelope, and California bighorn sheep. Habitat relationships for these big game mammals are summarized in Table 3.25-3.

Mule Deer

Habitat for mule deer (*Odocoileus hemionus*) includes early to intermediate successional forests and brushlands; they prefer a mosaic of various-aged vegetation that provides woody cover, meadow and shrubby openings, and free water (Zeiner et al. 1990).

To aid in thermo-regulation, deer use various topographic aspects, south in the winter and north in the summer. Heavy shrub and tree cover also aids in thermo-regulation. Deer need adequate supplies of highly digestible, succulent forage for optimal growth and productivity. (Anderson and Wallmo 1984) According to CDFG (1998), foraging habitat is a limiting factor for mule deer in northeastern California. Important habitats for deer on BLM lands managed by the AFO include all seasonal use ranges. These ranges are important as areas where deer feed in preparation for fawning in spring, and to gain weight for winter. These areas typically support bitterbrush (a key seasonal browse plant), mountain mahogany, oak woodlands, big sagebrush, and juniper; they also should have a good ground cover of forbs.

Long-term studies show that overall deer numbers have been declining for several decades throughout California. Juniper expansion has caused a major decline in understory vegetation and shrub reproduction and health over a large portion of the field office area. High-density juniper is the single most important limiting factor in high-quality deer forage. Without large-scale habitat improvement, the deer population trend is likely to continue downward. BLM and CDFG work together to meet habitat objectives set forth in multiple herd management plans through the region.

Rocky Mountain Elk

Rocky Mountain elk (*Cervus elaphus nelsoni*) eat a wide variety of forage, including grasses, forbs, twigs, and shrubs. This large ungulate is generally found in heavily timbered areas with a dense understory of brush. Woodlands serve as important thermal and hiding cover for the species. In the AFO area lands, this habitat type is satisfied by juniper, aspen, and pine woodlands in proximity to wet meadows. In good elk habitat, the distance between open water should be no more than 2 miles (3.2 km) (Schmidt and Gilbert 1978). During the winter months, elk generally satisfy their water needs by eating snow.

Dense, brushy areas with water close by serve as calving grounds for the elk. The species is known to require relative seclusion from humans; however, management is needed to prevent over-population (CDFG 1999).

Only a few elk are thought to use this area, and there are no established seasonal use areas. Elk continue to increase throughout northeastern California and are expected to continue to increase as vegetation management continues to improve upland and riparian conditions.

Pronghorn Antelope

During pre-settlement, pronghorn (*Antilocapra americana*) were one of the most abundant game species in California; however, by around 1923, there were only approximately 1,000 animals due to "adverse land use and unregulated hunting" (Pyshora 1977). Pronghorn prefer open rangeland types that support a variety of vegetation types. Areas with low shrubs typify summer habitat, with a diversity of native grasses and forbs (Gregg et al. 2001). They do not appear to require open water if there is sufficient moisture in the vegetation (Reynolds 1984, O'Gara 1978). Although forbs are an important component of the diet, browse is the dominant food ingested (Pyshora 1977). Forbs are preferred forage and contribute a high portion of the protein and minerals to the pronghorn diet. Pronghorn benefit from management that favors forb production. Pronghorn also make extensive use of alfalfa fields for feeding and bedding, where these are available.

Surveys conducted in 2003 for pronghorn found that the overall population had reached the lowest point in several decades (Shinn, personal communication).

Several years of drought have been the main contributor to the depressed populations. Juniper encroachment and increasing noxious weeds and annual exotic grasses is contributing to poor habitat conditions in some areas.

California Bighorn Sheep

Habitat for California bighorn sheep (*Ovis canadensis californiana*) includes steep, rocky terrain for escape cover and bedding opportunities adjacent to open vegetation for foraging and water. High-quality bighorn sheep habitat (steep areas) generally consists of steep terrain (to discourage predation) located within ¼ mile of water. This species can be found in a variety of habitats, including big and low sagebrush, juniper woodland edges, perennial grasslands, and bitterbrush. Although woodland areas can be used, this species prefers low-growing vegetation in order to better spot predators (CDFG 1999).

Currently, no known populations of California bighorn sheep exist on lands administered by the AFO. There have been re-introductions on nearby districts since the late 1980s. California bighorn sheep are found on the Warner Mountains east of and adjacent to the AFO area.

3.25.5 Native and Nonnative Fish and Aquatic Species

The extent and condition of fish populations and other aquatic species varies considerably between the watersheds in the AFO area. In the drier northern watersheds (Goose Lake and Tulelake/Devils Garden), there is a limited amount of aquatic habitat, and no important habitat areas on BLM-administered land. In the Goose Lake watershed, only a small stretch of Lassen Creek provides aquatic habitat. This small stream section provides important habitat for Goose Lake sucker, Goose Lake tui chub, pit sculpin, speckled dace, Goose lake lamprey, and Goose Lake redband trout. Most of these species use Lassen Creek for spawning (CDFG 1992).

The Madeline Plains watershed also supports a minimal amount of aquatic habitat. Two perennial streams and several ephemeral drainages support primarily dace and roach. CDFG stocks several large reservoirs in the area with trout, bass, and catfish.

The other watersheds in the AFO area (Fall River, Warm Springs/Big Valley, and North Fork/South Fork) contain a more diverse and extensive group of aquatic habitats. More than 20 species of fish are found in these watersheds, including redband and brown trout, dace, roach, lamprey, sculpin, pike minnow, and tui chub. In the North Fork/South Fork watershed, Fitzhugh Creek and Pine Creek provide good trout fishing habitat. The Fall River watershed supports a good coldwater fishery and hosts the protected Modoc sucker and the Shasta crayfish, although these species are not believed to exist on BLM-administered lands. The Warm Springs/Big Valley watershed includes a wide range of fish species, including the protected Modoc sucker. This fish occupies non-critical habitat on BLM-administered land in Ash and Dutch Flat Creeks in the vicinity of Adin.

In summer 2003, aquatic habitats were assessed for 20 streams in the AFO area, and 12 streams were surveyed for fish species presence. The assessment found that most streams lacked sufficient qualities to be rated as good-quality stream habitat for coldwater fish. Instream aquatic species composition overall was generally good except in stream reaches with abundant silt, compared to a standard that 75% of the riffle-rubble of a streambed should be free from sedimentation (Maser and Thomas 1986) in streams supporting native fishes. Sedimentation varied greatly among streams that were assessed. Most streams also lacked adequate pool habitat and quality. Quality was rated based on several factors, including size, depth, and amount and type of pool cover.

Possible pool class ratings ranged from 1 to 5, with 1 having the most favorable attributes. Average pool class rating was 3.9, with an average stream rating between 3 and 5. As a rule of thumb, a 50:50 mix of riffle and pool habitat is considered good for supporting fish populations.

Pools are used for resting, avoiding danger, and as a habitat to escape warmer, shallower water, whereas riffles increase oxygen concentrations and support more numerous, diverse, and larger macro-invertebrates. In surveyed stream reaches, pools occupied 43% of the stream habitat, suggesting good overall habitat quality.

This number, however, must be taken cautiously because surveys occurred over several months when water flows changed dramatically in some streams. Also, different streams naturally have different pool-to-riffle ratios based on geology, topography, and availability of instream substrates (e.g., logs and boulders).

Due to time and budget constraints, not all streams on BLM-administered lands could be surveyed for fish presence and habitat. Sucker roach, speckled dace, redside shiner, brown and redband trout, lamprey, and chub were the most common fish detected. There are no specific measurements of occupied or potential habitat for most fish species, although speckled dace appear to be present in all fourth-order (mid-sized) watersheds in the AFO area. Coldwater fish species are mainly found in the major streams flowing from mountain slopes but can also be found as planted populations in some reservoirs. Coldwater habitats supported rainbow trout, introduced brown trout, and a native redband trout. Approximately 32 miles of coldwater stream are available to the public in the AFO area.

Other small systems either have the potential for coldwater fisheries or are surrounded by private land and therefore are inaccessible to the public. Lack of control of water flows is a challenge for maintaining healthy fish populations. Many fisheries are associated with large, private upstream irrigation reservoirs. Water flows can be sporadic, depending on the irrigation releases.

The differences in flows from the natural timing of runoff, alters food production and spawning characteristics of the streams, often in ways that are not consistent with those needed for fish to maintain healthy instream populations. Raw data have been collected for the assessment of streams for habitat quality and their potential to support native fishes, but these data have not been summarized.

3.25.6 Native Wildlife and Special Habitats

Upland Gamebirds

Native gamebirds within the AFO area include sage-grouse, California quail, mountain quail, mourning dove, and blue grouse. Quail and dove are the most actively hunted species. Habitat varies greatly for these species and encompasses nearly all vegetation types in the AFO area.

California quail are present in many areas in the AFO area and appear to have increased in recent years. Management for quail has included development of brush piles and watering sites. No other special management considerations have been implemented for blue grouse, dove, or mountain quail. Except for sage-grouse lek counts in spring, no surveys for upland gamebirds are conducted in the AFO area.

Waterfowl

Waterfowl occur on almost all water bodies in the AFO area. Persistent water sources (mainly reservoirs and streams) usually contain water during the nesting season, but the amount of vegetation associated with these water sources varies due to prior-year grazing practices and vegetation growth response. Past management for waterfowl included creating nesting islands, installing nest platforms, and installing some fences to exclude livestock.

Interest in waterfowl production and waterfowl hunting has been very high in Modoc County. Waterfowl attract hundreds of people each year into the area for viewing in spring and hunting in fall. Waterfowl production has been declining in the AFO due to lack of maintenance of waterfowl habitat enhancements. Several reservoirs with nesting islands have not received maintenance for many years. Creation of new islands and maintenance of the old islands would benefit production. Fences that were constructed to exclude livestock from waterfowl areas are also in need of maintenance. The potential for waterfowl production in spring is good, but current management has not emphasized maintenance of waterfowl enhancement features.

Other Terrestrial Wildlife

Various sources were used to derive lists of species known to exist in the AFO area. Appendix G shows species known to be present on lands managed by the AFO. Data from earlier BLM land use plans, current surveys, and local knowledge were used to derive the species lists. Some taxa, such as invertebrates, have not been surveyed or have been surveyed only at very low levels. These taxa may exist in high numbers and varieties, but there are no supporting data. Other taxa, such as songbirds, have been surveyed more heavily but only in certain habitats (U.S. Geological Survey 2003). Therefore, trends can be assessed for some areas and habitat types.

3.25.7 Nonnative Wildlife and Invasive Species

Turkey

Only a few wild turkeys (*Meleagris gallopavo*) currently inhabit the AFO area. These small populations were introduced but are currently not managed by BLM or CDFG. No data are available on population trends for this species in the AFO area.

Chukar

Chukar partridge (*Alectoris chukar*) are introduced upland gamebirds that inhabit steep rocky areas that support grasses. No data are available on population trends for this species and very few if any population currently occur in the AFO area.

Invasive Species

No nonnative wildlife and fish species have been identified as management issues for native wildlife within the AFO Area. The nonnative European starling has the potential to compete for nest sites with some native species. The brown-headed cowbird, an obligate parasitic nester native to North America, has expanded its range only recently into the region. The cowbird has affected nesting success of some species in northern California, at least locally (Airola 1985).

A number of nonnative warm water and coldwater sportfish and the bullfrog have been established in waters on BLM-administered lands. Many of these waters have been created or modified by impoundments on public and private lands and by water use practices that favor nonnative species. Non-native species have potential to compete with and prey upon native species of fish and amphibians in these waters.

Table 3.25-3 Special Status and Important Game Species, and Associated Habitat Types, in the Alturas Field Office Area

Species	Special Classification	Streams/ Riparian	White Fir	Ponderosa Pine	Western Juniper	Quaking Aspen	Curlleaf Mountain Mahogany	Tall Sagebrush/ Antelope Bitterbrush/ Snowbrush Ceanothus	Low Sagebrush	Black Greasewood	Shadscale/ Winterfat	Permanent and Seasonally Wet Meadows	Subalpine Bunchgrasses	Barren	Playa	Rock
Bald eagle	Federal – threatened		X	X											X	
Shasta crayfish	Federal – petitioned	X														
Modoc sucker	Federal – petitioned	X														
Lost River and shortnose suckers	Federal – petitioned	X														
Northern spotted owl	Federal – petitioned		X	X												
Pygmy rabbit	Federal – petitioned				X			X	X	X	X					
Oregon spotted frog	State – threatened	X										X				
Yellow-billed cuckoo	State – threatened	X														
Swainson's hawk	State – threatened	X			X				X		X	X				
Bank swallow	State – threatened	X	X		X	X	X	X	X	X		X	X		X	
Greater sandhill crane	State – threatened	X										X				
California bighorn sheep	State – threatened	X		X	X	X	X	X	X	X	X	X	X		X	
Golden eagle	BLM sensitive	X	X	X	X	X	X	X	X	X	X	X	X		X	
Ferruginous hawk	BLM sensitive				X	X	X	X	X	X	X	X	X		X	

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Burrowing owl	BLM sensitive	X			X			X	X	X	X	X	X		X	
Greater sage-grouse	BLM sensitive	X			X		X	X	X	X	X	X			X	
Juniper titmouse	BLM sensitive			X	X											
Tricolored blackbird	BLM sensitive	X										X				
Long-eared myotis	BLM sensitive	X	X	X	X		X	X	X	X					X	
Small-footed myotis	BLM sensitive	X		X				X							X	
Long-legged myotis	BLM sensitive	X	X	X	X		X	X	X	X	X				X	
Yuma myotis	BLM sensitive	X	X	X	X			X	X	X	X				X	
Townsend's western big-eared bat	BLM sensitive	X	X	X				X								
Northern sagebrush lizard	BLM sensitive		X		X		X	X	X	X					X	
Mule deer	None	X	X	X	X	X	X	X	X	X	X	X	X		X	
Rocky Mountain elk	None	X	X	X	X	X	X									
Pronghorn antelope	None	X		X	X		X	X	X	X	X				X	

GLOSSARY, ABBREVIATIONS AND ACRONYMS

Abbreviations and Glossary

Abbreviations

ACEC: Area of Critical Environmental Concern
AFO: Alturas Field Office
AML: Appropriate management level
AMP: allotment management plan
AMR: Appropriate management response
AUM: animal unit month
ATV: all-terrain vehicle
BA: biological assessment
BLM: U.S. Department of the Interior, Bureau of Land Management
BMP: best management practices
BO: biological opinion
BP: before present (in cultural resources discussion)
CAA: Clean Air Act
CDF: California Department of Forestry
CDFG: California Department of Fish and Game
CEQ: Council on Environmental Quality
CFR: Code of Federal Regulations
CRMA: Cultural resource management area
CRMP: Cultural resource management plan
DBH: diameter at breast height
DFC: desired future condition
DOI IB: U.S. Department of the Interior, Information Bulletin
DPA: direct protection area
EA: Environmental Assessment
EIS: Environmental Impact Statement
EO: Executive Order
EPA: United States Environmental Protection Agency
ERMA: extensive recreation management area
ESA: Endangered Species Act
ESI: ecological site inventory
ES&R: emergency stabilization and rehabilitation

FEIS: Final Environmental Impact Statement
FGDC: Federal Geographic Data Committee
FLPMA: Federal Land Policy and Management Act
FPA: Fire Program Analysis
GIS: geographic information system
HFRA: Healthy Forest Restoration Act
HMA: herd management area
IMP: Interim Management Policy for Lands under Wilderness Review
IRN: interim route network
ISA: instant (wilderness) study area
IWM: integrated weed management
KGRA: known geothermal resource area
LD: limited to designated routes (OHV use)
LE: limited to existing routes (OHV use)
LHA: land health assessment
LOP: limited operating period
LUP: land use plan
LRU: land resource unit
LTA: land tenure adjustment
MFP: management framework plan
Mg/L: milligrams per liter
MLRA: Major Land Resource Area
MOA: Memorandum of Agreement
MOU: Memorandum of Understanding
NAGPRA: National American Graves Protection and Repatriation Act
NCA: Black Rock Desert–High Rock Canyon Emigrant Trails National Conservation Area
NEPA: National Environmental Policy Act
NHPA: National Historic Preservation Act
NPAB: Northeast Plateau Air Basin
NPS: National Park Service
NRCS: Natural Resources Conservation Service
NRHP: National Register of Historic Places
NSO: no surface occupancy
NWR: National Wildlife Refuge
OHV: off-highway vehicle

PFC: properly functioning condition

PM: particulate matter (PM10 = PM less than 10 microns in diameter; PM2.5 = PM less than 2.5 microns in diameter)

PRIA: Public Rangelands Improvement Act

PU: planning unit

RAC: resource advisory council

RAMS: Risk Assessment and Mitigation Strategies

RFA: Riparian Functional Assessment

RFD: Reasonably Foreseeable Development

RHA: Rangeland Health Assessment

R&PP: Recreation and Public Purposes Act

RMP: resource management plan

RNA: research natural area

ROG: reactive organic gases

ROS: Recreation Opportunity Spectrum

ROW: right-of-way

S&G: Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing, (July, 2000)

SHPO: State Historic Preservation Officer

SRA: State Responsibility Area

SRMA: special recreation management area

SRP: special recreation permit

SSS: special status species

SYU: Sustained Yield Unit

TCP: traditional cultural property

U.S.: United States

USDA: United States Department of Agriculture

USDI: United States Department of the Interior

USFWS: U.S. Department of the Interior, Fish and Wildlife Service

USFS: United States Forest Service

USGS: United States Geological Survey

VRM: visual resource management

WMA: wildlife management area

WFU: wildland fire use

WSA: wilderness study area

WSR: wild and scenic river

WUI: wildland-urban interface

Glossary

Accelerated Erosion – Soil loss above natural levels resulting directly from human activities. Because of the slow rate of soil formation, accelerated erosion can lead to a permanent reduction in plant productivity.

Access Easement – An easement that allows foot, automobile, or other means of access by the public, including access to private property, and is useful for crossing private lands to access public lands.

Activity Plan – See IMPLEMENTATION PLAN.

Actual Use – The number of livestock actually grazing on a given allotment; the use made of forage by livestock or wildlife without reference to permitted or recommended use.

Adaptive Management – An iterative process, designed to experimentally compare selected management actions by evaluating alternative hypotheses about the ecosystem being managed.

Adaptive management consists of three parts: management actions, monitoring, and adaptation. Management actions are treated as experiments subject to modification. Monitoring is conducted to detect the effects of the management actions. Finally, management actions are refined in response to the enhanced understanding of how the ecosystem responds.

Advisory Council on Historic Preservation (ACHP) – An independent federal agency that serves as the chief policy advisor to the President and Congress on matters concerning historic preservation. Included on the 20 member Council are the heads of several federal agencies including the Secretary of the Interior and the Secretary of Agriculture.

Age Class – (1) A descriptive term to indicate the relative age of plants. (2) Refers to age and class of animals (USDA NRCS 1997); vegetation that is roughly the same age.

Aggregate – Any combination of sand, gravel, and crushed stone in its natural or processed state.

Airshed – An area that shares the same air because of topography, meteorology, and climate; an atmospheric zone potentially influenced by air pollutants from various sources.

Aliquot Part – A tract or other parcel of land definitely located by reference to the division of a United States Government survey township into sections (640 acres), 1/2 sections (320 acres), 1/4 sections (160 acres), half-quarter or 1/8 sections (80 acres), quarter-quarter or 1/16 sections (40 acres), 1/32 sections (20 acres), 1/64 sections (10 acres), 1/128 sections (5 acres), or 1/256 sections (2.5 acres).

Alliance – See VEGETATION ALLIANCE.

Allocation – The process of specifically assigning use between and rationing among competing users for a particular area of public land or related waters.

Allotment (range) – An area of land designated and managed for grazing of livestock (43 CFR Subpart 4100 Grazing Administration-Exclusive of Alaska; General §4100.0-5 Definitions).

Allotment Management Categories – A management approach for allotment lands using three categories based mainly on current rangeland condition: Improve (I), Maintain (M), and Custodial (C). Criteria used to assign each of these management approaches are as follows:

> **Improve –** Allotments generally have the potential for increasing resource production or conditions but are not producing at that potential. There may be conflicts or controversy involving resource conditions and uses, but there are realistic opportunities to improve resource conditions.
>
> **Maintain –** Allotments are in satisfactory resource conditions and are producing near their potential under existing management strategies. There are little or no known resource use conflicts or controversies.
>
> **Custodial –** Allotments usually consist of relatively small acreages or parcels of public land. Often intermingled with larger amounts of nonfederal lands. There should be no known resource conflicts involving use or resource conditions. Typically, opportunities for positive economic returns from public investments are limited on these lands.

Also see RANGELAND HEALTH ASSESSMENT and ALLOTMENT MANAGEMENT PLAN.

Allotment Management Plan (AMP) – A documented program developed as an activity plan, consistent with the definition at 43 U.S.C. 1702(k), that focuses on, and contains the necessary instructions for, the management of livestock grazing on specified public lands to meet resource conditions, sustained yield, multiple use, economic and other objectives (43 CFR Subpart 4100 Grazing Administration-Exclusive of Alaska; General §4100.0-5 Definitions). (Synonymous with a single activity Implementation Plan)

Allowable Cut – The amount of timber that may be harvested from an area over a specified period of time in accord with the management objectives.

All-Terrain Vehicle (ATV) – A motorized off-highway vehicle, designed to travel on four or more low-pressure tires with or without tracks added, with a seat designed to be straddled by the operator and handlebars for steering.

Alluvial fan – A low, outspread, relatively flat to gently sloping mass of sediment, shaped like an open fan and deposited by a stream where it flows from a narrow mountain valley onto a plain or broad valley (SCS 1993).

Alluvium – Unconsolidated rock or sediment deposited by flowing water including gravel, sand, silt, clay, and various mixtures thereof (SCS 1993).

Alternative – One of at least two proposed means of meeting planning objectives.

Analysis of the Management Situation (AMS) – Chapter 3 in BLM's resource management planning process. An AMS describes a planning area's current public land management and suggests opportunities to better manage this land.

Animal Unit – One mature (1,000-pound) cow or the equivalent, based on an average forage consumption of 26 pounds of dry matter per day.

Animal Unit Month (AUM) – The amount of forage needed to sustain one cow, five sheep, or five goats for 1 month (43 CFR Subpart 4100 Grazing Administration-Exclusive of Alaska; General § 4100.0-5).

Annual Plant – A plant that completes its life cycle within a single growing season (FDGC 1997). Also see PERENNIAL PLANT.

Appropriate Management Level (AML) – A minimum and/or maximum number of animals to be on the herd management area (HMA) on December 31 of any given year. The population objective is to ensure a thriving ecological balance among all the users and resources of the HMA such as wildlife, livestock, wild horses, vegetation, water and soil. The population objective (median number of wild horses and burros) for a herd management area (HMA) that will ensure a thriving ecological balance among all the users and resources of the HMA—for example, wildlife, livestock, wild horses, vegetation, water, and soil. This however, is expressed as a range with a minimum and a maximum number of animals that are to be on the HMA. This tells those with a special interest in these animals the lowest number of animals that will be managed for on the HMA. It also insures other resource interests the maximum number of animals to be managed for on the HMA. The objective is to manage within the AML range

Appropriate Management Response (AMR) – The response to a wildland fire based on an evaluation of risks to firefighters and public safety; the circumstances under which the fire occurs, including weather and fuel conditions; natural and cultural resource management objectives; protection priorities; and values to be protected. The evaluation must also include an analysis of the context of the specific fire within the overall local geographic area or national wildland fire situation.

Aquifer – A water-bearing bed or layer of rock, sand, or gravel that contains enough saturated permeable material to conduct groundwater and yield large amounts of water to wells or springs.

Archaeological District – A significant concentration, linkage, or continuity of sites important in history or prehistory.

Archaeological Resources Protection Act of 1979 (ARPA) – A federal law that prohibits the removal, sale, receipt and interstate transportation of archaeological resources obtained illegally (without permits), from federal or Indian lands and authorizes agency permit procedures for investigations of archaeological resources on lands under the agency's control.

Archaeology/Archeology – The scientific discipline responsible for recovering, analyzing, interpreting, and explaining the material culture of the historic and prehistoric past.

Area of Critical Environmental Concern (ACEC) – An area of BLM-administered land where special management attention is needed to do the following:

- to protect and prevent irreparable damage to important historic, cultural, or scenic values and to fish and wildlife or other natural systems or processes; or
- to protect life and provide safety from natural hazards.

Archaeological Site – Any place where human-made or modified artifacts, features, or ecofacts are found.

Artifact – A discrete or portable object manufactured or modified by human. Major artifact categories include lithic, ceramic, organic, and metal.

Assemblage – All the artifacts found in a component of a site.

Association – See VEGETATION ASSOCIATION.

Association – The relationship between an artifact and other archaeological finds (other artifacts, features, faunal remains, datable sediments) within an archaeological deposit.

At Risk – A designation of lands that have a reversible loss in productive capability and increased vulnerability to irreversible degradation according to an evaluation of current conditions of the soil and ecological processes (National Research Council 1994). The at-risk designation may point out the need for more information to better determine the functional status of an attribute.

Authorized Officer – Any Bureau of Land Management employee who has been delegated the authority to perform defined duties.

Available Forage – Forage that can be grazed and still allow sustained forage production on rangeland. Available forage may or may not be authorized for grazing.

Avoidance Areas – Areas with sensitive resources where rights-of-way and Section 302 permits, leases, and easements would be strongly discouraged. Authorizations made in avoidance areas would have to be compatible with the purpose for which the area was designated and not otherwise feasible on lands outside the avoidance area. Also see EXCLUSION AREAS.

Back Country Byway – A road segment designated as part of the National Scenic Byway System.

Backfire – A fire set along the inner edge of a fireline to consume the fuel in the path of a wildfire and/or change the direction or force of the fire's convection column.

Band (of horses) – An organized social group of horses in the wild, based on the family unit. A band normally contains a dominant stallion, mares, and juveniles. Young stallions that have been expelled from the family units, old stallions, and stallions not strong enough to defend a group of mares often form a somewhat cohesive unit known as a 'bachelor band'. Old stallions that have lost their mares to younger stallions often stay alone until they die due to old age.

Bare Ground (bare soil) – All land surface not covered by vegetation, rock, or litter (NRCS 1997).

Basal Area –The cross-sectional area of the stem or stems of a plant or all plants in a stand. Herbaceous and small woody plants are measured at or near the ground level; larger woody plants are measured at breast height (4.5 feet above the ground) or other designated height (NRCS 1997).

Base Flow – The portion of stream discharge derived from such natural storage sources as groundwater, large lakes, and swamps but not derived from direct runoff or flow from stream regulation, water diversion, or other human activities.

Base Metal – A metal inferior in value to gold and silver, a term generally applied to the commercial metals such as copper and lead.

Basin – A geographic area drained by a single major stream and consisting of a drainage system of streams and often natural or artificial lakes also referred to as drainage basin, watershed, or hydrographic region.

Basin and Range – A region of north-south trending mountains ranges and valleys encompassing western Utah and essentially all of Nevada. This geologic territory includes virtually all of the Great Basin and extends north to Oregon; south and east through Arizona, New Mexico, and Texas; and all the way into Mexico. The Basin and Range can be differentiated from its surrounding geologic regions by its uplifted and tilted ranges separated by broad elongated basins. The Great Basin forms a unique part of this geologic region because this hydrologic area has no drainage to the ocean.

Best Management Practice (BMP) – Practices based on current scientific information and technology that, when applied during the implementation of management actions, ensure that adverse impacts are minimized. BMPs are generally tailored to site-specific conditions, in order to represent the most effective and practical means to achieve management goals for a given site.

Bioengineering – See SOIL BIOENGINEERING.

Biological Assessment – The gathering and evaluation of information on proposed endangered and threatened species and critical habitat and proposed critical habitat. Required when a management action potentially conflicts with endangered or threatened species, the biological assessment is the way federal agencies enter into formal consultation with the Fish and Wildlife Service and describe a proposed action and the consequences to the species the action would affect.

Biological Diversity (Biodiversity) – The full range of variability within and among living organisms and the ecological complexes in which they occur. Biological diversity encompasses ecosystem or community diversity, species diversity, and genetic diversity. In this document, *biodiversity* refers to species richness defined as a number of species in a given habitat or location across habitats.

Biological Fuels Treatments – Methods of vegetation treatment that employ living organisms to selectively suppress, inhibit, or control herbaceous, and wood vegetation. Examples of such methods include insects; pathogens; and grazing by cattle, sheep, or goats.

Biological Integrity – The ability to support and maintain an integrated, adaptive community with a biological composition and functional organization comparable to a region's natural systems; the measure of a system's wholeness, including presence of all suitable elements and occurrence of all processes at suitable rates. Integrity refers to conditions under little or no human influence. A biota with high integrity reflects natural evolutionary and biogeographic processes.

Biological Opinion – A document that includes the following:

- the opinion of the U.S. Fish and Wildlife Service or the National Marine Fisheries Service as to whether a federal action is likely to jeopardize the existence of a species listed as threatened or endangered, or destroy or adversely modify designated critical habitat,
- a summary of the information on which the opinion is based, and
- a detailed discussion of the effects of the action on listed species or designated critical habitat.

Biologic Crusts – A biological community that forms a surface layer or crust on some soils. This community consists of cyanobacteria (blue-green bacteria), microfungi, mosses, lichens, and green algae. This community performs many important functions, including fixing nitrogen and carbon, maintaining soil surface stability, and preventing erosion. Biologic crusts also influence the nutrient levels of soils and the status and germination of plants in the desert. These crusts are slow to recover after severe disturbance, requiring 40 years or more to recolonize even small areas.

Biomass – The total amount of living plants and animals above and/or below ground in an area at a given time (NRCS 1997); plant material that can be burned as fuel.

Biome – A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions.

Biota – The animal and plant life of a given region.

Biotic Integrity – The capability of a site to support characteristic functional and structural communities in the context of normal variability, to resist loss of this function and structure due to disturbance, and to recover following disturbance (National Research Council 1994).

BLM Sensitive Species – Species designated by a state director, usually in cooperation with the state agency responsible for managing the species and state natural heritage programs, as sensitive. They are those species that: (1) could become endangered in or extirpated from a state. Or within a significant portion of or distribution; (2) are under status review by the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service; (3) are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution; (4) are undergoing significant current or predicted downward trends in population or density such that federal listed, proposed, candidate, or State listed status may become necessary; (5) typically have small and widely dispersed populations; (6) inhabit ecological refugia or other specialized or unique habitats; or (7) are State listed but which may be better conserved through application of BLM sensitive species status (BLM 2001a).

Blowout – An excavation in areas of loose soil, usually sand, produced by wind; a breakthrough or rupture of a soil surface attributable to hydraulic pressure, usually associated with sand boils.

Board Foot – The amount of timber equivalent to a piece of wood 12 inches square and 1 inch thick.

Bole – A tree trunk.

Bone Dry Ton (BDT) (Oven Dry Ton) – The amount of wood that would weigh 2,000 pounds at 0% moisture content.

BP – Before present (in cultural resources discussions).

Browse – The part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption; the act of consuming browse (NRCS 1997).

Brush-Beating – The use of one of several types of flails (special machinery pulled by a tractor) designed to shred brush to eliminate brush competition to allow understory plants to grow with more vigor.

Buffer – A strip of natural plant growth that helps to prevent soil erosion from along a river or stream or around a site; a strip of land where disturbances are not allowed, or are closely monitored, to preserve aesthetic and other qualities next to roads, trails, waterways, and recreation sites.

Bulk Density – Mass (weight) per unit volume of undisturbed soil, dried to constant weight at 105ºC, Usually expressed as grams/cubic centimeter.

Bunch Grass – Any of various grasses in many different genera that grow in clumplike fashion rather than forming a sod or mat.

Burned Area Emergency Stabilization and Rehabilitation (BAER) – A post-fire process. Emergency stabilization (such as seeding to prevent erosion or the establishing of invasive plants) actions are taken within 1 year of a wildland fire for the following purposes:

- to stabilize the site,
- to prevent unacceptable degradation to natural and cultural resources, and
- to minimize threats to life or property resulting from wildland fire.

Rehabilitation (such as tree planting, invasive plant treatments, and fence replacement) actions are taken within 3 years of a wildland fire to repair or improve lands unlikely to recover from wildland fire or to repair or replace minor facilities damaged by fire.

California Department of Fish and Game (CDFG) – The California state agency whose mission is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFG maintains native fish, wildlife, plant species and natural communities for their intrinsic and ecological value and their benefits to people. This includes habitat protection and maintenance in a sufficient amount and quality to ensure the survival of all species and natural communities. CDFG is also responsible for the diversified use of fish and wildlife, including recreational, commercial, scientific, and educational uses (CDFG website).

California National Historic Trail – A trail that stretched from starting points along the Missouri River to points in California and Oregon and was used by more than 200,000 gold seekers and farmers in the 1840s and '50s.

CALVEG – A California statewide system for describing and contrasting vegetation types (alliances) across the state and in mapping their general distributions.

Candidate Species – Plants and animals listed in the *Federal Register* "Notices of Review" that the U.S. Fish and Wildlife Service (USFWS) is considering for listing as threatened or endangered. Two categories are of main concern to BLM:

> **Category 1 –** Taxa for which the USFWS has substantial information on hand to support proposing the species for listing as threatened or endangered. Listing proposals are either being prepared or have been delayed by higher priority listing work.
>
> **Category 2 –** Taxa for which the USFWS has information to show that listing is possibly appropriate. More information is being collected.

Canopy – The vertical projection downward of the aerial portion of shrubs and trees, usually expressed as a percent of the ground so occupied.

Canopy Fuels – The live and dead foliage, live and dead branches, and lichens of trees and tall shrubs that lie above the surface fuels. Also see SURFACE FUELS.

Carrying Capacity – The maximum stocking rate possible without inducing permanent or long-term damage to vegetation or related resources. The rate may vary from year to year in the same area as a result of fluctuating forage production (NRCS 1997).

Casual Use (Mineral Materials) – Extracting mineral materials for limited personal (noncommercial) uses.

Casual Use (Locatable Mining) – Mining that only negligibly disturbs federal lands and resources and does not include the use of mechanized earth moving equipment or explosives or motorized equipment in areas closed to off-highway vehicles. Casual use generally includes panning, nonmotorized sluicing, and collecting mineral specimens using hand tools.

Casual Use (Recreation) – Noncommercial or nonorganized group or individual activities on public land. Casual use does the following:

- complies with land use decisions and designations, i.e. special area designations,
- does not award cash prizes,
- is not publicly advertised,
- poses minimal risk for damage to public land or related water resources, and
- generally requires no monitoring.

Catastrophic Wildfire – Fire that burns more intensely than the natural or historical range of variability, thereby causing unacceptable erosion, fundamentally changing the ecosystem, or destroying communities of rare or threatened species or habitat.

Categorical Exclusion – A category of actions that do not individually or cumulatively have a significant effect on the human environment and that have been found to have no such effect in procedures adopted by a federal agency and for which, therefore, neither an environmental assessment (EA) nor an environmental impact statement (EIS) is required.

Check Dam – A small dam built in a gully or other small water course to decrease the streamflow velocity, minimize channel erosion, promote deposition of sediment and to divert water from a channel.

Chemical Fuels Treatments – The applying of chemicals to control unwanted vegetation.

Cherry Stem – (roads called "cherry stem")—roads extend into a Wilderness Study Area (WSA) but are officially outside the WSA. The WSA boundary follows along the edge of the road at the edge of disturbance – up one side, around the far end and back down the other side. Because the appearance of the WSA boundary around the edge of the road resembles a cherry stem on a map, these types of roads are called "cherry stem" roads.

Chiseling – Breaking or loosening the soil, without inversion, with a chisel cultivator or chisel plow.

Clean Water Action Plan (CWAP) – A plan developed by federal agencies in response to President Clinton's request for a comprehensive plan to revitalize the Nation's commitment to protect and restore water resources.

Climax Condition – The culminating stage in plant succession for a given site where vegetation has reached a highly stable condition. The climax condition perpetuates itself indefinitely unless disturbed by outside forces.

Code of Federal Regulations – The official legal compilation of regulations directing Federal Government agencies.

Collaboration – A cooperative process in which interested parties, often with widely varied interests, work together to seek solutions with broad support for managing public and other lands. Collaboration may or may not involve an agency as a cooperating agency.

Commercial Forest Land – Forested land that can produce new growth at a minimum rate of 20 ft^3/acre/year, excluding lands withdrawn from timber production by statute or administrative regulation.

Commercial Thinning – The harvesting of trees that have reached economic maturity; a silviculture treatment that thins out an overstocked stand by removing trees that are large enough to be sold as products such as poles or fence posts. See THINNING and PRECOMMERCIAL THINNING.

Communication Site – A hilltop or favorable signal receiving and transmitting location where a collection of facilities are located. A facility consisting of a small building and tower, used for transmitting or receiving radio, television, telephone, or other electronic signals.

Community (Plant Community) – An assemblage of plants occurring together at any point in time, while denoting no particular ecological status. A unit of vegetation (FGDC 1997).

Community Pit – A designated mineral materials pit, where anyone with a BLM permit may go to acquire such materials as sand and gravel.

Compaction Layer – A near-surface layer of dense soil caused by the repeated impact on or disturbance of the soil surface. When soil is compacted, soil grains are rearranged to decrease the void space and bring them into closer contact with one another, thereby increasing the bulk density (Pellant and others 2000). Also see SOIL COMPACTION.

Component (Cultural Resources) – An association of all the artifacts from one occupation level and one time period at a site.

Composition (Species Composition) – The proportions of plant species in relation to the total in a given area. Composition may be expressed as cover, density, and weight (BLM 1996a).

Condition Class – See FIRE REGIME AND CONDITION CLASS.

Confinement (Confine Strategy) – The strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Containment – The status of a wildfire suppression action signifying that a control line has been completed around the fire, and any associated spot fires, which can reasonably be expected to stop the fires spread.

Conformation (Horse) – The physical appearance of an animal due to the arrangement of muscle, bone, and other body tissue. The sum of these body parts and how they blend together determine the acceptability or unacceptability of the horse's conformation. Good conformation is the overall blending of body parts to form a beautiful athlete.

Connectivity – The degree to which habitats for a species are continuous or interrupted across a spatial extent, where habitats defined as continuous are within a prescribed distance over which a species can successfully conduct key activities, and habitats defined as interrupted are outside the prescribed distance.

Conservation Easement – A legal agreement allowing a landowner to transfer selected property rights to a land trust. The landowner retains title to the property, the easement becomes part of the land deed, and all future property owners will be bound by the terms of the easement.

Consistency – Under the Federal Land Policy and Management Act, the adherence of BLM resource management plans to the terms, conditions, and decisions of officially approved and adopted resource related plans, or in their absence, with policies and programs of other federal agencies, state and local governments and Indian tribes, so long as the plans also conform to the purposes, policies, and programs of federal laws and regulations that apply to BLM-administered lands (BLM 2000b).

Contact – Contact with Europeans (in cultural resource discussions).

Context – The position of an archaeological find in time and space, established by measuring and assessing its associations, matrix, and provenience.

Conveyance – In real property law, a transfer of legal title to land; an instrument, such as a deed, by which interest in real property is created or by which title to real property is transferred from grantor to grantee.

Cooperating Agency – An agency that helps the lead federal agency develop the environmental analysis for a proposed major action. U.S. Council on Environmental Quality regulations implementing the National Environmental Policy Act (NEPA) define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA. Any North American Indian tribe or federal, state, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency. Cooperating agency status is generally formalized through a memorandum of understanding between BLM and the cooperating agency.

Cooperative Management Agreement – A document that describes agreements made between BLM and the public on adjusting grazing use. This document also defines the specific adjustments and the schedule of adjustments (usually over a 5-year period).

Cooperative Weed Management Area – An organization that brings together landowners and private, county, state, and federal managers within a watershed or other geographic area to combine expertise, energy, and resources to implement on the ground a comprehensive weed management program.

Coordinated Resource Management – An approach to reaching decisions and resolving resource conflicts that can complement any planning or management situation involving mixed land ownership or multiple resource management use. The following are elements common to this approach:

- cooperation and equitable voluntary participation of all affected interests, using a team approach;
- open communication among all participants;
- availability of technical expertise;
- strong and effective local leadership;
- agreement by consensus of the team; and
- commitment to monitoring, reviewing, and revising plans, agreements, and projects to ensure that objectives are met.

Corridor – See DESIGNATED CORRIDOR.

Cover – Any form of environmental protection that helps an animal stay alive (mainly shelter from weather and concealment from predators). Also see SOIL COVER.

Critical Habitat – (1) The specific areas within the geographical area currently occupied by a species, at the time it is listed in accord with the Endangered Species Act, on which are found physical or biological features (i) essential to the conservation of the species and (ii) that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by a species at the time it is listed upon determination by the Secretary of the Interior that such areas are essential for the conservation of the species (50 CFR Part 424-Listing Endangered and Threatened Species and Designating Critical Habitat § 424.02 Definitions).

Cross Fencing – The building of fences across allotments to create more pastures or across pastures to create smaller, easier to manage pastures.

Crown – The upper portion of a tree containing the limbs, twigs, leaves, buds, flowers, and fruit.

Crown Bulk Density – A measure of fuel in the forest canopy used in fire behavior modeling. Crown bulk density is usually calculated by dividing the weight of needles, leaves, and smaller branches by the canopy volume.

Crown Class – an evaluation of an individual tree's crown in relation to its position in the canopy and the amount of full sunlight it receives. The four recognized categories are dominant (D), co-dominant (C), intermediate (I), and overtopped or suppressed (S).

Crown-Sprouting – Growing shoots from a root crown (large vegetative mass just below the soil surface in some plants) after a fire or other disturbance.

Cultural Landscape – A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Cultural Matrix – A cultural resource site's composition in cultural layers. For example, the removal of vegetation from a site and the resulting erosion can mix artifacts from different layers and disturb or destroy a site's cultural matrix and the information it may contain.

Cultural Resource – Any definite location of past human activity identifiable through field survey, historical documentation, or oral evidence, including archaeological or architectural sites, structures, or places; and places of traditional cultural or religious importance to specified groups, whether or not represented by physical remains.

Cultural Resource Data – Cultural resource information embodied in material remains and manifested in studies, notes, records, diaries, analyses, and published and unpublished manuscripts.

Cultural Resource Integrity – The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period.

Cultural Resource Inventory (Survey) – A descriptive listing and documentation, including photographs and maps of cultural resources. Also included in an inventory are the processes of locating, identifying, and recording sites, structures, buildings, objects, and districts through library and archival research, information from persons knowledgeable about cultural resources, and on-the-ground surveys of varying intensity. The three classes, or levels, of cultural resource inventories (surveys) are the following:

Class I – A professionally prepared study that compiles, analyzes, and synthesizes all available data on an area's cultural resources. Information sources for this study include published and unpublished documents, BLM inventory records, institutional site files, and state and National Register files. Class I inventories may have prehistoric, historic, and ethnological and sociological elements. These inventories are periodically updated to include new data from other studies and Class II and III inventories.

Class II – A professionally conducted, statistically based sample survey designed to describe the probable density, diversity, and distribution of cultural properties in a large area. This survey is achieved by projecting the results of an intensive survey carried out over limited parts of the target area. Within individual sample units, survey aims, methods, and intensities are the same as those applied in Class III inventories. To improve statistical reliability, Class II inventories may be conducted in several phases with different sample designs.

Class III – A professionally conducted intensive survey of an entire target area aimed at locating and recording all visible cultural properties. In a Class III survey, trained observers commonly conduct systematic inspections by walking a series of close-interval parallel transects until they have thoroughly examined an area.

Cultural Resource Management Area (CRMA) – A geographic area which contains concentrated numbers of prehistoric and/or historic archaeological sites that exhibit unique or important characteristics and that require management for preservation, interpretation, education, and research. This is a local field office discretionary designation, and does not imply any additional policy restrictions to land uses. See Cultural Resource Management Plan.

Cultural Resource Management Plan (CRMP) – A plan designed to inventory, evaluate, protect, preserve, or make beneficial use of cultural resources and the natural resources that figured significantly in cultural systems. The objectives of such plans are the conservation, preservation, and protection of cultural values and the scientific study of those values.

Cultural Site – A physical location of past human activities or events, more commonly referred to as an archaeological site or a historic property. Such sites vary greatly in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features.

Cumulative Impacts – The effect on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. The following: Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508-Terminology and Index § 1508.7 Cumulative Impact).

Debitage – The sharp-edged waste material left when someone creates a stone tool.

Decadent – Being in a state of decline or decay.

Decision Record – A manager's decision on a categorical exclusion review or an environmental assessment. Comparable to the record of decision for an environmental impact statement, the decision record includes: (1) a finding of no significant impact, (2) a decision to prepare an environmental impact statement, or (3) a decision not to proceed with a proposal. Also see RECORD OF DECISION.

Defensible Space – A natural or human-made area where material that can cause a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area of at least 30 feet around a structure that is cleared of flammable brush or vegetation.

Deferred Grazing – Postponing grazing or resting an area for a prescribed period, usually to meet a specific management objective (NRCS 1997). Also see REST.

Deferred-Rotation Grazing – Any grazing system that provides for a systematic rotation of the deferment among pastures. The time of the rest period generally changes in succeeding years (NRCS 1997).

Deposition Area – An area offsite from where the original soil erosion occurred that now has the soil deposits from the original soil erosion area.

Desert Land Entry – An application to acquire title to irrigable arid agricultural public lands for the purpose of reclamation, irrigation, and cultivation in part.

Designated Corridor – BLM's preferred route for placing rights-of-way for utilities (pipelines and power lines) and modes of transportation (highways and railroads).

Desired Future Condition – The future condition of land resources on a landscape scale that meet management objectives. Desired future condition is based on ecological (such as desired plant community), social, and economic considerations during the land and resource planning process. Desired future condition is usually expressed as a ecological status of vegetation (species composition, habitat diversity, age, and size classes of species) and desired soil qualities (conditions of soil cover, erosion, compaction, loss of soil productivity).

Desired Plant Community – One of several plant community types that may occupy an ecological site, the one or combination that meets the minimum quality criteria for the soil, water, air, plant, and animal resources, and that meets the landowner's or manager's objective (NRCS 1997); the plant community that has been determined through a land use or management plan to best meet the plan's objective for the site (BLM 1998a).

Diameter at Breast Height (dbh) – The diameter of a tree 4.5 feet above the ground on the uphill side of the tree.

Directional Drilling – The technique of drilling at an angle from the vertical by deflecting the drill bit.

Direct Protection Area (DPA) – A concept developed by federal and state fire protection agencies to help resolve the management and fiscal complexities of wildland fires burning across intermingled and adjacent areas of state and federal responsibility. Within DPAs, federal and state agencies assume fire protection responsibility for the lands of another agency, along with their own. The agencies also, as nearly as possible, represent the other agencies' interests and objectives. Each agency must, therefore recognize, know, and understand each other's mission objectives, policies, and authorities.

> **State Responsibility Areas (SRAs) –** Land in California for which the state is responsible for wildlife fire protection under California Public Resource Code Sections 4125 to 4127. These lands are often referred to as state and private lands.

Federal Responsibility Areas (FRAs) – Land in national forests for which the U.S. Forest Service is responsible, national park land for which the National Park Service is responsible, and public land for which BLM is responsible for wildland fire protection.

Discharge – The rate of flow or volume of water flowing in a stream at a given place or within a given period of time.

Dispersed Recreation – Recreation activities that do not require developed sites or facilities.

Disposal Areas – Broad areas of public lands where BLM generally intends to dispose of existing public lands, either by land exchange or sale.

Dissolved Oxygen (DO) – The amount of free (not chemically combined) oxygen dissolved in water, wastewater, or other liquid, usually expressed in milligrams per liter, parts per million, or percent of saturation. Adequate concentrations of dissolved oxygen are needed for the life of fish and other aquatic organisms and the prevention of offensive odors. Dissolved oxygen levels are considered the most important and commonly employed measure of water quality and indicator of a water body's ability to support desirable aquatic life.

Disturbance Regime – The historic patterns (frequency and extent) of fire, insects, wind, landslides, and other natural processes in an area.

Dominant Species – Plants that, in abundance, coverage, or size, exert a major controlling influence on the conditions of existence for associated species in the ecosystem Also see SUBDOMINANT SPECIES.

Drift Fences – Fences built to prevent livestock from wandering from their allotted range.

Duff – The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

Easement – The right to use land in a certain way granted by a landowner to a second party.

Ecofact – Bones, vegetal matter, pollen, shells, modified soils, or other archaeological finds that though not human manufactured, give important clues as to human behavior or the environmental context of such behavior.

Ecological Health – The degree to which the integrity of the soil and ecological processes of ecosystems are sustained (adapted from National Research Council 1994).

Ecological Potential – The capability of an ecological site to function within a normal range of variation in ecological processes in a state, or after having crossed a threshold. The same capability can also apply to a vegetation alliance and association but most normally applies to an ecological site. Also see STATE and THRESHOLD.

Ecological Processes – Processes that include the water cycle (the capture, storage, and redistribution of precipitation) energy flow (conversion of sunlight to plant and animal matter) and the nutrient cycle (the cycle of nutrients, such as nitrogen and phosphorus through the physical and biotic components of the environment). Ecological processes functioning within a normal range of variation at an ecological site will support specific plant and animal communities (Herrick and others 2005).

Ecological Site (Range Site) – A distinctive kind of land that has specific physical characteristics and that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

Ecological Site Inventory – A resource inventory that involves the use of soils information to map ecological sites and plant communities and the collection of natural resource and vegetation attributes. The sampling data from each of these soil-vegetation units, referred to as site write-up areas (SWAs), become the baseline data for natural resource management and planning.

Ecological Succession – An ecosystem's gradual evolution to a stable state. If, through the ability of its populations and elements, an ecosystem can absorb changes, it tends to persist and become stable through time.

Ecosystem – A dynamic complex of plant, animal, fungal, and microorganism communities and their associated nonliving environment interacting as an ecological unit (Noss and Cooperrider 1994).

Ecosystem Diversity – The variety of species and ecological processes that occur in different physical settings.

Ecosystem Management – Any land-management system that seeks to protect viable populations of all native species, perpetuate natural-disturbance regimes on the regional scale, adopt a planning timeline of centuries, and allow human use at levels that do not result in long-term ecological degradation (Noss and Cooperrider 1994).

Ecotourism – Tourism that essentially focuses on natural rather than developed attractions with the goal of enhancing the visitor's understanding and appreciation of nature and natural features. Such tourism often attempts to be environmentally sound and to contribute economically to the local community.

Effects – Effects and impacts in the regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Effects include

- Direct effects, which are caused by the action and occur at the same time and place and
- Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.

Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate and are related effects on air and water and other natural systems, including ecosystems (40 CFR Part 1508-Terminology and Index).

Electrofishing – A fish sampling technique using electric currents and electric fields to control fish movement and/or immobilize fish, allowing capture.

Eligible River – A river or river segment found—through interdisciplinary team and, in some cases, interagency review—to meet Wild and Scenic River Act criteria of being free-flowing and having one or more outstandingly remarkable values.

Endangered Species – Any species defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range and published in the *Federal Register* (50 CFR Part 424-Listing Endangered and Threatened Species and Designating Critical Habitat § 424.02 Definitions). Also see THREATENED SPECIES.

Entry – An application to acquire title to public lands.

Environmental Assessment (EA) – A concise public document for which a federal agency is responsible. An EA serves (1) to briefly provide enough evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI), and to aid an agency's compliance with the National Environmental Policy Act (NEPA) when no EIS is needed; and (2) to facilitate preparing an EIS when one is needed. Also see ENVIRONMENTAL IMPACT STATEMENT and FINDING OF NO SIGNIFICANT IMPACT (FONSI).

Environmental Impact – The positive or negative effect of any action upon a given area or resource.

Environmental Impact Statement (EIS) – A detailed written statement as required by section 102(2)(C) of the National Environmental Policy Act (40 CFR Part 1508-Terminology and Index).

Environmental Justice (EJ) – The fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income in developing, implementing, and enforcing environmental laws, regulations, and policies.

Ephemeral Stream – A stream that flows only in direct response to precipitation, and whose channel is at al times above the water table (BLM 1993).

Erosion – The wearing away of the land surface by running water, waves, or moving ice and wind, or by such processes as mass wasting and corrosion (solution and other chemical processes). The term "geologic erosion" refers to natural erosion processes occurring over long (geologic) time spans. "Accelerated erosion" generally refers to erosion in excess of what is presumed or estimated to be naturally occurring levels, and which is a direct result of human activities (SCS 1993).

Ethnographic – See ETHNOLOGY.

Ethnology – The branch of cultural anthropology that deals with the scientific investigation of living cultures. Ethnology's main data collection technique is participant observation–living with the people being investigated with the intention of full immersion in their culture. Such research is called ethnography.

Eutrophication – The process of enrichment of water bodies by nutrients. Eutrophication of a lake normally contributes to its slow evolution into a bog or marsh and ultimately to dry land. Eutrophication may be accelerated by human activities.

Even Aged Management – Timber management that creates stands of trees that are essentially the same age.

Excess Animals – Wild, free-roaming horses or burros that (1) have been removed from an area by the Secretary of the Interior pursuant to application of law, or (2) must be removed from an area to preserve and maintain a thriving natural ecological balance and multiple use relationship in that area.

Exclosures – Areas of land enclosed by a fence for the purpose of excluding all animals or specified species or groups of animals. Exclosures serve as control areas where biotic factors can be measured, recorded, and evaluated. These can be compared with plots in adjacent areas to which the excluded animals do have access (BLM 1989b).

Exclusion Areas – Areas with sensitive resources where rights-of-way, Section 302 permits, leases, and easements would not be authorized. Also see AVOIDANCE AREAS.

Executive Order 11644 as Amended by Executive Order 11989 – Executive orders (signed respectively by President Nixon in 1972 and President Carter in 1977) issued to control the use of off-highway vehicles on public lands, protect resources, promote the safety of public land users, and minimize conflicts among uses. The order requires federal agencies to monitor the effects of OHV use and to close areas or trails to OHVs if it is determined that their use will damage the soil, vegetation, wildlife, wildlife habitat, or cultural or historic resources.

Existing Ways – Routes inventoried in the 1979 BLM roadless area inventory.

Exotic – All species of plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States (EO 11987 1977).

Extensive Recreation Management Area (ERMA) – A resource management plan (RMP) allocation for recreation use made for all BLM land covered by the plan but not otherwise allocated in special recreation management areas.

In ERMAs:

- visitors would engage in dispersed recreation uses;
- management would emphasize self-sufficient exploration and discovery; and
- recreation facilities would be developed only as needed to mitigate the impacts of visitor use, protect resources, and provide visitor information and interpretation needed to meet BLM management goals established in the RMP for land health and customer service. Also see SPECIAL RECREATION MANAGEMENT AREAS.

Extirpated Species – A locally extinct species; a species that is no longer found in a locality, but exists elsewhere (adapted from Noss and Cooperrider 1994).

Facultative – Capable of existing under different conditions or using different modes for nutrition. For example, facultative wetland plants can occur in either wetlands or uplands although they may be more abundant in the wetlands.

Fault Block – A rock mass bounded by faults on at least two sides.

Feature – A nonportable artifact, such as a house, structure, or storage pit, that cannot be removed from a site. Associated with cultural resources.

Fecal Coliform Bacteria – A group of bacteria that are passed through the fecal excrement of humans, livestock, and wildlife. These organisms can enter rivers through runoff. Although these bacteria do not directly cause disease, high amounts of fecal coliform bacteria suggest the presence of disease-causing agents. Possible diseases caused by this type of water contamination include dysentery, typhoid fever, hepatitis, and gastroenteritis.

Federal Candidate Species – Species not protected under the Endangered Species Act, but being considered by the U.S. Fish and Wildlife Service for inclusion on the list of federally threatened or endangered species.

Federal Land Policy And Management Act (FLPMA) – Public Law 94-579, the act that (1) established, for the BLM, standards for managing the public lands including land use planning, sales, withdrawals, acquisitions, and exchanges; (2) authorized the setting up of local advisory councils representing major citizens groups interested in land use planning and management, (3) established criteria for reviewing proposed wilderness areas, and (4) provided guidelines for other aspects of public land management such as grazing.

Federal Proposed Species – Any species of fish, wildlife, or plant that is proposed in the *Federal Register* to be listed under Section 4 of the Endangered Species Act.

Federal Register – The Federal Government's official daily publication for rules, proposed rules, and notices of federal agencies and organizations, as well as executive orders and other presidential documents.

Fee Interest (Fee Simple or Fee Simple Interest) – Full ownership of a piece of land, including all legal rights of the property. Also see LESS-THAN-FEE INTEREST.

Fibre Saturation Point (fsp) – The moisture content of wood at which all free water is lost from cell cavities and only water bound within the cell walls remains; generally between 25 and 30% moisture content; shrinkage occurs only as wood moisture content drops below fsp.

Fifth-Level Watershed – See STREAM ORDER.

Finding of No Significant Impact (FONSI) – A document prepared by a federal agency, usually accompanying an environmental assessment, that briefly explains why a given action will not have a significant effect on the human environment and why an environmental impact statement (EIS) will therefore not be required. Also see ENVIRONMENTAL ASSESSMENT.

Fireline (Control Line) – An inclusive term for all constructed or natural barriers, and treated fire edges used to control a fire. Also called a fire trail.

Fire Management Plan – A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. The fire management plan is supplemented by operational procedures such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

Fire Management Unit – A fire planning unit in which preparedness strategies are designed to meet watershed or resource management objectives, designated by logical fire control or containment criteria such as watershed basins, sub-basins, ridgetops, topographic features, roads, or vegetation changes.

Fire Return Interval (Fire Frequency) – How often fire burns a given area, expressed as the interval or average time between fires (e.g. fire returns to an area every 5 to 7 years).

Fire Regime – A combination of components that characterize fire in a potential natural vegetation group, including frequency, intensity, seasonality, and extent. Historical fire regimes may differ from current fire regimes, measured by Fire Regime Condition Class. There are five fire regime groups:

Group 1	0 – 35 year frequency	Low Severity
Group 2	0 – 35 year frequency	Stand Replacement
Group 3	35 – 100+ year frequency	Mixed Severity
Group 4	35 – 100+ year frequency	Stand Replacement
Group 5	200+ year frequency	Stand Replacement

Fire Regime Condition Class (FRCC) – A qualitative measure describing the degree of departure from reference (historical) fire regimes. Severe departures may result in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused departures: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects or diseases, or other management activities. The three condition classes for a fire regime are the following:

> **Condition Class 1:** Fire regimes in this condition class are mostly within historical ranges. Vegetation composition and structure are intact. The risk of losing key components of the ecosystem from fire is low.
>
> **Condition Class 2:** Fire regimes in this condition class have been moderately altered from their historic range, either by increasing or decreasing the fire frequency. The risk of losing key components of the ecosystem from fire is moderate.
>
> **Condition Class 3:** Fire regimes in this condition class have been significantly altered from their historical return intervals. Vegetation composition, structure, and diversity have been substantially modified. The risk of losing key components of the ecosystem from fire is high.

Fire Retardant – Any substance except plain water that by chemical or physical action reduces flammability of fuels or slows their rate of combustion.

Fire Suppression – Suppression of wildfires under full suppression or appropriate management response criteria. Also see APPROPRIATE MANAGEMENT RESPONSE.

Fishery – Habitat that supports the propagation and maintenance of fish.

Flag-and-Avoid Approach – An approach to or tactic in cultural resource management under which a cultural resource site is marked with flagging and then avoided.

Flat Rock – Volcanic decorative rock occurring in relatively thin (often less than an inch) layers in northeast California and used for construction, landscaping, and Native American ceremonies.

Forage – All browse and herbage that is available and acceptable to grazing animals or that may be harvested for feed**;** the act of consuming forage (NRCS 1997).

Forb – Any broad-leafed herbaceous plant that is not a grass, sedge, or rush (NRCS 1997).

Forestlands – Land on which the historic climax plant community is dominated by trees (NRCS 1997).

Fourth-Level Watershed – A sub-basin category in the hydrologic unit hierarchy. The average size of a sub-basin is about 450,000 acres. Also see STREAM ORDER.

Free Use Permit – A permit that allows the removal of timber or other resources from the public lands free of charge.

Fuel Break – A wide strip or block of land on which the native vegetation has been permanently modified so that fires burning into it can be easier to extinguish. In area where cheatgrass is widespread, landowners or managers may install fuel breaks of some other, less fire-prone vegetation to reduce fire spread.

Fuel Load (in fire ecology) – The oven-dry weight of fuel per unit area, usually expressed in tons/acre.

Fuel Loading – The amount of fuel present expressed by weight of fuel per unit area.

Fuel Model – A standardized description of fuels available to a fire based on the amount, distribution, and continuity of vegetation and wood. This information is used for rating fire danger and predicting fire behavior.

Fuel Moisture Content (Fuel Moisture) (in fire ecology) – The water content of a fuel expressed as a percentage of the fuel's oven dry weight. For dead fuels, which have no living tissue, moisture content is determined almost entirely by relative humidity, precipitation, dry-bulb temperature, and solar radiation. The moisture content of live fuels is physiologically controlled within the living plant.

Fuelwood – Trees used for the production of firewood logs or other wood fuel.

Full Suppression – An appropriate management response to wildfire (or an escaped wildland fire use or prescribed fire) that results in curtailment of fire spread and eliminates all identified threats from the particular fire.

Functional Plant Community – A suite or group of species that–because of similar shoot or root structure, photosynthetic pathways, nitrogen-fixing ability, or life cycle–are grouped together on an ecological basis.

Functional/Structural Groups – A suite of species that because of similar shoot (height and volume) or root (fibrous versus tap) structure, photosynthetic pathways, nitrogen fixing ability, or life cycle are grouped together on an ecological site basis (Pellant and others 2000)

Functioning – Refers to health attributes where most of the associated indicators are functioning properly relative to the ecological site description or ecological reference area, given the normal range of variability associated with the site and climate (Pellant and others 2000).

Fundamentals of Rangeland Health – As described in 43 CFR 4180, the conditions in which rangelands are in properly functioning physical condition, ecological processes are supporting healthy biotic populations and communities, water quality is meeting state standards and BLM objectives, and special status species habitat is being restored or maintained.

Gather – The operation in which wild horses are herded to collection points and excess animals are removed either to the adoption system or to holding facilities outside the area.

Geophysical Survey – A scientific method of prospecting that measures the physical properties of rock formations. Common properties investigated include magnetism, specific gravity, electrical conductivity, and radioactivity.

Geographic Information System (GIS) – A computer application used to store, view, and analyze geographical information, especially maps.

Geomorphology – The science dealing with the form and surface configuration of the solid earth. Geomorphology is mainly an attempt to reveal the complex interrelationships between the origin of surface features and the causes of the surface alteration.

Geothermal Energy – Energy produced by tapping the earth's internal heat from hydrothermal convection systems, where water or steam transfers the heat from the deeper part of the earth to the areas where the energy can be tapped.

Global Positioning System (GPS) – A system for providing precise locations for points on the Earth's surface, which is based on data transmitted by satellites.

Goal – A broad statement of a desired outcome. Goals are usually not quantifiable and may not have established timeframes for achievement. Also see OBJECTIVE.

Grandfathered – The status accorded certain properties, uses, and activities that legally existed before the adoption of a law, regulation, or restriction and therefore are not required to adhere to the law, regulation, or restriction. See, for example, VALID EXISTING RIGHTS.

Gravitational Creep – The slow mass movement of soil and soil material down relatively steep slopes, mainly under the influence of gravity but facilitated by saturation with water and alternating freezing and thawing.

Grazing Allotment – See ALLOTMENT.

Grazing Capacity – See CARRYING CAPACITY.

Grazing Cycle – The amount of time required for livestock to rotate completely through all the pastures in an allotment management plan.

Grazing Permit/License/Lease – A contractual agreement between BLM and another party that permits grazing of a specific number, kind, and class of livestock for a specified period on a defined rangeland. The permit allows fee-based use of public land, subject to permit stipulations and annual adjustment based on current rangeland condition.

Grazing Privileges – The use of public land for livestock grazing under permits or leases.

Grazing Rest – See REST.

Grazing Season – An established period for which grazing permits are issued.

Grazing System – A specialization of grazing management that defines systematically recurring periods of grazing and deferment for two or more pastures or management units. Examples of grazing systems include rest-rotation grazing, deferred grazing, deferred rotation grazing (BLM 1989a).

Great Basin – The Great Basin Desert, the largest U. S. desert, covers an arid expanse of about 190,000 square miles and is bordered by the Sierra Nevada Range on the west and the Rocky Mountains on the east, the Columbia Plateau to the north and the Mojave and Sonoran deserts to the south.

This is a cool or "cold desert" due to its more northern latitude, as well as higher elevations (at least 3,000 feet, but more commonly from 4,000 to 6,500 feet). Precipitation, generally 7-12 inches annually, is more evenly distributed throughout the year than in the other three North American deserts. Winter precipitation often falls as snow.

Playas are a conspicuous part of this desert, due to its recent geological activity. In notable contrast to the other three deserts, Great Basin vegetation is low and homogeneous, often with a single dominant species of bush for miles. Typical shrubs are Big Sagebrush, Blackbrush, Shadscale, Mormon-tea and greasewood. There are only occasional yuccas and very few cacti.

Green Stripping – A common term for a vegetation fuel break system that consists of planned corridors of vegetation to break up large blocks of highly flammable species such as cheatgrass, to improve fire suppression effectiveness. These breaks are planned to be compatible with, and take advantage of, resource development such as seedings and natural barriers (BLM 1985).

Green Timber – Freshly felled or undried timber with its moisture content above the fibre saturation point.

Ground Cover – See SOIL COVER.

Ground Fuel – All combustible materials below the surface litter that normally support a glowing combustion without flame, including duff, tree or shrub roots, punchy wood, peat, and sawdust.

Groundwater – Subsurface water that is in the zone of saturation. The top surface of the ground water is the water table. Groundwater is the source of water for wells, seepage, and springs (NRCS 1997).

Growing Stock – Live sawtimber trees and smaller trees capable of growing into sawtimber trees that meet certain standards of quality.

Guidelines – Practices, methods, or techniques determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting standards. Guidelines are tools such as grazing systems, vegetation treatments, or improvement projects that help managers and permittees achieve standards. Guidelines may be adapted or modified when monitoring or other information finds that they are not effective, or a better means of achieving the applicable standard becomes appropriate (USDI 4180). Guidelines for grazing were developed by the Northeast California Resource Advisory Council (RAC) in cooperation with the California State Director. These were given National Environmental Policy Act analysis in the *Rangeland Health Standards and Guidelines for California and Northwestern Nevada Final Environmental Impact Statement* (Appendix B).
Off-highway vehicle (OHV) guidelines developed by the Northeast RAC are a part of this RMP and EIS. Guidelines can only be changed through cooperation between the State Director and the Northeast California RAC and with the approval of the Secretary of the Interior (43 CFR §4180.2).

Guidelines for Livestock Grazing – Livestock grazing management grazing tools, methods, strategies, and techniques designed to maintain or achieve healthy public lands; as defined by the Standards for Rangeland Health (Appendix B). Guidelines for Livestock Grazing within Northeastern California and Northwestern Nevada were developed by the State Director in consultation with the Northeast California Resource Advisory Council (RAC) as directed in 43 CFR Subpart 4180-Fundementals of Rangeland Health and Standards and Guidelines for Grazing Administration § 4180.2 Standards and guidelines for grazing administration. The Eagle Lake Field Office RMP will establish Guidelines for OHV Use which were also developed by the State Director in consultation with the Northeast California RAC.

Guild – A group of species having similar ecological resource requirements or foraging strategies.

Gully – A very small channel with steep sides cut by running water ordinarily runs only after rain or ice or snow melt. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage (SCS 1993).

Guzzler – A device for collecting and storing precipitation for use by wildlife or livestock. A guzzler consists of an impenetrable water collecting area, a storage facility, and a trough from which animals can drink (NRCS 1997).

Habitat – A specific set of physical conditions that surround a species, group of species, or a large community. Wildlife management considers the major constituents of habitat to be food, water, cover, and living space.

Habitat Connectivity – The degree to which similar habitats are linked.

Habitat Diversity – The number of different types of habitat within a given area.

Habitat Maintenance – The care and preserving of the biological resources of conserved habitat, which occur naturally or are created through habitat enhancement techniques.

Habitat Management Plan – A written and approved activity plan for a geographic area of public lands that identifies wildlife habitat management actions to be implemented in achieving specific objectives related to resource management plan/management framework plan planning document decisions (a single-activity form of an implementation plan).

Healthy Forests Initiative – An initiative launched in August 2002 by President Bush to reduce the risks that severe wildfires pose to people, communities, and the environment. The initiative proposes that protecting forests, woodlands, shrublands, and grasslands from unnaturally intensive and destructive fires helps improve the condition of public lands, increases firefighter safety, and conserves landscape attributes valued by society.

Hedging – The appearance of browse plants that have been browsed so as to appear artificially clipped. The consistent browsing of terminal buds of browse species causes excessive lateral branching and a reduction in upward growth.

Herbaceous – Of, relating to, or having the characteristics of a vascular plant that does not develop woody tissue; nonwoody vegetation such as grasses and forbs.

Herbivory – The eating of plants by animals.

Herd – One or more stallions and his mares and associated bachelor bands.

Herd Area – A geographic area occupied by a wild horse or burro and its habitat in 1971.

Herding – The controlled movement of livestock.

Herd Management Areas (HMAs) – A geographic area of a suitable size and location to provide adequate range for a herd, or herds, occupying the area.

Hibernaculum – The place where an organism spends the winter.

High Site – In forestry, a site that has a higher site index (will grow a tree faster) than a low site. Being a high or low site is a quality that is relative to another site, for example relative from juniper to juniper, pine to mixed conifer, or any site to another. A high juniper site might have a site index of 30, whereas a low juniper site might have a site index of 15. But the high juniper site is a low site when compared to a Douglas-fir low site, which has a site index of 60. See SITE INDEX.

Historic District – An area that generally includes within its boundaries a significant concentration of properties linked by architectural style, historical development, or a past event.

Historic Integrity – See CULTURAL RESOURCE INTEGRITY.

Home Range – The area in which an animal travels in the scope of natural activities; the established territory of a wild animal such as wild horses. An HMA may include home ranges for a number of different bands of horses or home ranges may overlap.

Hydrologic Function (Stability) – The capacity of a site to capture, store, and safely release water from rainfall, run-on, and snowmelt; to resist a reduction in this capacity; and to recover this capacity following degradation. Hydrologic function is one of the three attributes of rangeland health.

Impacts – See EFFECTS.

Implementation Plan – A site-specific plan written to implement decisions made in a land use plan. An implementation plan usually selects and applies best management practices to meet land use plan objectives. Implementation plans are synonymous with "activity" plans. Examples of implementation plans include interdisciplinary management plans, habitat management plans, and allotment management plans.

Incised Channel – A channel that has been cut through the bed of the valley floor and formed by the process of degradation, as opposed to one flowing on a floodplain.

Indian Trust Resource – Any resource in collective tribal holding or individual ownership for which the Secretary of the Interior has a continuing trust responsibility to manage in a manner to benefit the respective tribe or individual. The most common example is extractive resources on a reservation. Some trust lands were set aside as compensation for claims made against the Government, most of which are off-reservation.
(Adapted from: Forest Service National Resource Guide to American Indian and Alaska Native Relations at http://www.fs.fed.us/people/tribal/) Also see TRUST ALLOTMENT and TRUST RESPONSIBILITY.

Infiltration – The downward entry of water into the soil or other material.

Infrastructure – The set of systems and facilities that support a region or community's social and economic structures. Examples of such systems include energy, transportation, communication, education, medical service, and fire and police protection.

Ingrowth – The process whereby previously open forest becomes more dense and treed grassland become more densely covered with young trees.

Inholdings – Parcels of land owned or managed by someone other than BLM, but surrounded in part or entirely by BLM-administered land.

Initial Attack – The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

Instant Study Areas (ISAs) – Lands that were previously classified as natural or primitive areas and were determined to be ISAs under Section 603 of the Federal Land Policy and Management Act.

Instream Water Right – The right to maintain water in-stream for public use. An instream water right does not require a diversion or any other means of physical control over the water.

Instream Water Use – Typically nonconsumptive uses of water that do not require diversion from its natural watercourse (e.g. fish and other aquatic life, recreation, navigation, esthetics, and scenic enjoyment). Hydroelectric power production is also considered nonconsumptive but may require temporary diversion from the natural streamflow.

Integrated Weed Management Program (IWMP) – A noxious and invasive plants program that emphasizes prevention and education and implements cultural, physical, biological, and chemical treatments to reduce or eliminate weeds.

Interim Management Policy for Lands under Wilderness Review (IMP) (BLM 1995 – BLM's strategy for managing wilderness study areas following their recommendation for designation but before Congress designates them as wilderness or releases them to multiple use management.

Intensive Grazing Management – Grazing management that uses livestock as a tool to meet some objective by using rest or rotational grazing practices. Objectives could be to restore plant composition, increase forage production, or increase animal production. It generally will be done with additional investment in labor, capital and other resources.

Inter-Basin Water Transfer – The import or export of water from one basin to another. Also see BASIN.

Interim Management Policy for Lands under Wilderness Review (IMP) – A document (BLM 1995) that lays out the requirements for managing BLM wilderness study areas so as "not to impair their suitability as wilderness."

Intermittent Stream – A stream or reach of a stream that does not flow year round and that flows only when it receives baseflow solely during wet periods or it receives groundwater discharge or protracted contributions from melting now or other erratic surface and shallow subsurface sources (SCS 1993). See EPHEMERAL STREAM.

Interpretation – Conveying information about the origin, meaning, or values of natural or cultural heritage through live, interactive, or static media. Interpretation occurs near the subject and is designed to stimulate visitor interest, increase understanding, and promote support for conservation.

Invasive Species – An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112 1999).

Keystone Species – A species, such as the beaver, that affects the survival and abundance of many other species in its community.

Known Geothermal Resource Area (KGRA) – An area where geothermal resources are known to exist.

Ladder Fuels – Fuels like shrubs and branches that carry the fire from the ground to the tops of trees.

Land Use Authorization – BLM's authorizing through leases, permits, and easements of uses of the public land. Land use authorizations may allow occupancy, recreational residences and cabin sites, farming, manufacturing, outdoor recreation concessions, National Guard maneuvers, and many other uses.

Leasable Minerals – Minerals whose extraction from federally managed land requires a lease and the payment of royalties. Leasable minerals include coal, oil and gas, oil shale and tar sands, potash, phosphate, sodium, and geothermal steam.

Land Capability Classification – The U.S. Department of Agriculture, Natural Resources Conservation Service's eight classes of land capability according to the risk of land damage or the difficulty of land use. These classes range from ***Class I***—Soils with few limitations restricting their use to ***Class VIII***—Soils and landforms that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

Land Health – The degree to which the integrity of the soil and ecological processes of ecosystems are maintained (National Research Council 1994). The degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological processes of ecosystems, are balanced and sustained (Task Group on Unity in Concepts and Terminology 1995).

Land Health Assessment – The estimation or judgment of the status of ecosystem structures, functions, or processes, within a specified geographic are (preferably a watershed or a group of contiguous watersheds) at a specific time. An assessment is conducted by gathering, synthesizing, and interpreting information, from observations or data from inventories and monitoring. An assessment characterizes the status of resource conditions so that the status can be evaluated (see definition of evaluation) relative to land health standards. An assessment sets the stage for an evaluation. An assessment is not a decision (BLM 2001b).

Land Health Standards – Expressions of levels of physical and biological condition or degree of function required for healthy lands and sustainable uses and for defining minimum resource conditions that must be achieved and maintained (BLM 2001b). Standards for rangeland health for northeast California and northwest Nevada were developed by the Northeast California Resource Advisory Council (RAC) in cooperation with the BLM California State Director. These standards were given National Environmental Policy Act (NEPA) analysis in the *Rangeland Health Standards and Guidelines for California and Northwestern Nevada Environmental Impact Statement* (BLM 1998a). The record of decision (BLM 1999b) was signed by the State Director in June 1999 and was approved by the Secretary of the Interior on July 13, 2001. At the same time the record of decision was signed by the BLM California State Director, Instruction Memorandum CA-99-09, dated June 1, 1999, was issued, stating that the rangeland standards applied to all lands managed by the Bureau of Land Management, California, hence Land Health Standards. Land Health Standards can be changed only through cooperation between the California State Director and the Northeast California RAC with the approval of the Secretary of the Interior (43 CFR §4180.2).

Land Resource Units (LRUs) – Geographic areas, usually of several thousand acres, that have a particular pattern of soils, climate, water resources, and land uses.

Landscape – A heterogeneous land area with interacting ecosystems that are repeated in similar form throughout. Landscapes vary in size, down to a few kilometers (miles) in diameter (Forman and Godron 1986).

Landscape Element – The basic, relatively homogeneous, ecological unit, whether of natural or human origin, on land at the scale of a landscape (Forman and Godron 1986).

Landscape Features – The land and water form, vegetation, and structures that compose the characteristic landscape.

Landscape Structure – The distribution of energy, materials, and species in relation to the size, shapes, numbers, kinds, and configuration of landscape elements or ecosystem (Forman and Godron 1986).

Land Use Allocations – The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions (BLM 2005).

Land Use Plan – A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of the Federal Land Policy and Management Act; an assimilation of land-use-plan-level decisions developed through the planning process outlined in 43 CRF 1600, regardless of the scale at which the decisions were developed. Also see RESOURCE MANAGEMENT PLAN.

Late Seral Forest – A forest that has evolved, through successional processes, near to the end of the successional line, or climax forest. Only through disturbance (fire or clear-cutting, for example) will the forest return to an earlier seral (successional) stage.

Leasable Minerals – Minerals whose extraction from federally managed land requires a lease and the payment of royalties. Leasable minerals include coal, oil and gas, oil shale and tar sands, potash, phosphate, sodium, and geothermal steam.

Leave No Trace – A nationwide (and international) program to help visitors with their decisions when they travel and camp on America's public lands. The program strives to educate visitors about the nature of their recreational impacts as well as techniques to prevent and minimize such impacts.

Lek – Traditional small open areas usually from 0.04 to 4 ha (0.1 to 10 acres) surrounded by sagebrush where sage-grouse gather to breed. (synonymous with strutting ground) (Call and Maser 1985) Occupied leks are traditional display areas in or next to sagebrush-dominated habitats that have been attended by ≥ two male sage-grouse in ≥ 2 of the previous 5 years (Connelly and others 2000).

Less-Than-Fee Interest – Ownership of land with restricted rights. Also see FEE INTEREST.

Let-Down Fences – Fences that can be taken down but remain in place on the ground when they are not needed.

Life History – The combination of age-specific survival probabilities and fertilities characteristic of a species; the time-table of individual development and aging for a representative organism.

Limited Operating Period – A restriction placed on a management action as to when during the year an event can take place; to protect wildlife species and habitats.

Lithic Scatter – Pertaining to or composed of stones that are dispersed; a form of an archaeological resource.

Litter – The uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetal material (NRCS 1997).

Livestock Trespass – The unauthorized grazing of livestock.

Locatable Minerals – Minerals subject to exploration, development and disposal by staking mining claims as authorized by the Mining Law of l872 (as amended). Locatable minerals include valuable deposits of gold, silver, and other uncommon minerals not subject to lease or sale.

Location – The act of taking or appropriating a parcel of mineral land, including the posting of notices, the recording thereof when required, and marking the boundaries so they can be readily traced.

Low-Income Population – Persons living below the poverty level according to a particular total income for a family household of four persons and based on the most current data from the U.S. Bureau of Census. The average poverty threshold for a family of four in 1999, based on the most recent census data, was $17,029.

Low-Site Forest – Forestland with at least 10% canopy cover and producing < 20 ft^3/acre/year of commercial species. In northeast California, commercial species include Jeffrey pine, ponderosa pine, sugar pine, Washoe pine, Douglas-fir, white fir, and incense cedar. Also see OLD-GROWTH FOREST.

Major Land Resource Areas (MRLAs) – Broad geographic areas that are characterized by a particular pattern of soils, climate, water resources, vegetation, and land use. Each MLRA in which rangeland and forest land occur is further broken into range (ecological) sites (NRCS 1997). Also see LAND RESOURCE UNITS.

Management Actions/Direction – Measures planned to achieve the stated objectives.

Management Activity – An activity undertaken to harvest, traverse, transport, protect, change, replenish, or otherwise use resources.

Management Framework Plans (MFPs) – BLM land use plans that were prepared before 1985 and that have been replaced by resource management plans. Some MFPs are still in effect. Also see LAND USE PLAN and RESOURCE MANAGEMENT PLAN.

Master Title Plat – A plat map showing parcel boundaries and land status of lands, including public lands.

Mastication (Mulching) – In forestry, the chewing up of woody materials into a mulch that remains on the ground, protecting the soil, adding nutrients, and inhabiting the return of shrubs that need bare soil to germinate.

Matrix – The material that surrounds archaeological artifacts before they are excavated.

Mechanical Fuels Treatments – The use of mechanical equipment to suppress, inhibits, or control herbaceous and woody vegetation. BLM uses wheeled tractors, crawler-type tractors, mowers, or specially designed vehicles with attached implements for such treatments.

Mesic – Characterized by having intermediate moisture conditions, i.e. neither decidedly wet nor decidedly dry.

Metadata – Data about data. Data that describes how and when and by whom a particular set of data was collected, and how the data is formatted.

Mineral Entry – The filing of a claim on public land to obtain the right to any minerals it may contain.

Mineral Estate – The ownership of the minerals at or beneath the land's surface.

Mineralization – The processes taking place in the earth's crust resulting in the formation of valuable minerals or ore bodies.

Mineral Materials – Materials such as common varieties of sand, stone, gravel, pumice, pumicite, and clay that are not obtainable under the mining or leasing laws but that can be acquired under the Mineral Materials Act of 1947, as amended.

Mineral Withdrawal – A formal order that withholds federal lands and minerals from entry under the Mining Law of 1872 and closes the area to mineral location (staking mining claims), development, and leasing.

Minimum Pool – The lowest level of reservoir capacity safe for maintaining fish and aquatic life or for some other designated beneficial purpose.

Minimum Tool Principle – A two-part analysis that is a guiding principle applied to wilderness management decisions: (1) Is the action needed to meet legitimate wilderness objectives; and (2) If the action is deemed necessary, what methods and equipment will accomplish the task with least impact on the physical, biological, and social characteristics of wilderness?

Mining Claims – Portions of public lands claimed for possession of locatable mineral deposits by locating and recording under established rules and pursuant to the Mining Law of 1872.

Mining District – An area, usually designated by name, with described or understood boundaries, where minerals are found and mined under rules prescribed by the miners, consistent with the Mining Law of 1872.

Mining Law of 1872 (General Mining Law) – The federal act that, with its amendments, formed the framework for the mining of locatable minerals on the public lands. This law declared that "valuable" mineral deposits rather than simply "mineral deposits" were to be free and open to exploration and purchase, limited individual claims to 20 acres, required $100 worth of assessment work yearly, and allowed milling or processing claims of 5 acres or less to be entered on nonmineral lands.

Minority – Individuals classified by the Office of Management and Budget Directive No. 15 as Black/African, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other nonwhite persons.

Minority Population – Identified as either: (1) the minority population of the affected area exceeds 50%, or (2) population percentage of the affected area is meaningfully greater than the minority population percentage in the state or other appropriate unit of geographic analysis.

Mitigating Measures – Modification of actions that (a) avoid impacts by not taking a certain action or parts of an action; (b) minimize impacts by limiting the degree of magnitude of the actions and its implementation, (c) rectify impacts by repairing, rehabilitating, or restoring the affected environment; (d) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action; or (e) compensate for impacts by replacing or providing substitute resources or environments.

Monitoring – The process of collecting information to evaluate if objectives and anticipated or assumed results of a management plan are being realized or if implementation is proceeding as planned.

Mortality – Death or destruction of forest trees as a result of competition, disease, insect damage, drought, wind, fire and other factors (excluding harvesting).

Motorized Trail – A designated route that allows for the use of small-wheel based motorized vehicles, such as all-terrain vehicles and motorcycles.

Multiple Use – The management of the public lands and their resources so that they are used in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output" (Federal Land Policy and Management Act 1976).

National Ambient Air Quality Standards (NAAQS) – The allowable concentrations of air pollutants in the ambient (public outdoor) air specified in 40 CFR 50. National ambient air quality standards are based on the air quality criteria and divided into primary standards (allowing an adequate margin of safety to protect the public health including the health of "sensitive" populations such as asthmatics, children, and the elderly) and secondary standards (allowing an adequate margin of safety to protect the public welfare). Welfare is defined as including effects on soils, water, crops, vegetation, human-made materials, animals, wildlife, weather, visibility, climate, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.

National Environmental Policy Act of 1969 (NEPA) – The federal law, effective January 1, 1970, that established a national policy for the environment and requires federal agencies: (1) to become aware of the environmental ramifications of their proposed actions, (2) to fully disclose to the public proposed federal actions and provide a mechanism for public input to federal decision making, and (3) to prepare environmental impact statements for every major action that would significantly affect the quality of the human environment.

National Fire Plan (NFP) – A plan developed in August 2000 to actively respond to severe wildland fires and their impacts to communities while ensuring enough firefighting capacity for the future. The NFP addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability.

National Historic Preservation Act, As Amended (NHPA) – A federal statute that established a federal program to further the efforts of private agencies and individuals in preserving the Nation's historic and cultural foundations. The National Historic Preservation Act: (1) authorized the National Register of Historic Places, (2) established the Advisory Council on Historic Preservation and a National Trust Fund to administer grants for historic preservation, and (3) authorized the development of regulations to require federal agencies to consider the effects of federally assisted activities on properties included on or eligible for the National Register of Historic Places. Also see NATIONAL REGISTER OF HISTORIC PLACES and SECTIONS 106 and 110 OF THE NATIONAL HISTORIC PRESERVATION ACT.

National Historic Trails – Federally designated extended trails that closely follow original routes of nationally significant travel (explorers, emigrants, traders, and military). These trails do not have to be continuous, can be less than 100 miles long, and can include land and water segments. The Iditarod, Lewis and Clark, Mormon Pioneer, and Oregon Trails were the first national historic trails to be designated (in 1978).

National Pollutant Discharge Elimination System (NPDES) – A process for controlling the amount of pollution discharged into waters by requiring polluters to obtain NPDES permits from the states involved and to comply with discharge standards. The NPDES is mandated by the Federal Water Pollution Control Act Amendments.

National Recreation Trails – Trails that provide a variety of outdoor recreation uses in or reasonably accessible to urban areas and recognized by the Federal Government (Secretary of the Interior or Secretary of Agriculture, not Congress) as contributing to the National Trails System.
National Register – See NATIONAL REGISTER OF HISTORIC PLACES.

National Register of Historic Places – The official list, established by the National Historic Preservation Act, of the Nation's cultural resources worthy of preservation. The National Register lists archeological, historic, and architectural properties (i.e., districts, sites, buildings, structures, and objects) nominated for their local, state, or national significance by state and federal agencies and approved by the National Register Staff. The National Park Service maintains the National Register. Also see NATIONAL HISTORIC PRESERVATION ACT.

National Trails System – The network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These trails provide for outdoor recreation needs; promote the enjoyment, appreciation, and preservation of open-air, outdoor areas, and historic resources; and encourage public access and citizen involvement.

National Wild And Scenic Rivers System – A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historical, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams: (1) recreation—rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and may have undergone some impoundments or diversion in the past; (2) scenic—rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads; and (3) wild—rivers or sections of rivers free of impoundments and generally inaccessible except by trails with watersheds or shorelines essentially primitive and waters unpolluted.

Native Species – A plant or animal species that naturally occurs in an area and was not introduced by humans.

Naturalize – To plant randomly, without a pattern to create the effect that the plants grew in that space without human help.

Naturalized Species – Those exotic species which are already occurring within defined areas in a self-sustaining wild state (e.g. English sparrow, ring-necked pheasant, chukar, brown trout, crested wheatgrass, red brome, cheat grass, Russian olive, and dandelion) (BLM 1992).

Natural Vegetation Community – Plant communities that develop in the absence of human activities.

Neotropical Migratory Birds – Birds that travel to Central America, South America, the Caribbean, and Mexico during fall to spend the winter and then return to the United States and Canada during spring to breed. These birds include almost half of the bird species that breed in the United States and Canada.

Niche – The place of an organism in its biotic environment; the position or function of an organism in a community of plants or animals; a microhabitat.

Non-Impairment of Wilderness Values Criteria – A set of criteria regulating land use to protect the wilderness values and characteristics of an area until Congress determines whether to preserve it as a wilderness. The nonimpairment criteria are as follows.

- The use, facility, or activity must be temporary. (This means a temporary use that does not create surface disturbance or involve permanent placement of facilities may be allowed if such use can easily and immediately be terminated upon wilderness designation.
- When the use, activity, or facility is terminated, the wilderness values must not have been degraded so far as to significantly constrain the area's suitability for preservation as wilderness.

The only permitted exceptions to the nonimpairment criteria are the following:

- wildfire or search and rescue emergencies,
- reclamation to minimize impacts of violations and emergencies,
- uses and facilities that are considered grandfathered or valid existing rights under the Interim Management Policy for Lands Under Wilderness Review.
- uses and facilities that clearly protect or enhance the land's wilderness values or are the least needed for public health and safety, and
- reclamation of pre-Federal Land Policy and Management Act impacts.

Nonpoint Source Pollution (Water) – Pollution sources that are diffuse and do not have a single point of origin or are not introduced into a receiving water body from a specific outlet. These pollutants are generally carried off the land by storm water runoff from such sources as farming, forestry, mining, urban land uses, construction, and land disposal.

No Surface Occupancy (NSO) – A fluid mineral leasing stipulation that prohibits occupancy or disturbance on all or part of the land surface to protect special values or uses. Lessees may access the oil and gas or geothermal resources under leases restricted by this stipulation through use of directional drilling from sites outside the NSO area.

Notice-Level Operation – A locatable mining or exploration operation involving more than casual use but disturbing an area of 5 acres or less, and therefore requiring that the operator submit only a notice rather than a plan of operations.

Noxious Plant (Weed) – An unwanted plant specified by federal or state laws as being undesirable and requiring control. Noxious weed refers to any plant that, when established, is highly destructive, competitive, or difficult to control by cultural or chemical practices. Noxious weeds are usually non-natives and highly invasive.

Nutrient Cycling (Cycle) – The circulation of chemical elements such as carbon or nitrogen in specific pathways from the nonliving (abiotic) parts of the environment to organic substances (plans and animals), and then back again to abiotic forms.

Objective – A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established timeframes for achievement (BLM 2000b). Also see GOAL.

Obligate – Restricted to one particularly characteristic mode of life.

Obsidian Hydration – A dating method that measures the thickness of the hydration layer or "rind" of obsidian artifacts, because of the way that obsidian absorbs water.

Occupancy Trespass – The illegal occupation or possession of land or property.

Off-Highway Vehicle (OHV) – Any motorized track or wheeled vehicle designed for cross-country travel over natural terrain. OHVs exclude (1) any non-amphibious registered motorboat; (2) any fire, emergency, or law enforcement vehicle while being used for official or emergency purposes; and (3) any vehicle whose use is expressly authorized by a permit, lease, license, agreement, or contract issued by an authorized officer or otherwise approved. (The term "off-highway vehicle" is used in place of the term "off-road vehicle" to comply with the purposes of Executive Orders 11644 and 11989. The definition for both terms is the same.)

Off-Highway Vehicle (OHV) Use Designations

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.

OHV Play – Nearly unrestricted OHV use whose object is more to have fun and excitement and to challenge one's driving skills than to drive anywhere in particular.

OHV Play Area – An area where on- or off-route OHV use is nearly unrestricted. Often attracting many riders, such areas may be on dunes, in sand and gravel pits, and in other areas that present challenges to OHV users.

Old-Growth (Old Forest) – Ecosystems distinguished by old trees and related structural attributes. The age at which old growth develops and the specific structural attributes that characterize old growth vary widely according to forest type, climate, site conditions, and disturbance regime.

Most old growth is typically distinguished from younger growth by several of the following structural attributes: large trees for species and site; wide variation in tree sizes and spacing; accumulations of large, dead, standing and fallen trees (except in forest types with frequent, low-intensity fires); decadence in the form of broken or deformed tops or bole and root decay; multiple canopy layers (in some forest types); and canopy gaps and understory patchiness.

Orographic – Of or relating to mountains; *especially* associated with or induced by the presence of mountains <*orographic* rainfall> Produced by the forced ascent of warm air into cooler regions because a mountain range lies in its path.

Outstandingly Remarkable Values – Values among those listed in Section 1(b) of the Wild and Scenic Rivers Act: "scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values." Other similar values that may be considered include ecological, biological or botanical, paleontological, hydrological, scientific, or research.

Overstory – The upper canopy or canopies of plants. Overstory usually refers to trees, tall shrubs, and vines (NRCS 1997).

Paleontological Resources – The remains of plants and animals preserved in soils and sedimentary rock. Paleontological resources are important for understanding past environments, environmental change, and the evolution of life.

Particulate Matter – Fine liquid (other than water) or solid particles suspended in the air, consisting of dust, smoke, fumes, and compounds containing sulfur, nitrogen, and metals.

Pasturage – Land covered with grass or other vegetation suitable for grazing animals.

Pasture – A subunit of a grazing allotment established and managed generally by building fences or, less commonly, by actively herding livestock.

Patch – A distinct area, such as a polygon or pixel, with a specific habitat type, cover type, or other homogeneous environmental condition.

Patch Size – The area constituting a separate piece of habitat for a species, where the piece is defined as the pixels (smallest mapping unit used to estimate environmental conditions) of habitat adjacent to one another or by some alternative rule set designed for a species.

Patenting Lands – Transferring lands out of government ownership for the first time.

Payment in Lieu of Taxes (PILT) – Federal payments to local governments to offset their inability to collect taxes for federally owned land.

Pedestal – A relatively slender column of soil or rock that is capped by a wider residual or erosional soil or rock**.**

Perennial Plant – A plant species with a life-cycle that characteristically lasts more than two growing seasons and persists for several years (FGDC 1997). Also see ANNUAL PLANT.

Perennial Stream – A stream or reach of a stream that flows continuously throughout the year and whose surface is generally lower than the water table adjacent to the region adjoining the stream (SCS 1993).

Permeability, Soil – The ease with which gases, liquids (water), or plant roots penetrate or pass through a bulk mass of soil or a layer of soil. Since different soil horizons vary in permeability, the particular horizon under question should be designated.

Permittee – An individual or business that holds a valid grazing permit (43 CFR Subpart 4100 Grazing Administration-Exclusive of Alaska; General).

Petroglyphs – Pictures, symbols, or other art work pecked, carved, or incised on natural rock surfaces.

pH (Hydrogen Ion Concentration) – An expression of both acidity and alkalinity on a scale of 0 to 14, with 7 representing neutrality, numbers less than 7 indicating increasing acidity, and numbers greater than 7 indicating increasing alkalinity.

Pitting – Making shallow pits or basins of suitable capacity and distribution on range to reduce overland flow from rainfall and snowmelt.

Placer – An alluvial deposit of sand and gravel containing valuable minerals such as gold.

Placer Claim – A mining claim located on surficial or bedded deposits, particularly for gold located in stream gravels.

Placer Deposit – Mass of gravel, sand, or similar material resulting from the crumbling and erosion of solid rocks containing particles of gold or other valuable minerals that have been derived from rocks or veins.

Planning Criteria – The constraints or ground rules that guide the developing of a resource management plan. The criteria determine how the planning team develops alternatives and ultimately selects a Preferred Alternative.

Plan of Operations – A plan for mining exploration and development that an operation must submit to BLM for approval when more than 5 acres a year will be disturbed or when an operator plans to work in an area of critical environmental concern or a wilderness area. A plan of operations must document in detail all actions that the operator plans to take from exploration through reclamation.

Plant Association – See VEGETATION ASSOCIATION.

Plant Community – See COMMUNITY.

Plant Vigor – Plant health.

Playa – An ephemerally flooded area on a basin floor that is barren of vegetation, is veneered with fine-textured sediment, and acts as a temporary or final sink for drainage water.

Pleistocene – An epoch in Earth history from about 2-5 million years to 10,000 years ago, when the Earth experienced a series of glacial and interglacial periods.

Ponding – Runoff that collects in depressions and cannot drain out, creating temporary ponds; the process, occurring after a rainfall, of water gathering in low-lying areas, forming ponds.

Population – A group of interbreeding individuals of the same species often occupying the same geographical area.

Possessory Interest Tax – A tax on anyone who has exclusive use of a publicly owned property or facility.

Potential Natural Community (PNC) – The biotic community that would become established on an ecological site if all successional sequences were completed without human interference under the present environmental conditions. Natural disturbances are inherent in its development. The PNC may include acclimatized or naturalized nonnative species (NRCS 1997). Also see POTENTIAL NATURAL VEGETATION, DESIRED FUTURE CONDITION, and PROPER FUNCTIONING CONDITION.

Potential Natural Vegetation (PNV) – The stable biotic community that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions. The PNV is the vegetation type best adapted to fully use the resources of an ecological site.

Potential Plant Community (PPC) – The seral stage the botanical community would achieve if all successional sequences were completed without human interference under the present environmental conditions.

Precious Metal – A general term for gold, silver, or any of the minerals of the platinum group.

Precommercial Thinning – Cutting trees from a young stand so that the remaining trees will have more room to grow to marketable size. Trees cut in a precommercial thinning have no commercial value, and normally none of the felled trees are removed for use. Also see THINNING AND COMMERCIAL THINNING.

Preferred Alternative – The alternative in this EIS that BLM has initially selected because it best fulfills BLM's mission and responsibilities and offers the most acceptable resolution of the planning issues and management concerns.

Prescribed Fire (Burning) – The planned application of fire to rangeland vegetation and fuels under specified conditions of fuels, weather, and other variables to allow the fire to remain in a predetermined area to achieve such site-specific objectives as controlling certain plant species; enhancing growth, reproduction, or vigor of plant species; managing fuel loads; and managing vegetation community types.

Prey Base – Populations and types of prey species available to predators, for example fish species and populations available to river otters.

Primary Road – Regularly maintained route, paved or unpaved, wide enough for at least two vehicles to pass. A primary road provides access between two major points and serves a large area with many routes of lesser quality branching from it.

Primitive Area – A definition used in the Recreation Opportunity Spectrum (ROS) to characterize an area that is essentially an unmodified natural environment of large size, where interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use is not permitted.

Primitive Campground – An undesignated area within or outside the backcountry that lacks any facilities and is maintained only by use.

Primitive Recreation – Recreation that occurs in a natural-appearing environment and that allows visitors to achieve solitude and isolation from human civilization. Primitive recreation may include hunting, horseback riding, wildlife viewing, nature study, photography, hiking, and backpacking.

Progression of Seral Stages (Succession) – The progressive replacement of plant communities on an ecological site that leads to the climax community (e.g. early seral stages are normally dominated by perennial grasses and annual as well as perennial forbs with few shrubs. During mid seral the woody species that the site supports such as shrubs and trees begin to make an obvious appearance, and annual forbs are dominated by perennial forbs. During late seral stages the shrubs normally dominate the cover on the site, but the perennial grasses still provide the most annual production on into the potential natural community)(NRCS 1997). Also see POTENTIAL NATURAL COMMUNITY.

Proper Functioning Condition (PFC) (Riparian-Wetland Areas) – Riparian and Wetland areas are in properly functioning condition and are meeting regional and local management objectives. The riparian and wetland vegetation is controlling erosion, stabilizing streambanks, 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 those sites. Vegetation surrounding seeps and springs is controlling erosion and reflects the potential natural vegetation for the site (BLM 1999a).

Proper Functioning Condition (Uplands) – Uplands are functioning properly when the existing vegetation and ground cover maintain soil conditions that can sustain natural biotic communities. The functioning condition of uplands is influenced by landform, soil, water, and vegetation.

Proposed Threatened or Endangered Species – Any species of fish, wildlife, or plant that is proposed in the FEDERAL REGISTER to be listed under Section 4 of the Endangered Species Act of 1973, as amended (50 CFR Part 402-Interagency Cooperation-Endangered Species Act of 1973, as Amended § 402.02 Definitions).

Protocol Agreements between BLM and the Nevada and California State Historic Preservation Offices – Agreements that specify the approach for cultural resources protection, including site identification, interpretation, protection, and stabilization.

Public Lands – Any land administered by the Secretary of the Interior through the U.S. Bureau of Land Management or by the Secretary of Agriculture through the U.S. Forest Service.

Pyroclastics – Particles off all sizes ejected into the air during volcanic eruptions, from volcanic ash to bombs and blocks.

Radiocarbon Dating – An age estimate based on the amount of a natural radioactive carbon isotope (carbon-14) that remains in any organic matter (formerly living things such as bone or plants or material made from living things such as cloth and leather).

Rail Banking – A practice of preserving abandoned rail rights-of-way to reuse them for transportation purposes in the future. Federal rail banking law allows railroads to bank unused rail corridors for future rail use while allowing interim use as trails.

Rail Trail – A multi-purpose public path (paved or natural) created along an inactive rail corridor.

Range – See RANGELAND.

Range Drill – A heavy duty seeding machine that is dragged over rough terrain by a tractor or dozer to seed areas. This type of drill is constructed heavy enough to withstand rough rangeland conditions, in contrast to a farm drill.

Range Improvement – Any activity or program on or relating to the public lands designed to improve forage production, change vegetation composition, control use patterns, provide water, stabilize soil and water conditions, or provide habitat for livestock and wildlife. Range improvements may be structural or nonstructural. A structural improvement requires placement or construction to facilitate the management or control the distribution and movement of animals. Such improvements may include fences, wells, troughs, reservoirs, pipelines, and cattleguards. Nonstructural improvements consist of practices or treatments that improve resource conditions. Such improvements include pitting; chiseling; seedings; prescribed burning; water spreaders, contour furrowing, and chemical, mechanical, and biological plant control.

Rangeland – A type of land on which the native vegetation, climax, or natural potential consists predominately of grasses, grasslike plants, forbs, or shrubs. Rangeland includes lands revegetated naturally or artificially to provide a plant cover that is managed like native vegetation. Rangelands may consist of natural grasslands, savannas, shrublands, moist deserts, tundra, alpine communities, coastal marshes, and wet meadows (NRCS 1977).

Rangeland (Land) Health –- The degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological processes of the rangeland (land) ecosystem, are balanced and sustained. Integrity is defined as maintenance of the structure and functional attributes characteristic of a locale, including normal variability (Pellant and others 2000).

Rangeland Composition – A list of species present in an area, or discrete vegetation community, and the proportional abundance of each individual species.

Rangeland (Land) Health Assessment – An estimate or judgment of the status of ecosystem structures, functions, or processes, within a specified geographic area (preferably a watershed or a group of contiguous watersheds) at a specific time. Rangeland health is assessed by gathering, synthesizing, and interpreting information, from observations or data from inventories and monitoring. An assessment characterizes the status of resource conditions so that the status can be evaluated (see definition of evaluation) relative to land health standards. An assessment sets the stage for an evaluation. An assessment is not a decision (BLM 2001b).

Rangeland (Land) Evaluation – An evaluation is conducted to arrive at two outcomes. First, an evaluation conducts an analysis and interpretation of the findings resulting from the assessment, relative to land health standards, to evaluate the degree of achievement of Land Health Standards.
Second, an evaluation conducts an analysis and interpretation of information–be it observations or data from inventories and monitoring–on the causal factors for not achieving a land health standard. An evaluation of causal factors provides the foundation for a determination (BLM 2001b).

Rangeland (Land) Health Allotment Evaluation Reporting System – A reporting system for grazing allotments as to how they relate to the following four categories:

Category 1 – Areas where one or more standards are not being met, or significant progress is not being made toward meeting the standard(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 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. (Allotments where current livestock grazing is also a cause for not meeting the standards are included in both Categories 1 and 4.)

Rangeland Productivity – The annual total forage availability of the vegetation for an area of rangeland.

Raptors – Birds of prey, such as eagles, owls, and hawks.

Reach – A relatively homogeneous section of a stream having a repetitious sequence of physical characteristics and habitat types.

Record of Decision – A document signed by a responsible official recording a decision that was preceded by the preparing of an environmental impact statement. Also see DECISION RECORD.

Recovery – The return of an unhealthy vegetation alliance, vegetation association, and ecological site back across the degradation threshold to its original community structure, natural complement of species, and natural functions. Also see RESTORATION.

Recreation and Public Purposes Act of 1926 – An act of Congress that allows local governments (counties or cities) and nonprofit organizations to lease or acquire public land to be used for recreation or public purposes such as health, safety, or welfare.

Recreation Management Zone – In recreation management, an area with four defining characteristics: (1) it serves a different recreation niche within the primary recreation market, (2) it produces a different set of recreation opportunities and facilitates attaining different experiences and benefit outcomes, (3) it has a distinctive recreation setting character, and (4) it requires a different set of recreation provider actions to meet primary recreation market demand.

Recreation Opportunity Spectrum (ROS) – A planning process that provides a framework for defining classes of outdoor recreation environments, activities, and experience opportunities. In ROS, the setting, activities, and opportunities for experiences are arranged along a spectrum of six classes: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban. The resulting ROS analysis defines specific geographic areas on the ground, each of which encompasses one of the six classes.

Recreation Site – A developed site with such features as a trailhead, campground, or kiosk.

Recruitment – The successful entry of new individuals into the breeding population (Pellant and others 2000).

Remnant Species – Plant species present in a deteriorated plant association that are representative of a climax plant association.

Research Natural Area (RNA) – An area that is established and maintained for the main purpose of research and education because the land has one or more of the following characteristics: (1) a typical representation of a common plant or animal association; (2) an unusual plant or animal association; (3) a threatened or endangered plant or animal species; (4) a typical representation of common geologic, soil,

or water features; or (5) outstanding or unusual geological, soil, or water features (43 CFR Subpart 8223-Research Natural Areas § 8223.0-5 Definitions).

Residual Plant Cover – Standing herbaceous vegetation that has cured and become decayed. When these plants fall, they become litter.

Residue Analysis – The study of remaining material traces that have been subjected to reductive physical or chemical processes.

Resource Advisory Councils (RACs) – Advisory councils appointed by the Secretary of the Interior and consisting of representatives of major public land interest groups (e.g. commodity industries and recreation, environmental, and local area interests) in a state or smaller area.
RACs advise BLM, focusing on a full array of multiple uses public land issues. RACs also help develop fundamentals for rangeland health and guidelines for livestock grazing (§ 4180.2 Standards and guidelines for grazing administration).

Resource Conservation Area (RCA) – A land management designation that provides management consideration to areas with special resources that do not need the levels of protection conferred by designation as an area of critical environmental concern (ACEC).

Resource Management Plan (RMP) – A land use plan as described by the Federal Land Policy and Management Act. The RMP generally establishes in a written document: (1) land areas for limited, restricted or exclusive use; designations, including ACEC designations; and transfer from BLM administration; (2) allowable resource uses (either singly or in combination) and related levels of production or use to be maintained; (3) resource condition goals and objectives to be attained; (4) program constraints and general management practices needed to achieve the above items; (5) need for an area to be covered by more detailed and specific plans; (6) support actions, including such measures as resource protection, access development, realty action, and cadastral survey., as needed to achieve the above; (7) general implementation sequences, where carrying out a planned action depends on prior accomplishment of another planned action; and (8) intervals and standards for monitoring and evaluating the plan to determine its effectiveness and the need for amendment or revision. It is not a final implementation decision on actions that require further specific plans, process steps, or decisions under specific provisions of law and regulations (43 CFR Subpart 1610-Resource Management Planning § 1610.0-5 Definitions).

Rest – 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).

Restoration – The act of restoring healthy but lacking key attributes and at-risk states of vegetation alliances, vegetation associations, and ecological sites to a healthy state with its original community structure, natural complement of species, and natural functions. Also see RECOVERY.

Rest-Rotation Grazing – Any grazing system that provides for the rotation of rest (see REST) among pastures. The period of rest can be for a full year or more, or a portion of the growing season. The time and length of rest generally changes each successive year (NRCS 1997).
Retardant – See FIRE RETARDANT.

Right-of-Way (ROW) – A permit or an easement that authorizes the use of public lands for specified purposes, such as pipelines, roads, telephone lines, electric lines, communication sites, reservoirs, and the lands covered by such an easement or permit.

Right-of Way Corridor – A parcel of land that has been identified by law, Secretarial order, or through a land use plan or by other management decision as being the preferred location for existing and future right-of-way grants and suitable for one type of right-of-way or one or more rights-of-way that are similar, identical, or compatible.

Rill – A small channel formed by soil erosion.

Riparian – Area, zone, and/or habitat adjacent to streams, lakes, or other natural free water, which have a predominant influence on associated vegetation or biotic community (NRCS 1997); pertaining to or situated on or along the bank of a stream or other water body.

Riparian Area/Riparian Zone – Terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial or intermittent water, high water tables, and soils that exhibit some wetness characteristics. These terms are normally used to refer to the zone within which plants grow rooted in the water table of these rivers, streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs, and wet meadows.

Riparian Community Type – A repeating, classified, defined, and recognizable assemblage of riparian plant species (USDA NRCS 1997).

Riparian Ecosystems – Ecosystems that occur along watercourses or water bodies. They distinctly differ from surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by free or unbound water in the soil (NRCS 1997).

Riparian Rights – The rights of a land owner to the water on or bordering his property, including the right to prevent diversion or misuse of upstream water.

Riparian Species – Plant species occurring within the riparian zone. Obligate species require the environmental conditions within the riparian zone; facultative species tolerate the environmental conditions and therefore may also occur away from the riparian zone (NRCS 1997).

Riparian Vegetation – Plant communities in the riparian zone consisting of riparian species (NRCS 1997).

Riprap – Large pieces of rock (usually 6 to 30 inches in diameter) that have undergone only primary crushing and sizing, or larger, uncrushed pieces. Riprap is used to stabilize slopes and shorelines and build erosion-control structures.

Road – A transportation facility used mainly by vehicles having four or more wheels documented as such by the owner, and maintained for regular and continuous use. Also see ROUTE, TRAIL, PRIMARY ROAD and SECONDARY ROAD.

Root Ball – The network of roots and the soil clinging to them when a plant is lifted from the soil or removed from a container.

Root Reserve – The ability of plants to store energy (which has been converted from sunlight and water and nutrients from the soil) in their roots to promote plant growth. Overgrazing reduces root reserves, which leads to fewer leaves and a weaker root system.

Route – Any motorized, nonmotorized, or mechanized, terrestrial or water transportation corridor. Roads and trails are considered routes. Also see ROAD and TRAIL.

Runoff – The portion of precipitation or irrigation on an area that does not infiltrate (enter the soil) but is discharged by the area (Pellant and others 2000)

Run-on – Water that flows onto a given area.

R Value – Response "R" values are given to condition classes of sagebrush habitat to reflect that vegetation association's ability to respond favorably to management or mechanical treatment (Northeast California Sage-grouse Working Group 2005)

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Safety Zone – An area cleared of flammable materials used for escape in the event the fireline is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe.

Sagebrush-Steppe Community – A semiarid plant community characterized by a predominance of big sagebrush and other sagebrush species, plus grasses and forbs

Sagebrush Obligate – A species that is restricted to sagebrush habitats during the breeding season, or year-round.

Saleable Minerals – High volume, low-value mineral resources, including common varieties of rock, clay, decorative stone, sand, and gravel.

Salvage Logging (Harvest) – The removal of dead or downed commercially valuable timber after a disturbance (fire, wind, insect attack, or disease).

Satellite Wild Horse and Burro Adoption – An adoption held away from BLM corrals and facilities at such places as fairgrounds and rodeo grounds that have horse facilities.

Sawlog – A log large enough to yield lumber. Usually the small end of a sawlog must be at least 6 to 8 inches in diameter for softwoods and 10 to 12 inches for hardwoods.

Scenic Byway – A public road having special scenic, historic, recreational, cultural, archaeological, or natural qualities that have been recognized as such through legislation or some other official declaration.

Scoping – An early and open process for determining the scope of issues to be addressed in an environmental impact statement and the significant issues related to a proposed action (40 CFR Part 1508-Termminology and Index).

Secondary Road – A regularly maintained paved or unpaved one-to-two-lane route with routes of less quality branching from it. A secondary road connects primary roads and major points.

Section 404 Permit – A permit required by the Clean Water Act, under specified circumstances, when dredge or fill material is placed in the waters of the United States, including wetlands.

Section 7 – The section of the Endangered Species Act of 1973, as amended, outlining procedures for interagency cooperation to conserve federally listed species and designated critical habitats. Section 7(a)(1) requires federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires federal agencies to consult with the services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Other paragraphs of this section:

- establish the requirement to conduct conferences on proposed species;
- allow applicants to initiate early consultation;
- require U.S. Fish and Wildlife Services and National Marine Fisheries Service to prepare biological opinions and issue incidental take statements.

Section 7 also establishes procedures for seeking exemptions from the requirements of Section 7(a)(2) from the Endangered Species Committee (USFWS and NMFS 1998).

Section 7 Consultation – The Section 7 processes, including both consultation and conference if proposed species are involved (50 CFR Part 402-Interagency Cooperation-Endangered Species Act of 1973, As Amended).

Section 106 of the National Historic Preservation Act – The section of the National Historic Preservation Act that requires that federal agencies having direct or indirect jurisdiction over a proposed federal, federally assisted, or federally licensed undertaking, before approving the spending of funds or issuing a license, consider the effect of the undertaking on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places, and give the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. Also see NATIONAL HISTORIC PRESERVATION ACT and NATIONAL REGISTER OF HISTORIC PLACES, and SECTION 110 OF THE NATIONAL HISTORIC PRESERVATION ACT.

Section 110 of the National Historic Preservation Act – The section of the National Historic Preservation Act that concerns the managing of federally owned historic properties. Among other provisions, Section 110 requires each federal agency to establish a program to locate, inventory, and nominate to the Secretary of the Interior all properties under its control that appear to qualify for the National Register of Historic Places. Also see NATIONAL HISTORIC PRESERVATION ACT, NATIONAL REGISTER OF HISTORIC PLACES, and SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT.

Sedimentation – The act or process of depositing sediment from suspension in water; all the processes by which particles of rock material are accumulated to form sedimentary deposits.

Sediment Intrusion Buffer – A buffer that helps prevent sediment generated through soil erosion during overland water flow from entering a body of water. Buffer widths are determined by soil erodibility, which is influenced by soil type, slope, and upland soil and vegetation condition upslope from the buffer. Buffers can be vegetative of mechanical.

Vegetation buffers are usually naturally occurring, soil-holding native vegetation or are areas that have been reseeded using suitable soil-holding local native species. Mechanical buffers include contour furrows, contour trenches, and erosion fencing (Brooks and others 1991).

Sediment Load (Sediment Discharge) – The amount of sediment, measured in dry weight or by volume, that is transported through a stream cross-section in a given time. Sediment load consists of sediment suspended in water and sediment that moves by sliding, rolling, or bounding on or near the streambed.

Seed Viability – A seed's capability of germinating and growing.

Seeding – The planting of seeds to revegetate the land after a disturbance; an area that has been revegetated by seeding.

Seeds of Success – An interagency program that is coordinated though the Plant Conservation Alliance and that supports and coordinates seed collection of native plant populations in the United States to increase the number of species and the amount of native seed that is available for use in stabilizing, rehabilitating, and restoring lands in the United States.

Scenic Area – The portion of the landscape that is visible from roads, trails, rivers, campgrounds, communities, or other key observation points.

Self Contained Camping – Primitive camping in undeveloped areas where the camper provides everything needed for camping and follows Leave No Trace practices to minimize impacts to the land.

Sensitivity (Cultural Resource) – How prone a cultural resource site is to outside impacts.

Seral Stages – The development stages of ecological succession (NRCS 1997).

Shared Use Trail – A trail shared for a variety of uses such as motorized and nonmotorized uses; a combination of nonmotorized uses such as hiking, horseback riding, and bicycling; or a combination of motorized uses such as dirt bikes and small and large four-wheel vehicles.

Sheet Erosion – The uniform washing or eroding of surface soils on a large denuded surface area.

Shrub-Steppe Community – A plant community of low drought-tolerant shrubs and bunch grasses. A community consisting of one or more layers of perennial grass above which raises a conspicuous but discontinuous layer of shrubs.

Sikes Act Implementation Plans – Comprehensive integrated natural resource management plans based on ecosystem management and required by Public Law 105-85, the Sikes Act Reauthorization Act of 2003. Under this law, the Department of Defense must complete such a plan for all of its installations that have significant fish, wildlife or natural resources.

The law requires that these plans include fish and wildlife management and wildlife-oriented recreation; fish and wildlife habitat enhancement; wetland protection; the setting of specific management goals; and the public use of natural resources. These plans must be written in consultation with the U.S. Fish and Wildlife Service and the affected states and must undergo a formal review process every 5 years.

Silviculture – The branch of forestry concerned with cultivating trees.

Site Index – An expression of a site's ability to produce wood growth relative to other sites, expressed in height growth over a century. A site index of 120, therefore, means that a tree will grow from 0 to 120 feet in 100 years.

Sixth-Level Watershed – See STREAM ORDER.

Snag – A standing dead tree that provides food and habitat for creatures such as insects and tree-nesting birds.

Soil Bioengineering – An applied science that combines structural, biological, and ecological concepts to build living structures to control erosion, sediment, and floods. Soil bioengineering is always based on sound engineering practices integrated with ecological principles.

Soil (Ground) Cover – Plants or plant parts, living or dead, on the surface of the ground.

Soil Classification – The systematic arrangement of soil units into groups or categories by their characteristics. Broad groupings are made on the basis of general characteristics and subdivisions on the basis of more detailed differences in specific properties (Pellant and other 2002).

Soil Compaction – Compression of the soil, resulting in reduced soil pore space (the spaces between soil particles), decreased movement of water and air into and within the soil, decreased soil water storage, and increased surface runoff and erosion.

Soil Fertility – The ability of a soil to support plant growth by providing water, nutrients, and a growth medium.

Soil Horizon – A layer of soil or soil material roughly parallel to the land surface and differing from adjacent, genetically related layers in physical, chemical, and biological properties or characteristics, such as color, structure, texture, consistence, degree of acidity or alkalinity, and kinds and numbers of organisms present.

Soil Productivity – The capacity of a soil in its normal environment for producing a specified plant or sequence of plants under a specified system of management.

Soil Profile – A vertical section of the soil from the surface through all of its horizons.

Soil/Site Stability – The capacity of a site to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water (one of the three attributes of rangeland (land) health) (Pellant and others 2000).

Soil Structure – The combination or arrangement of primary soil particles into secondary units or peds, which are characterized by size, shape, and grade. Soil structure largely determines the soil's pore space and density, which affect the soil's ability to hold air and water.

Spawning Gravels – Stream-bottom gravels where fish deposit and fertilize their eggs. The covering of these gravels with silt can block the supply of oxygen to the eggs or serve as a cementing agent to prevent fry from emerging.

Special Category Lands – Lands where locatable mining operations always require plans of operations, regardless of the amount of land that would be involved. Special category lands include the following areas:

- areas in the National Wild and Scenic Rivers System and areas designated for potential addition to the system;
- designated areas of critical environmental concern (ACECs); and
- areas designated as closed to off-highway vehicle (OHV) use (as defined in 43 CFR 8340-5); lands or waters known to contain federally proposed or listed threatened or endangered species, or their proposed or designated critical habitat.

Special Interest Plants – Plants on List 2 (not including List 2 plants that are already on the BLM sensitive list) and List 4 in the California Native Plant Society's Inventory of Rare and Endangered Plants of California (Rare Plant Scientific Advisory Committee 2001).
These plants are considered rare by the scientific community but are not included in BLM's sensitive plant list. These plants receive no legal protection but are managed, where possible, on a case-by-case basis by individual field offices to maintain populations and reproductive viability.

Special Management Areas – Areas that may need special management, such as management as an ACEC, RNA, environmental education area, or other special category.

Special Recreation Management Area (SRMA) – An area of intensive recreation use where a commitment has been made to provide specific recreation activity and experience opportunities. SRMAs usually require a high level of recreation investment or management. SRMAs include recreation sites, but recreation sites alone do not constitute SRMAs. Also see EXTENSIVE USE AREA and RECREATION MANAGEMENT ZONE.

Special Recreation Permit (SRP) – An authorization that allows for specific nonexclusive permitted recreational uses of the public lands and related waters. SRPs are issued to control visitor use, protect recreational and natural resources, provide for the health and safety of visitors, and accommodate commercial recreational uses.

Special Status Species – Plant or animal species falling in any of the following categories:

- threatened or endangered species
- proposed threatened or endangered species
- candidate species
- state-listed species
- BLM sensitive species
- BLM special-interest species

Also see SPECIAL INTEREST PLANTS.

Species – From Section 3(15) of the Federal Endangered Species Act: "The term 'species' includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." A population of individuals that are more or less alike and that can breed and produce fertile offspring under natural conditions.

Species Composition – The proportions of plant species in relation to the total on a given area. It may be expressed in terms of cover, density, or weight (Pellant and others 2000).

Split-Estate – Land whose surface rights and mineral rights are owned by different entities. Such a condition commonly occurs when surface rights are owned by the Federal Government and the mineral rights are privately or state owned.

Stabilization (Cultural Resource) – Protective techniques usually applied to structures and ruins to keep them in their existing condition, prevent further deterioration, and provide structural safety without significant rebuilding. Capping mud-mortared masonry walls with concrete mortar is an example of a stabilization technique.

Stand – A group of trees that occupies a specific area and is similar in species, age, and condition.

Standards and Guidelines (Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management) – Standards and guidelines developed collaboratively by BLM and the Resource Advisory Council (RAC) to address the minimum requirements of the Department of the Interior's final rule for grazing administration, effective August 21, 1995.

Standards for Rangeland (Land) Health – A description of conditions needed to sustain public land health; relates to all uses of the public land. Standards for Northeastern California and Northwestern Nevada were developed by the State Director in consultation with the Northeast California Resource Advisory Council (RAC) as directed in 43 CFR § 4180.2. These standards are applied to all lands administered by the BLM in northeast California and northwest Nevada (Appendix B) and address upland soils, streams, water quality, riparian-wetlands, and biodiversity (BLM 2000a).

Standing Volume – The total volume of wood contained in stems of trees of all size classes in cubic meters. The standing volume includes some nonrecoverable volume but excludes bark.

Stand Replacement Fire Regime – A regime in forests, shrublands, or grasslands in which fires kill or top-kill aboveground parts of the dominant vegetation, substantially changing the aboveground structure. About 80% or more of the aboveground dominant vegetation is either consumed or dies as a result of the fire.

State – One or more biological (including soil) communities that occur on a particular ecological site and that are functionally similar in respect to the three attributes (soil and site stability, hydrologic function, and biotic integrity). States are distinguished by relatively large differences in plant functional groups, soil properties, and ecosystem processes and, consequently, in vegetation structure, biodiversity, and management requirements. They are also distinguished by their responses to disturbance. A number of different plant communities may be included in a state, and the communities are often connected by traditionally defined successional pathways (Herrick and others 2005).

State Historic Preservation Officer (SHPO) – The state official authorized to act as a liaison to the Secretary of the Interior for implementing the National Historic Preservation Act of l966.

State-Listed Species – Species listed by a state in a category implying but not limited to potential endangerment or extinction. Listing is either by legislation or regulation.

Stewardship Contract – A contract BLM enters into for services to achieve land management goals and meet local and rural community needs, for which a source for performance must be selected on a best-value basis. Section 323 of Public Law 108-7, the Consolidated Appropriations Resolution, 2003, authorizes trading goods for services and multi-year contract authority between 5 and 10 years.

Stipulation – A condition or requirement attached to a lease or contract, usually dealing with protection of the environment or recovery of a mineral.

Stock (Fish) – A group of fish that is genetically self-sustaining and isolated geographically or temporally during reproduction. Generally, stock refers to a local population of fish.

Stocking Rate – The number of specific kinds and classes of animals grazing or using a unit of land for a specific period. Stocking rates may be expressed as a ratio, such as of animal units/section, acres/animal unit, or acres/animal unit month.

Streambanks – The usual boundaries, not the flood boundaries, of a stream channel. Right and left banks are named facing downstream (in the direction of flow).

Streambank Stability – A streambank's relative resistance to erosion, which is measured as a percentage of alteration to streambanks.

Stream Channel – The bed where a natural stream of water runs or may run; the long narrow depression shaped by the concentrated flow of a stream and covered continuously or periodically by water.

Stream Channel Integrity (Stability) – A relative measure of the resistance of a stream to erosion. Stable streams do not change markedly in appearance from year to year. An assessment of stability helps determine how well a stream will adjust to and recover from changes in flow or sediment transport.

Stream Order – A method of numbering streams as part of a drainage basin network. The smallest unbranched mapped tributary is called first order, the stream receiving the tributary is called second order, and the stream receiving that tributary is called the third order, and so on. Stream order may depend on the scale of the map used. A first-order stream on a 1:62,500 map may be a third-order stream on a 1:12,000 map.

Structural Diversity – Variety in a vegetation type that results from layering or tiering of the canopy and understory and the dieback, death and ultimate decay of plants; the diversity of the composition, abundance, spacing, and other attributes of plants in a community.

Structure – The height and area occupied by different plants or life forms in a community.

Stubble – The basal portion of herbaceous plants remaining after the top portion has been harvested either artificially or by grazing animals.

Subdominant Species – An important species within a plant community, but one that is less prevalent, smaller, or less important than the dominant species. Also see DOMINANT SPECIES

Subeconomic Mineral – A mineral that at present is unavailable for use because of the high cost of extraction.

Substrate – Mineral and organic material forming the bottom of a waterway or water body; the base or substance upon which an organism is growing.

Succession – The progressive replacement of plant communities on an ecological site that leads to the climax community. Early seral stages are normally dominated by perennial grasses and annual as well as perennial forbs with few shrubs. During mid seral the woody species that the site supports such as shrubs and trees begin to make an obvious appearance, and annual forbs are dominated by perennial forbs. During late seral the shrubs normally dominate the cover on the site, but the perennial grasses still provide the most annual production on into the potential natural community (NRCS 1997). Also see POTENTIAL NATURAL COMMUNITY.

Suckering – A common method of asexual reproduction in the willow family by which suckers sprout up from the roots of mother trees, forming new trees.

Suitable River – A river segment found through administrative study by an appropriate agency to meet the criteria for designation as a component of the National Wild and Scenic Rivers System, as specified in Section 4(a) of the Wild and Scenic Rivers Act.

Suite – A group or array of characteristics associated with a given organism or species.

Suppression – A management action intended to protect values from a fire, extinguish a fire, or alter a fire's direction of spread.

Surface Fuels – Needles, leaves, grass, forbs, dead and down branches and boles, stumps, shrubs, and short trees.

Sustained Yield – Achieving and maintaining a permanently high level, annual or regular period production of renewable land resources without impairing the productivity of the land and its environmental values (FLPMA 1976).

Sylvaglyphs (Dendroglyphs) – Historic carvings found on the bark of smooth-bark trees, often aspens.

Take – To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct (Endangered Species Act § 3 (19) 1973). Harm is further defined by the U.S. Fish and Wildlife Service (USFWS) as to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. USFWS defines Harass as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include breeding, feeding, or sheltering (50 CFR Part 17-Endangered And Threatened Wildlife And Plants§ 17.3 Definitions).

Talus – A sloping heap of loose rock fragments lying at the foot of a cliff or steep slope.

Taylor Grazing Act – An act passed in 1934 that provides for the regulation of grazing on the public lands (excluding Alaska) to improve rangeland conditions and stabilize the western livestock industry.

Terms and Conditions – The provisions and stipulations specified by BLM as part of a livestock grazing permit or other land use authorization.

Terracette – Benches of soil deposition behind obstacles caused by water, not wind, erosion (Pellant and others 2000).

Thinning – A tree removal practice that reduces tree density and competition between trees in a stand. Thinning concentrates growth on fewer, high-quality trees, provides periodic income, and generally enhances tree vigor. See COMMERCIAL THINNING and PRECOMMERCIAL THINNING.

Thinning from Below – The removal of trees from the middle and upper crown classes in a stand, to favor the most promising trees of these classes.

Threatened Species – Any species defined through the Endangered Species Act (ESA) as likely to become endangered within the foreseeable future throughout all or a significant portion of its range, as published in the *Federal Register* (ESA § 3 (20) 1973). Also see ENDANGERED SPECIES.

Threshold – A transition boundary that an ecosystem crosses that results in a new stable state that is not easily reversed without significant inputs in resources (Herrick and others 2005). Ecological thresholds describe a complex set of potentially interacting components, rather than discrete boundaries in time and space. "A specific disturbance or event may trigger the occurrence of a threshold that effects both structural and functional modifications during ecosystem transitions at various time scales." "The potential for threshold reversibility depends upon the extent and duration of ecosystem modifications, especially those altering nutrient and water cycles and energy flow pathways" (Briske and others 2005). "One or more of the primary ecological processes has been irreversibly changed and must be actively restored before return to the pervious state is possible" (Stringham and others 2003).

Trace Metals – Metals that are present in small concentrations.

Traditional Cultural Property (TCP) – A property that is eligible for the National Register of Historic Places because of its association with a living community's cultural practices or beliefs that are important in maintaining the continuing community's cultural identity. TCPs are essential to maintaining the cultural integrity of many Native American Indian nations and are critical to the cultural lives of many of their communities.

Trail – A linear route managed for human-powered, stock, or off-highway vehicle forms of recreation or for historic or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles. Also see ROUTE and ROAD.

Trail Alignment – The topographic location of a trail in relation to local landforms. Trail alignment can be expressed by the slope alignment angle. Trails can be aligned parallel to the prevailing slope (0° angle), perpendicular to the slope (90° angle), or at any angle in between (1 - 89° angle).

Trailing – Controlled directional movement of livestock; the habit of livestock or wildlife of repeatedly treading in the same line or path.

Trail Tread – The walking surface of a trail.

Transition – A shift from one state to another on an ecological site, or within vegetation alliances or associations (NRCS 1997).

Trailhead – The terminus of a hiking, horse, or bicycle trail accessible by motor vehicles.

Tread Lightly – An educational program designed to instill outdoor ethics of responsible behavior when participating in outdoor activities.

Trespass: – Any occupancy, use, or development of the public lands or their resources of the United States without authority.

Trophic Level – The level in a nutritive series of an ecosystem in which a group of organisms in a certain stage in the food chain secures food in the same general manner. The first or lower trophic level consists of producers (green plants), the second level consists of herbivores, the third level consists of secondary carnivores, and the fourth level consists of reducers (decomposers).

Trust Allotment – Federal land set aside for the exclusive use of an Indian, who is the allottee. The Federal Government retains land ownership. Many allotments are outside Indian reservations and are called public domain allotments. (Forest Service National Resource Guide to American Indian and Alaska Native Relations at http://www.fs.fed.us/people/tribal/)

Trust Responsibility – This term has never been defined by the U.S. Congress, any president, or any cabinet official. Generally, a set of principles and concepts outlining the responsibilities of the U.S. Government to act as the trustee of Indian people and Indian-owned assets. The U.S. Government, through the President, has certain responsibilities to protect Indian property and rights, Indian lands, and resources. The trust responsibility may involve a fiduciary obligation in which the President, through the Secretary of the Interior, acts as the trustee of the Indian assets. Fulfilling or redeeming a trust responsibility can best be reflected or demonstrated as a matter of action; a stream that was protected, a site that was maintained intact, a property right that has been left unaffected by a federal action. The writing of an environmental document is not an example of fulfillment of a trust responsibility. (Forest Service National Resource Guide to American Indian and Alaska Native Relations at http://www.fs.fed.us/people/tribal/.)

Turbidity – A measure of cloudiness of water, which is a function of the suspended organic and inorganic material.

Turn Out Area – A location within an allotment or grazing area where livestock are placed to achieve management objectives, generally at the beginning of the grazing season but possibly throughout the grazing season as livestock are moved into new use areas.

Unallotted Lands – Public lands that are open to grazing but currently have no livestock grazing authorized.

Underburning – Prescribed burning under a timber canopy.

Understory – Plants growing under the canopy of other plants. Understory usually refers to grasses, forbs, and low shrubs under a tree or brush canopy.

Ungulates – Hoofed animals, including ruminants such as cows, sheep, goats, and deer, but also horses, tapirs, elephants, rhinoceroses, and swine.

Upland Game – A term used in wildlife management to refer to hunted animals that are neither big game nor waterfowl. Upland game includes such birds as grouse, turkey, pheasant, quail, and dove, and such mammals as rabbit and squirrel.

Uplands – Lands at higher elevations than alluvial plains or low stream terraces; all lands outside the riparian wetland and aquatic zones.

Utilization – The proportion of the current year's forage production that is consumed or destroyed by grazing animals. Utilization may refer to a single species of forage or to all forage as a whole.

Utility Corridor – A parcel of land, without fixed limits or boundaries, that is being used as the location for one or more utility rights-of-way (43 CFR Part 2800-Use; Rights-Of-Way, Principles and Procedures § 2800.0-5 Definitions).

Valid Existing Rights – Locatable mineral development rights that existed when the Federal Land Policy and Management Act (FLPMA) was enacted on October 21, 1976. Some areas are segregated from entry and location under the Mining Law to protect certain values or allow certain uses. Mining claims that existed as of the effective date of the segregation may still be valid if they can meet the test of discovery of a valuable mineral required under the Mining Law. Determining the validity of mining claims located in segregated lands requires BLM to conduct a validity examination and is called a "valid existing rights" determination.

Vascular Plants – Any of various plants, such as the ferns and seed-bearing plants, in which the phloem transports sugar and the xylem transports water and salts.

Vault Toilet – An outdoor toilet without running water that has a sealed underground vault for holding wastes and from which waste is pumped out.

Vector – Any person, animal or a thing that carries the seeds of noxious weeds from one place to another and promotes their invasion and spread.

Vegetation Alliance – A vegetation classification unit containing one or more associations, and defined by a characteristic range of species composition, habitat conditions, physiognomy, and diagnostic species, typically at least one of which is found in the uppermost or dominant stratum of the vegetation (E.g. Forestland, Shrubland) (ESA 2004).

Vegetation Association – A vegetation classification unit defined by a characteristic range of species composition, diagnostic species occurrence, habitat conditions, and physiognomy (e.g. Mountain big sagebrush/perennial grass) (ESA 2004).

Vegetative Fuel Break System – Planned corridors of vegetation to break-up large blocks of highly flammable species such as cheatgrass, to improve fire suppression effectiveness. These breaks are planned to be compatible with, and take advantage of, resource development such as seedings and natural barriers (BLM 1985).

Vertisols – Dark black soils rich (at least 30%) in expandable clay that readily swells when wet and shrinks when dried. Vertisols are one of the U.S. Department of Agriculture soil orders.

Viable Population – Wildlife or plant population that contains an adequate number of reproductive individuals to appropriately ensure the long-term existence of the species (Noss and Cooperrider 1994).

Viewshed – The entire area visible from a viewpoint.

Vigor – The capacity for natural growth and survival of plants and animals.

Visual Resource Management (VRM) – The inventory and planning actions to identify visual values and establish objectives for managing those values and the management actions to achieve visual management objectives.

Visual Resource Management (VRM) Classes – Categories assigned to public by scenic quality, sensitivity level, and distance zones. Each class has an objective that prescribes the amount of modification allowed in the landscape. The four classes are as follows:

Class I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes, but it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and must not attract attention.

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

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

Class IV: The objective of this class is to provide for management activities that require major changes to the landscape's existing character. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of the viewer's attention. But every attempt should be made to minimize the impact of these activities by careful location, minimal disturbance, and repeating the basic elements of the characteristic landscape.

Waterfowl Nesting Island – A wildlife habitat improvement that consists of a vegetated mound of dirt built in a lake or reservoir to provide cover and distance from the shoreline for nesting waterfowl.

Water Quality – Within the context of the Land Health Standards, water quality means that "water will have characteristics suitable for existing and 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" (BLM 2000a).

Water Reserve – An area set aside for the protection and use of water on or under the land for public water supplies.

Water Right – A right to use, in accord with its priority, a certain portion of the waters of the state for irrigation, power, domestic use or another similar use

Watershed – An area of land from which water drains toward a single stream. The watershed is a hydrologic unit often used as a physical-biological unit and a socioeconomic-political unit for planning and managing natural resources.

Waters of the State – All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies of water above or below ground that are partially or wholly within a state. Private waters that do not combine or have a junction with natural surface or underground waters are not included (such as an isolated stock pond that does not infiltrate to groundwater or connect to surface water).

Water Table (Ground Water Table) – The level of groundwater; the upper surface of the zone of saturation for underground water. The water table is an irregular surface with a slope or shape determined by the amount of groundwater and the permeability of the earth material.

Way – A travel route that was not constructed but rather was worn onto the surface of the land by repeat passage of vehicles. Also see EXISTING WAYS.

Wetlands or Wetland Habitat – Areas characterized by soils that are usually saturated or ponded; i.e., hydric soils, and that support mostly water-loving plants; i.e. hydrophytic plants (NRCS 1997). Wetlands generally include swamps, marshes, bogs, and similar areas.

Weed Management Areas (WMAs) – Local organizations that bring together landowners and managers (private, city, county, state, and federal) in a county, multi-county, or other geographical area to coordinate efforts and expertise against common invasive weed species.

Wikiup – A temporary dwelling of nomadic Native North Americans. It consists of a framework of arched poles covered by brush, bark, rushes, or mats. The wickiup is found among Native Americans in Arizona, New Mexico, Utah, Idaho, and California. Sometimes other dwellings of tribes in this region are called wickiups even when made of more permanent materials. The name is also spelled wickiup.

Wild and Scenic River System – A national system of rivers or river segments that have been designated by Congress and the President as part of the National Wild and Scenic Rivers System (Public Law 90-542, 1968). Each designated river is classified as one of the following:

Wild River – A river or section of a river free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. Designated wild as part of the National Wild and Scenic Rivers System.

Scenic River – A river or section of a river free of impoundments, with shorelines or watersheds still largely primitive and undeveloped but accessible in places by roads. Designated scenic as part of the National Wild and Scenic Rivers System.

Recreational River – A river or section of a river that is readily accessible by road or railroad, may have some development along its shorelines, and may have undergone some impoundment of diversion in the past. Designated as recreational as part of the National Wild and Scenic Rivers System.

Wilderness – An area of undeveloped federal land retaining its primeval character and influence, without permanent improvement or human habitation, that is protected and managed so as to preserve its natural conditions and that (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Wilderness Study Area (WSA) – A roadless area that has been inventoried and found to be wilderness in character, has few human developments, and provides outstanding opportunities for solitude and primitive recreation, as described in Section 603 of the Federal Land Policy and Management Act of 1976 and in Section 2(c) of the Wilderness Act of l964.

Wilderness Values – Values established in the Wilderness Act, such as solitude and naturalness.

Wildfire – Any unwanted wildland fire.

Wild Horses and Burros – Animals that are the subject of the Wild Free-Roaming Horse and Burro Act of 1971 (PL 92-195) and defined as "all unbranded and unclaimed horses and burros on public lands of the United States."

Wildland Fire – Any non-structure fire that occurs in the wild. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire.

> **Wildfire –** An unplanned and unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.
>
> **Wildland Fire Use –** The application of the appropriate management response to naturally ignited wildland fires to meet specific resource management objectives in predefined designated areas outlined in fire management plans.
>
> **Prescribed Fire –** Any fire ignited by management actions to meet specific objectives.

Wildland Fire Situation Analysis – A decisionmaking process in which the agency administrator or representative does the following:

- describes the situation (fire),
- establishes objectives and constraints for managing the fire,
- compares multiple strategic wildland fire management alternatives,
- evaluates the expected effects of the alternatives,
- selects the preferred alternative, and
- documents the decision.

The format and level of detail required depend on the incident and its complexity. The key is to document the decision.

Wildland-Urban Interface (WUI) – The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels.

Wildlings– Young seedlings that develop naturally in the wild and are sometimes transplanted

Wind-Scoured Areas – Areas, generally in interstitial spaces, where the finer soil particles have blown away, sometimes leaving residual gravel, rock, or exposed roots on the soil surface.

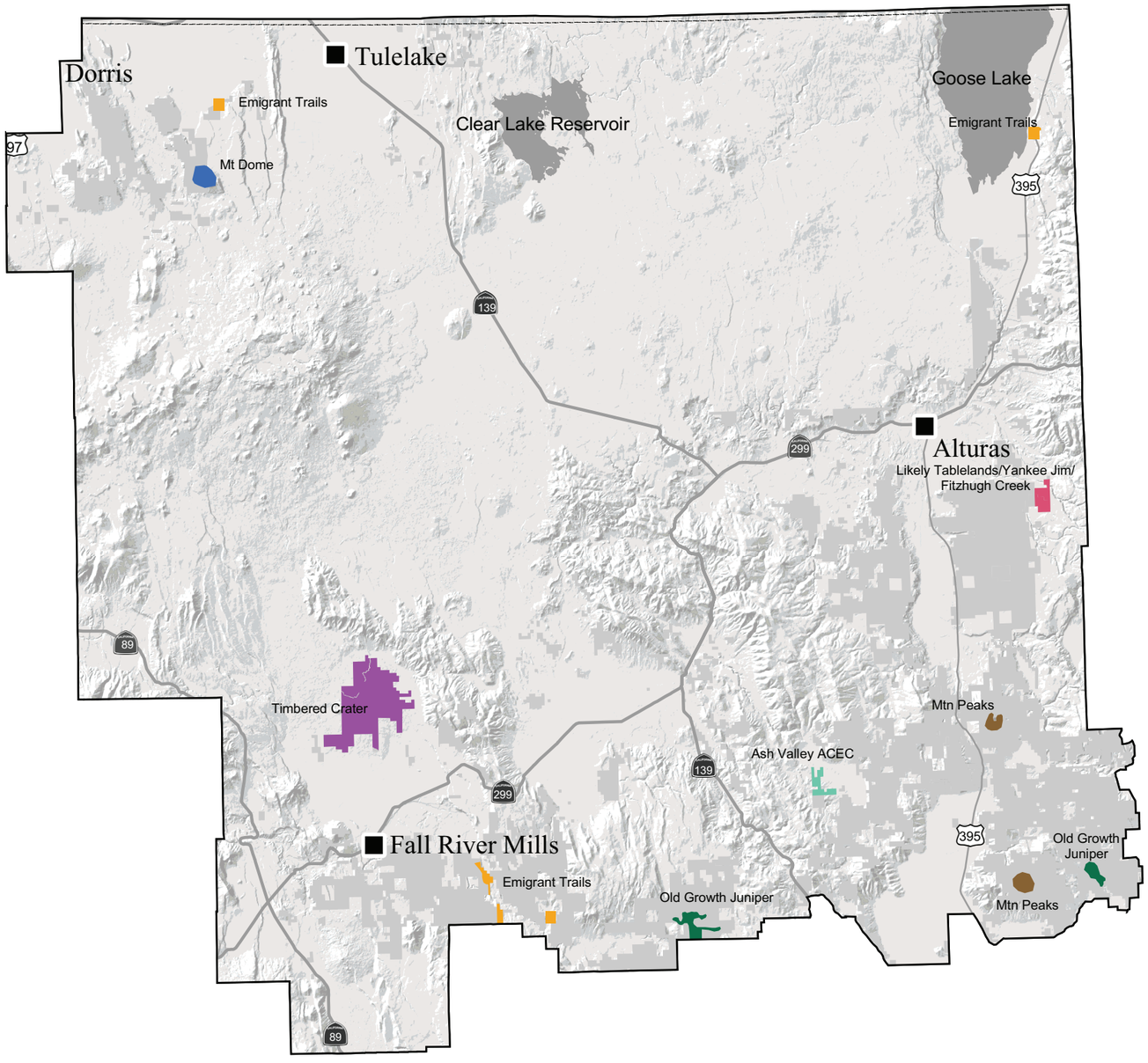
Withdrawal – An action that restricts the use of public lands by removing them from the operation of some or all of the public land or mining laws.

Woodland – A forest community occupied mainly by uncommercial species such as juniper, mountain mahogany, and aspen.

Yield – Total forest growth over a specified period of time, less mortality, unmarketable fiber, and cull.

Zeolites – Hydrated sodium alumina silicates, either naturally-occurring (mined) or synthetically manufactured, with ion exchange properties. Zeolites were formerly used extensively for residential and commercial water softening, but have been largely replaced by synthetic organic cation resin ion exchangers.

Zone of Saturation – Underground region within which all openings are filled with water. The top of the zone of saturation is called the water table. The water within the zone of saturation is called groundwater.



Map: ACEC - 1

ACECS AND PROPOSED ACECS

Legend

- Existing ACEC
- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

Proposed ACECs

- Emigrant Trails
- Likely Tablelands\Yankee Jim\Fitzhugh Creek
- Mt Dome
- Mtn Peaks
- Old Growth Juniper
- Timbered Crater WSA

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

ALTURAS FIELD OFFICE
Proposed Resource Management Plan / Final EIS

Fall 2006

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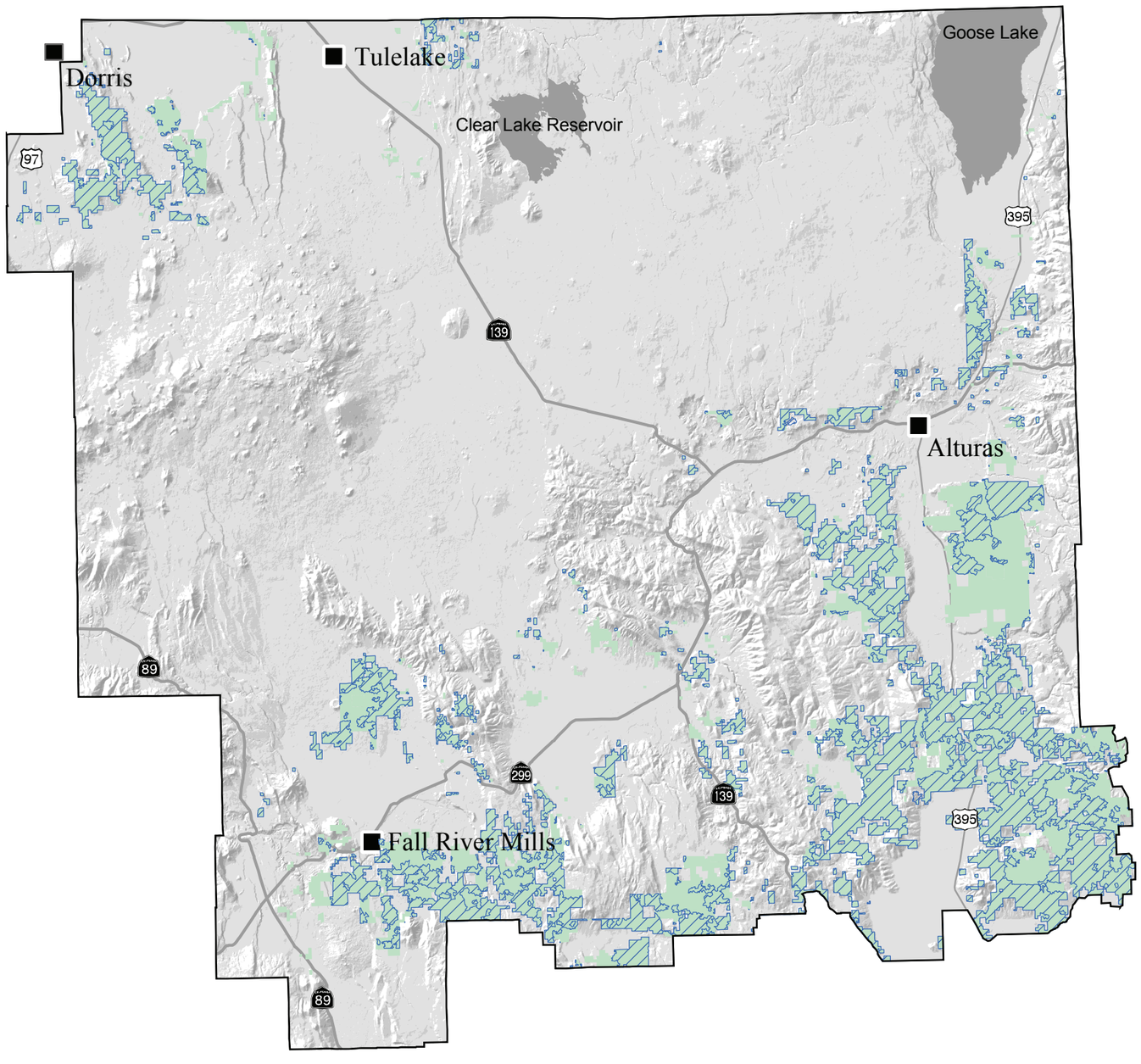
0 5 10 15



Map: FIRE - 1

FUELS TREATMENT

Legend

- Cities
- Highways
- Lakes
- BLM Lands Identified For Juniper Treatments
- BLM Lands Proposed For Fuel Treatments

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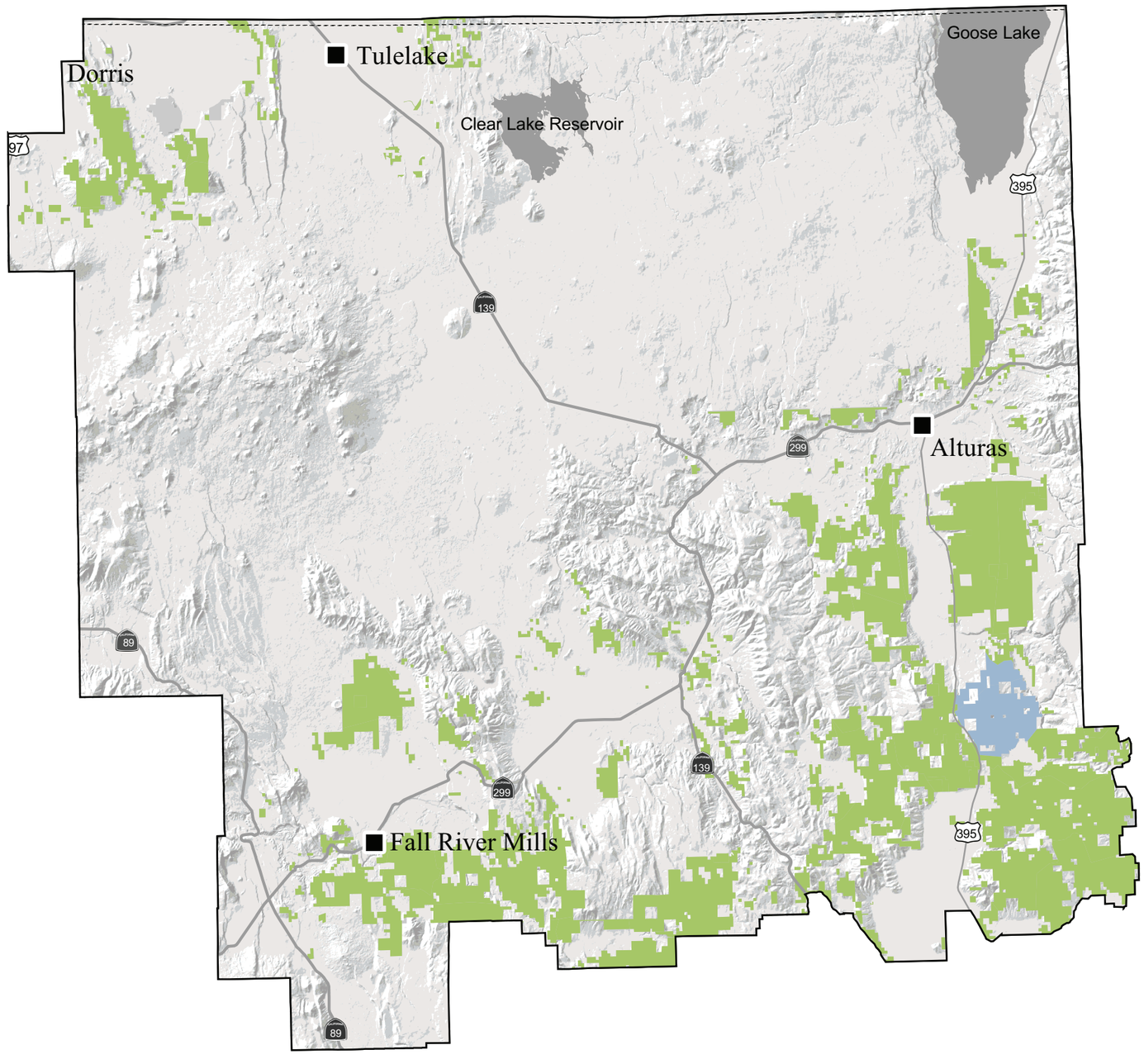
N
W E
S

Kilometers
0 5 10 15 20

Miles
0 5 10 15 20



Map: FIRE - 2

FIRE MANAGEMENT

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

Suppression Types

- Appropriate Management Response
- Wildland Fire Use

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N
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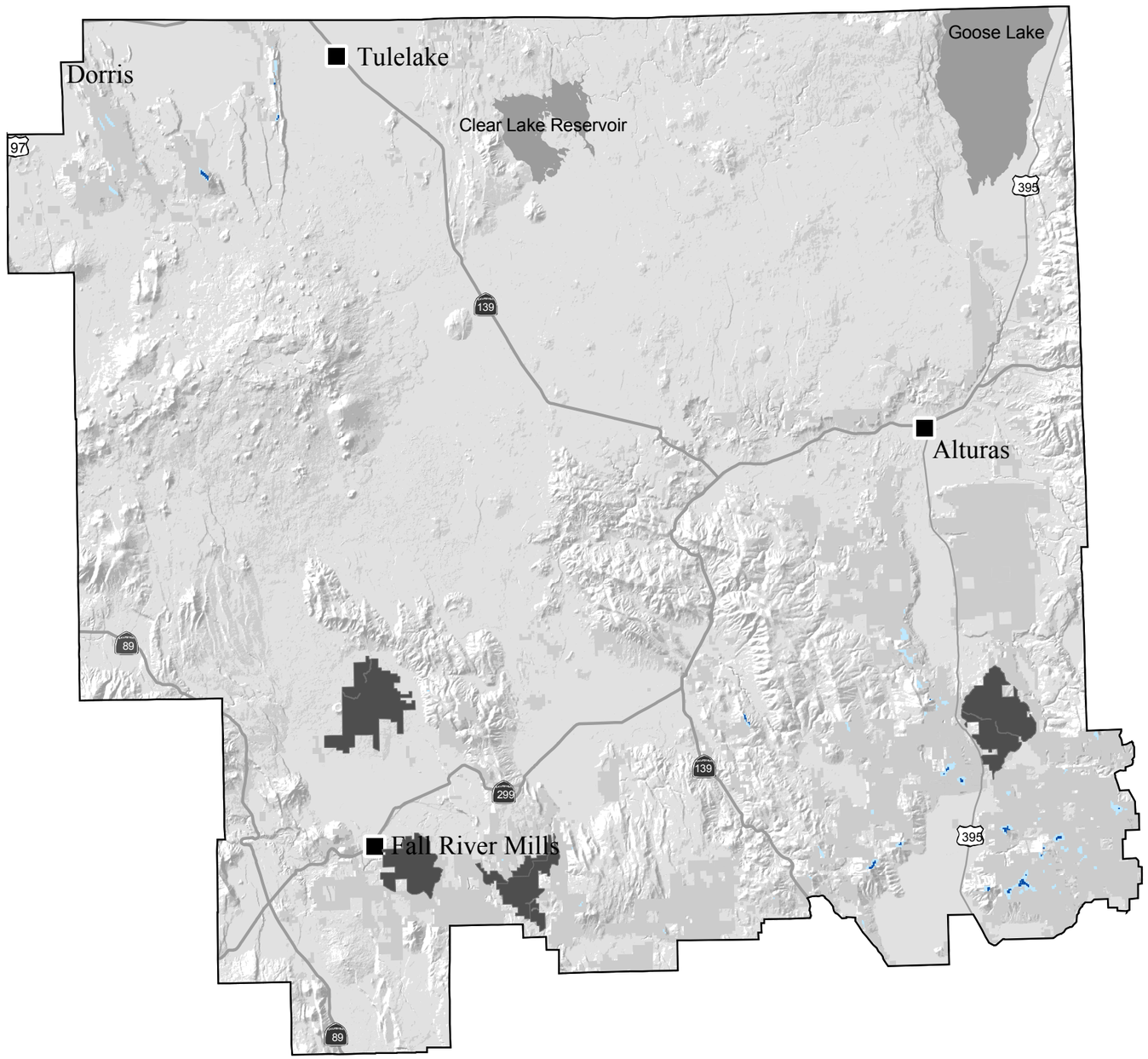
Kilometers
0 5 10 15

Miles
0 5 10 15



Map: EN - 1

Wind Energy Potential

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management

Data provided by:
U.S. Department of Energy
National Renewable Energy Laboratory

Wind Energy Potential

- Low
- Excluded Area
- Medium
- High

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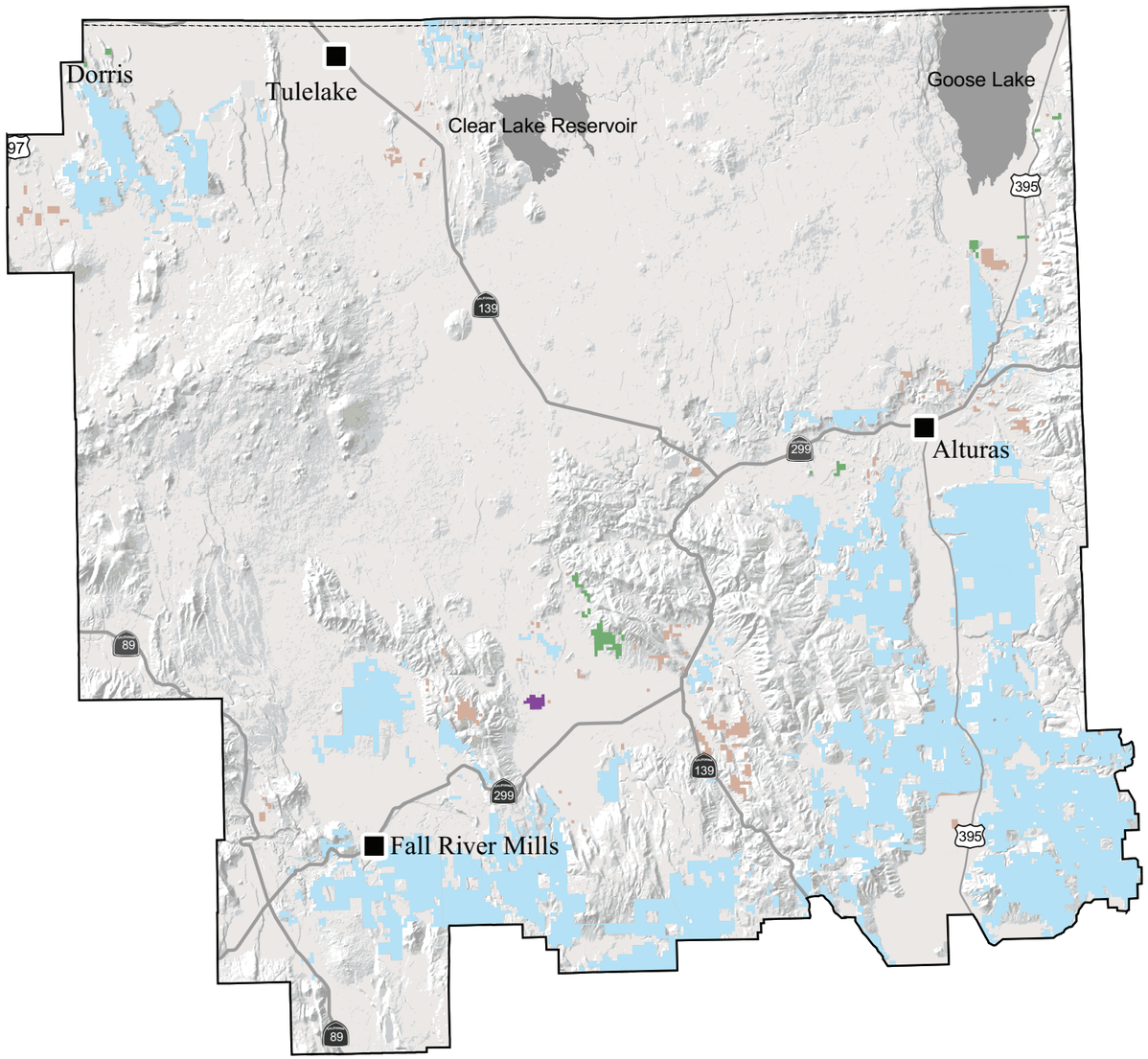
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: LAND - 1

LAND TENURE ADJUSTMENT PLAN

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

CATEGORY

- Proposed Easement Disposal
- Custodial
- Disposal
- Retention/Acquisition

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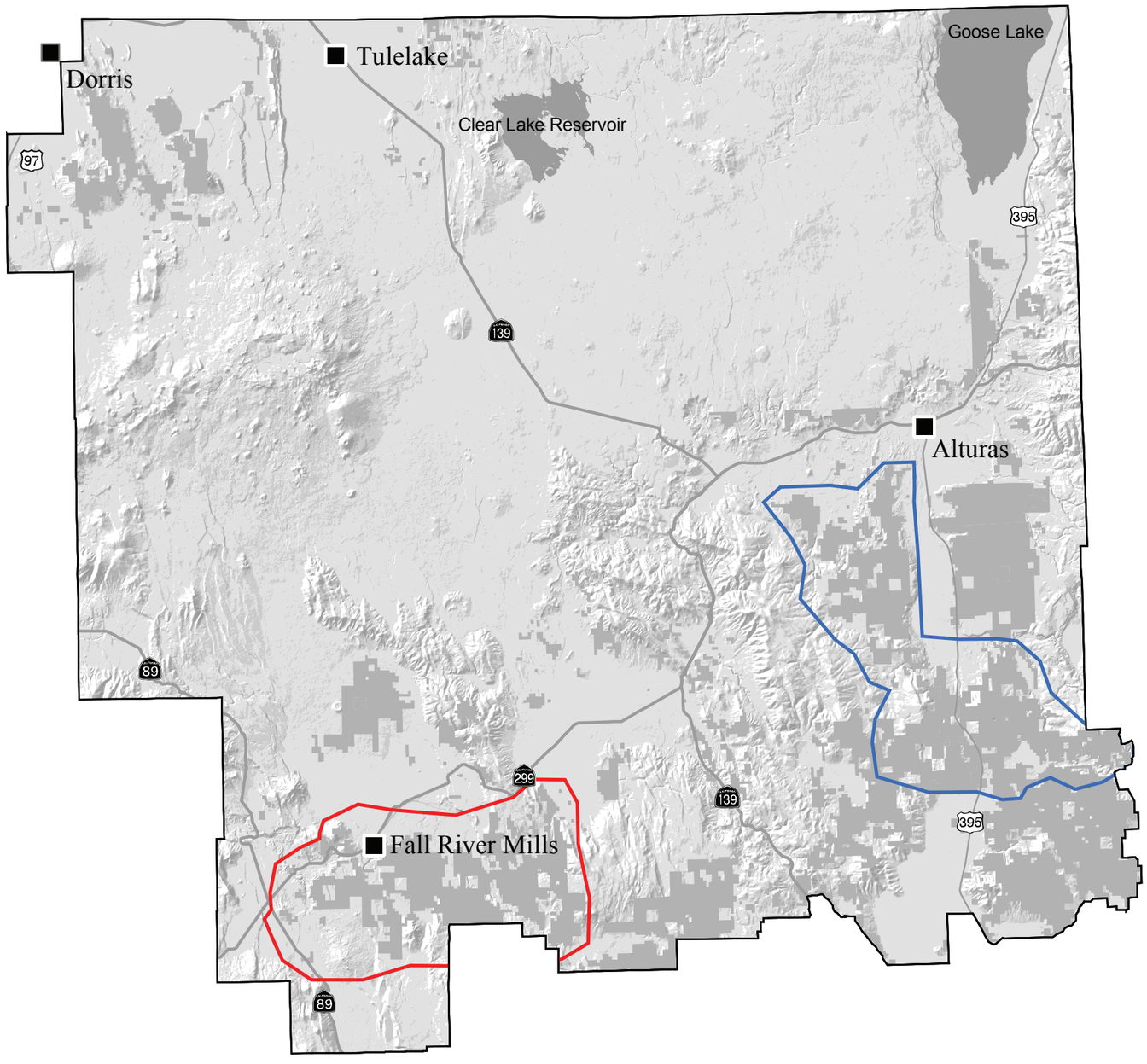
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: SRMA - 1

SPECIAL RECREATION MANAGEMENT AREAS

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management (BLM) Administered Lands

Special Recreation Mgmt. Areas

- Infernal Caverns/Rocky Prairie
- Pit River

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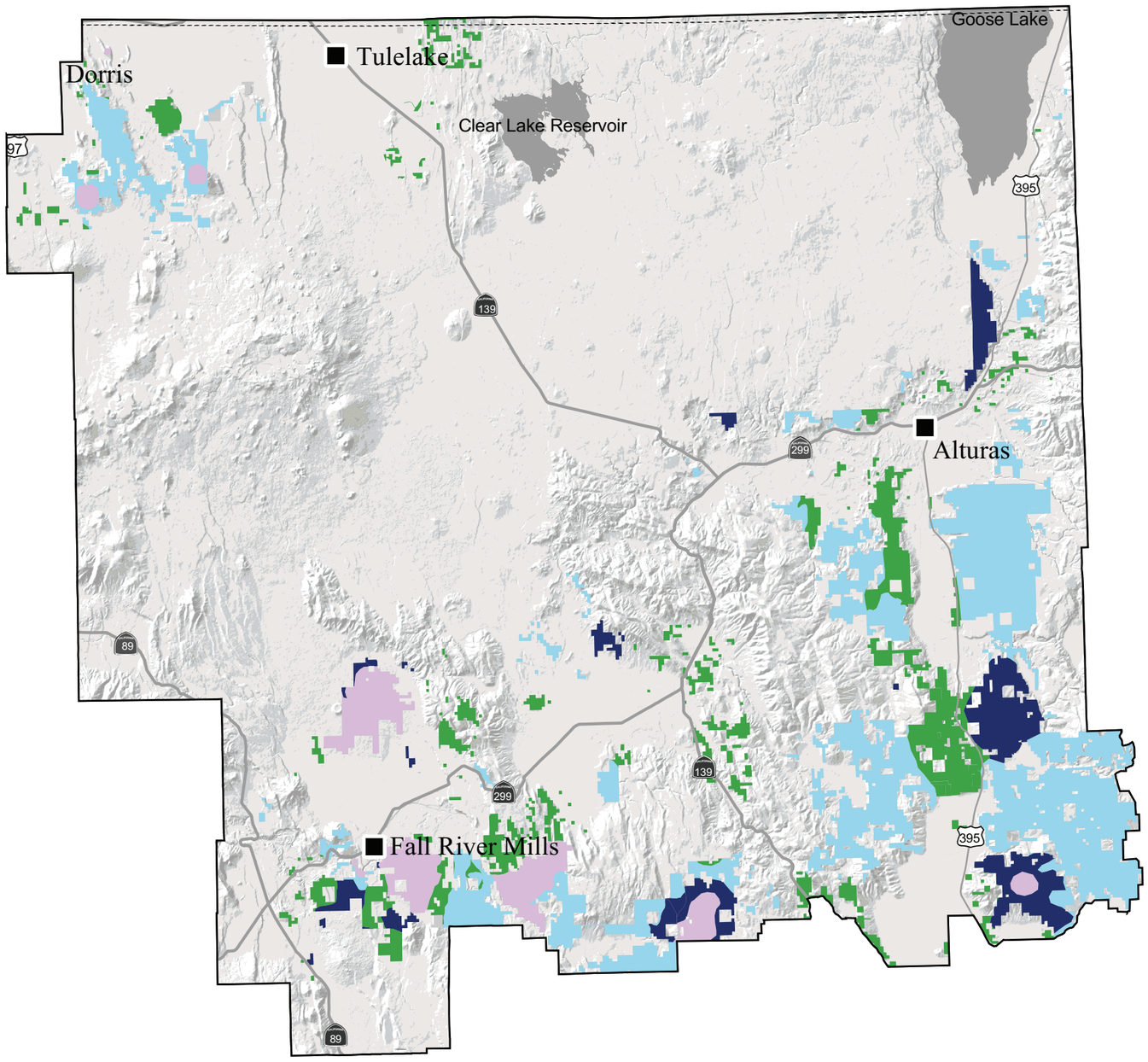
N
W E
S

Kilometers
0 5 10 15 20

Miles
0 5 10 15 20

Map: ROS - 1

RECREATION OPPORTUNITY SPECTRUM



Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

Class

- Primitive
- Semi-Primitive Non-Motorized
- Semi-Primitive Motorized
- Roaded Natural

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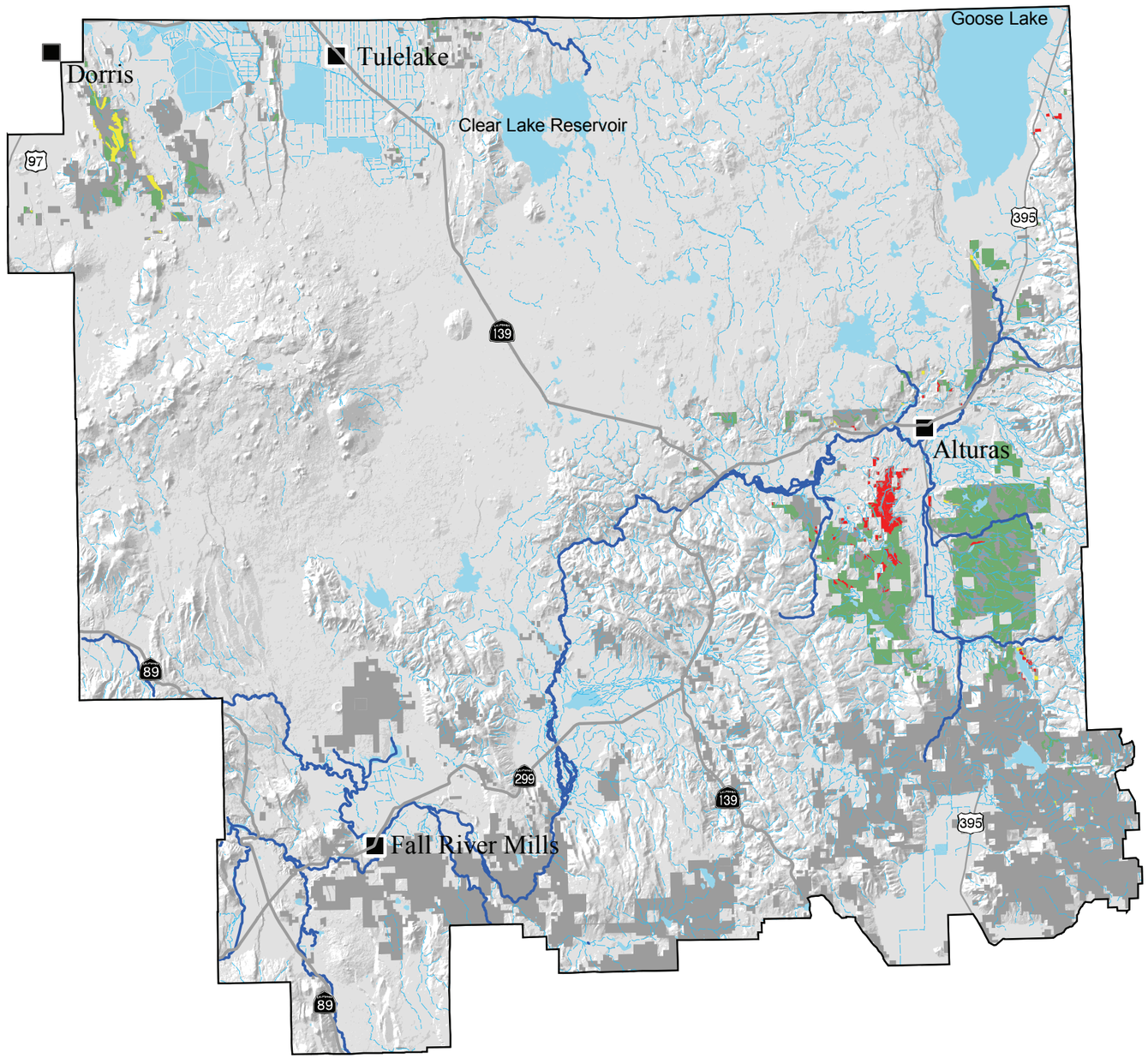
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: SOILS - 1

Soil Stability
Existing Conditions

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management (BLM) Administered Lands

Land Health Assessment Ranking

- Non-Functional
- Functional At Risk
- Proper Functioning Condition

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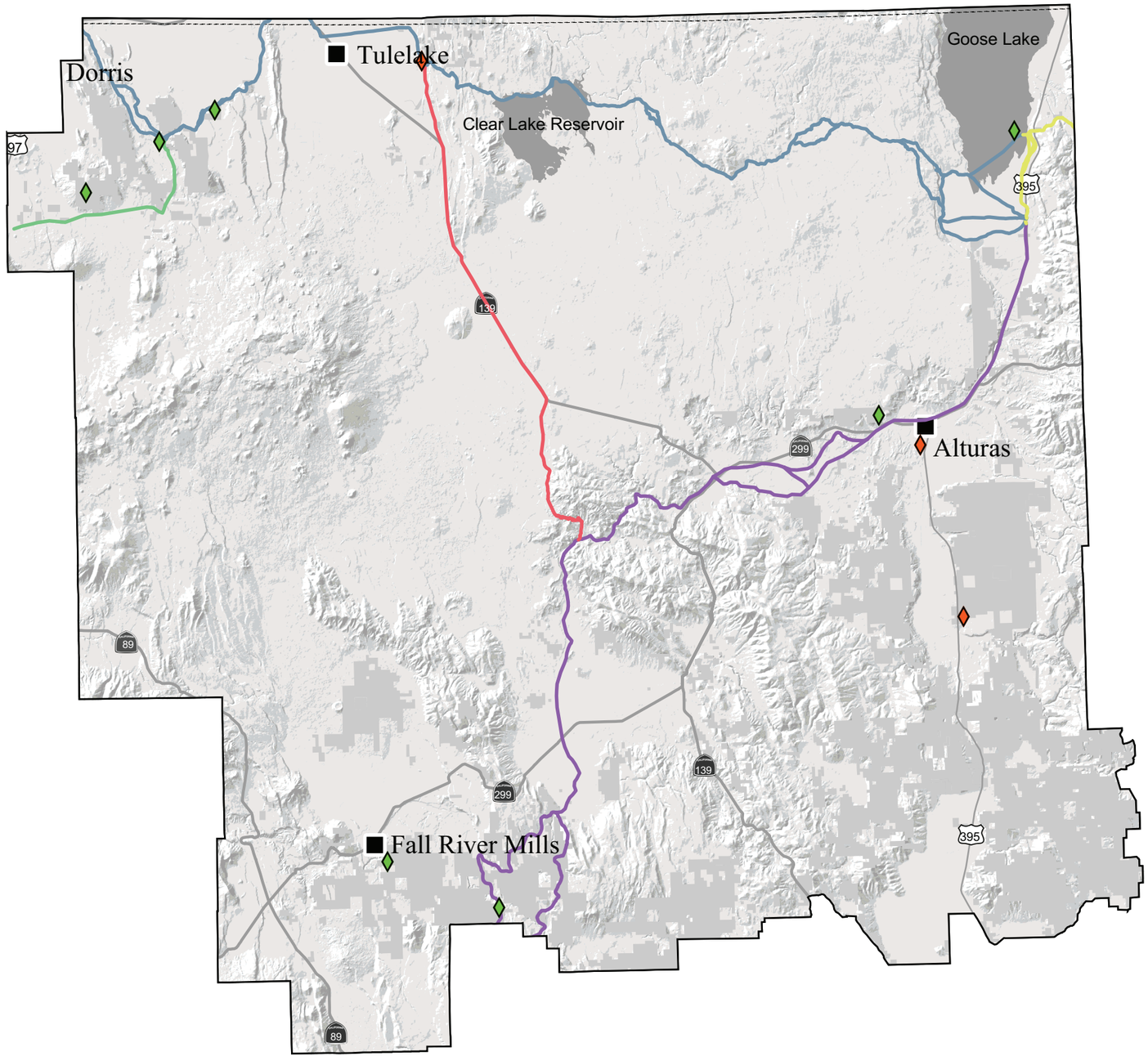
N
W E
S

Kilometers
0 5 10 15 20

Miles
0 5 10 15 20



Map: HT - 1

HISTORIC TRAILS

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Applegate
- Applegate-Lassen
- Burnett Cutoff
- Lassen
- Yreka
- Coordinated Historic Plan
- Interpretive Location

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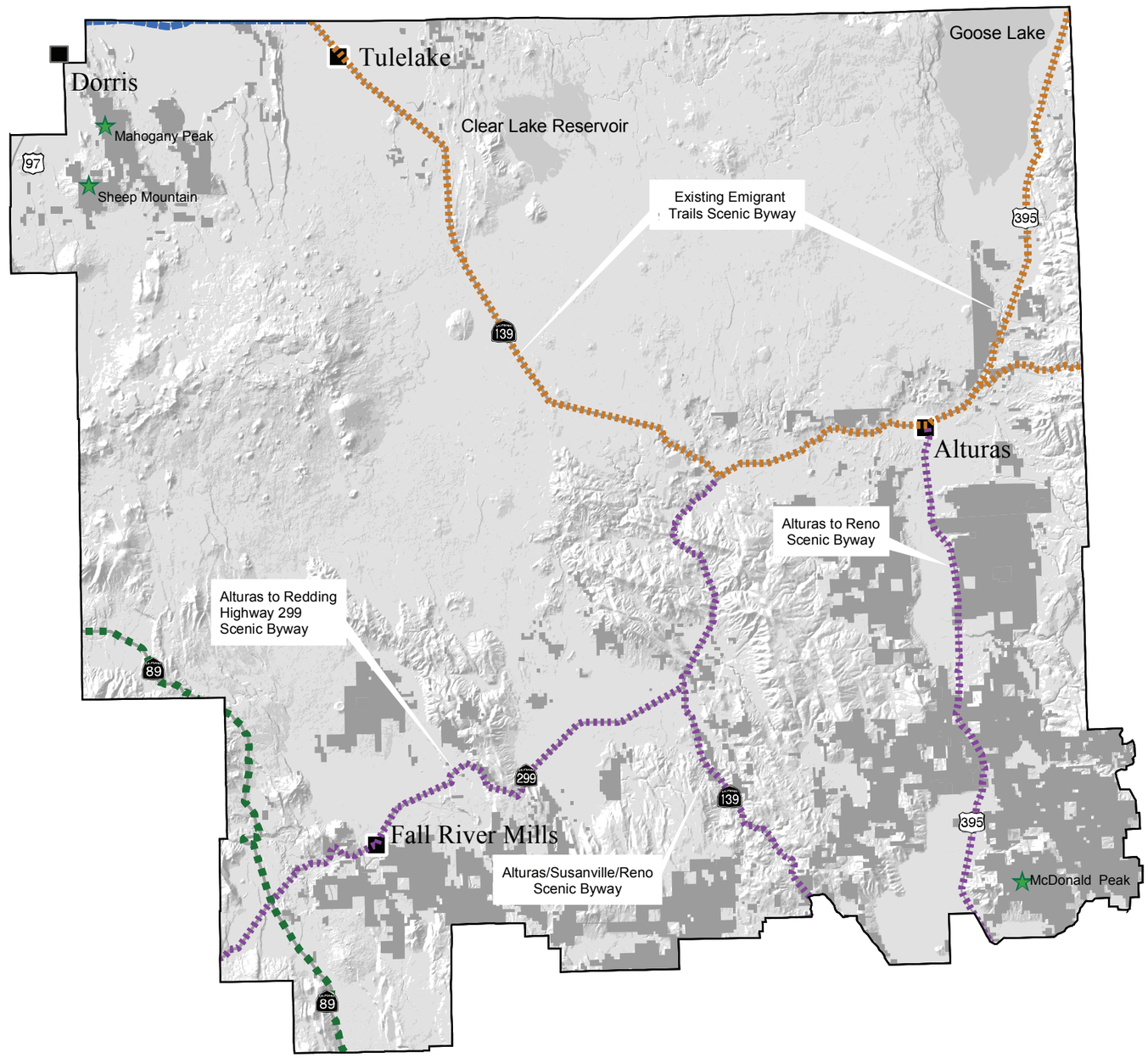
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: SB - 1

SCENIC BYWAYS AND VISTA POINTS

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management (BLM) Administered Lands
- Proposed Scenic Byways

Existing Scenic Byways

- Emigrant Trails
- Shasta Volcanic Scenic Byway
- Volcanic Legacy Scenic Byway
- Proposed Vista Points

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N
W E
S

Kilometers
0 5 10 15 20

Miles
0 5 10 15 20

Map: WSR - 1

WILD AND SCENIC RIVERS

LEGEND

- Cities
- Highways
- Bureau of Land Management (BLM) Administered Lands
- Proposed Wild and Scenic Rivers
- Intermittent Streams
- Perennial Streams

Fall River Mills

Lower Pit River Canyon

Upper Pit River Canyon

Lower Horse Creek Canyon

Pit River

Horse Creek

SHASTA COUNTY

LASSEN COUNTY

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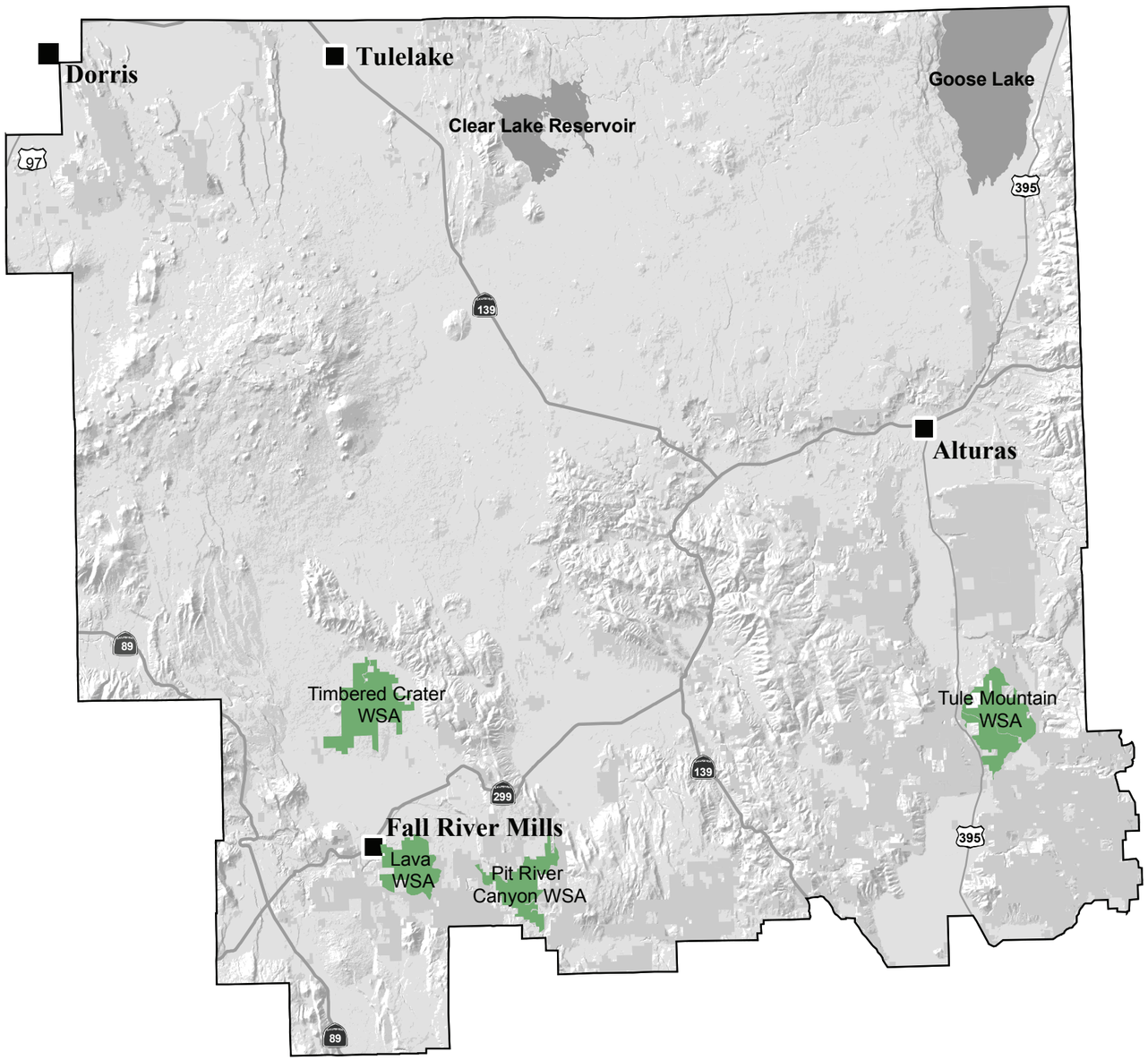
N
W E
S

Nevada
California

Kilometers
0 1 2 3 4

Miles
0 1 2 3 4



Map: WSA - 1

Wilderness Study Areas

Legend

- **Cities**
- **Highways**
- **Lakes**
- **Bureau of Land Management**
- Wilderness Study Area

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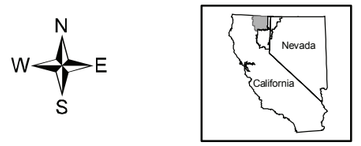
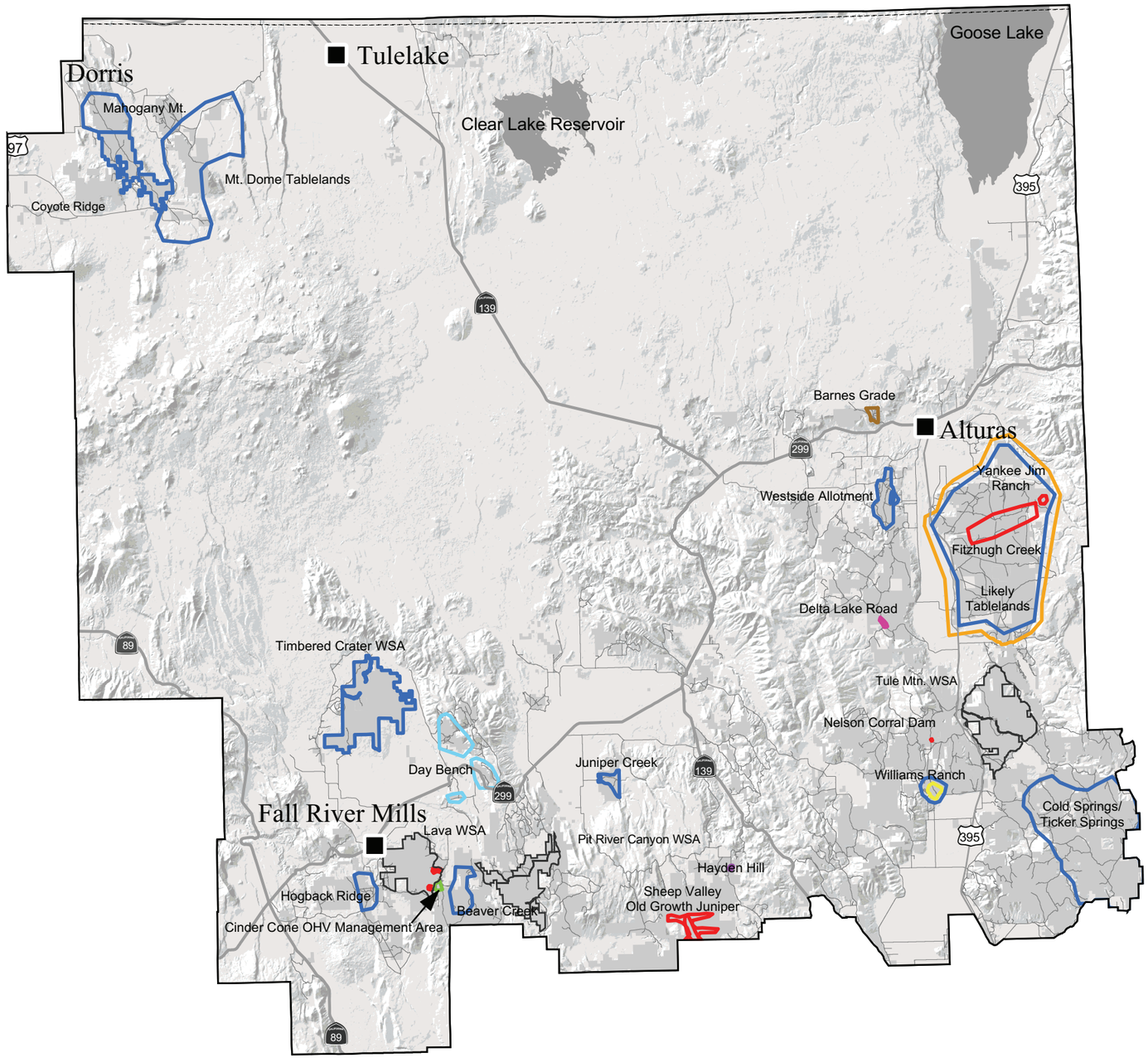


Kilometers
0 5 10 15

Miles
0 5 10 15



Map: TRAVEL - 2

Off Highway Vehicle Designations

- Cities
- Highways
- Other Routes
- Lakes
- Bureau of Land Management
- California
- Wilderness Study Areas

Designation

- Closed
- Closed Dec 1- Apr 15
- Closed Feb - Apr Approximately
- Closed Mar 1- May 15
- Closed Nov 15 - Apr 15
- Closed Nov 15 - Jun 15
- Designated Roads & Trails Only Nov 15-Apr 15
- Designated Roads & Trails Only
- Open

All BLM Routes not otherwise designated are limited to existing roads and trails

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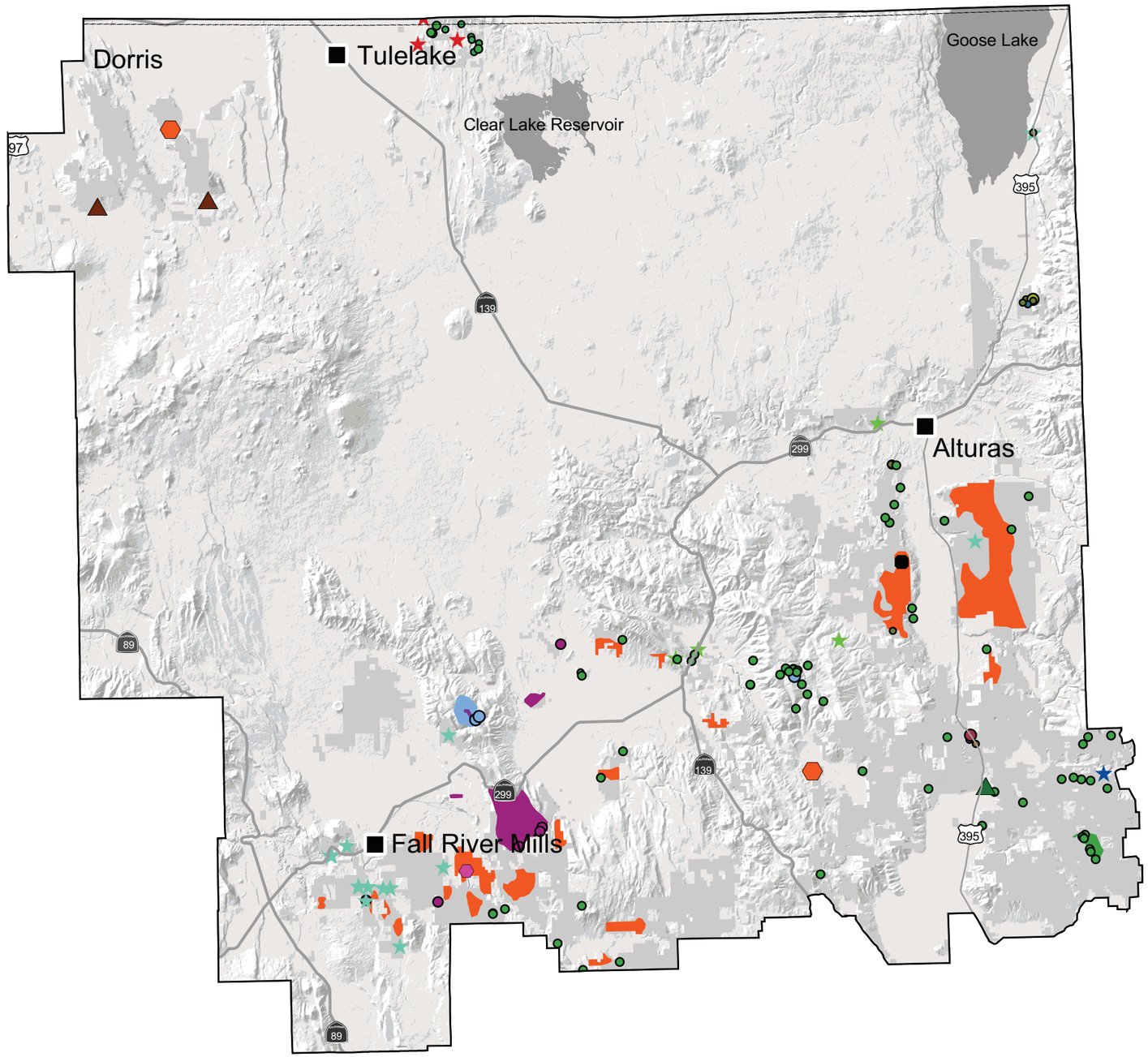
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: VEG - 2

NOXIOUS WEEDS

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

Weed Name

- BULL THISTLE
- CANADA THISTLE
- DALMATION TOADFLAX
- DIFFUSE KNAPWEED
- DYERS WOAD
- HOUNDSTONGUE
- LEAFY SPURGE
- MEDIT. SAGE
- MEDUSAHEAD
- MUSK THISTLE
- PERENNIAL PEPPERWEED
- RUSSIAN KNAPWEED
- RUSSIAN THISTLE
- SCOTCH THISTLE
- SONCHUS
- SPOTTED KNAPWEED
- SQUARROSE KNAPWEED
- ST. JOHNSWORT
- YELLOW STARTHISTLE
- OTHER
- SCOTCH THISTLE
- YELLOW STARTHISTLE
- HOUNDSTONGUE
- SCOTCH THISTLE
- SQUARROSE KNAPWEED

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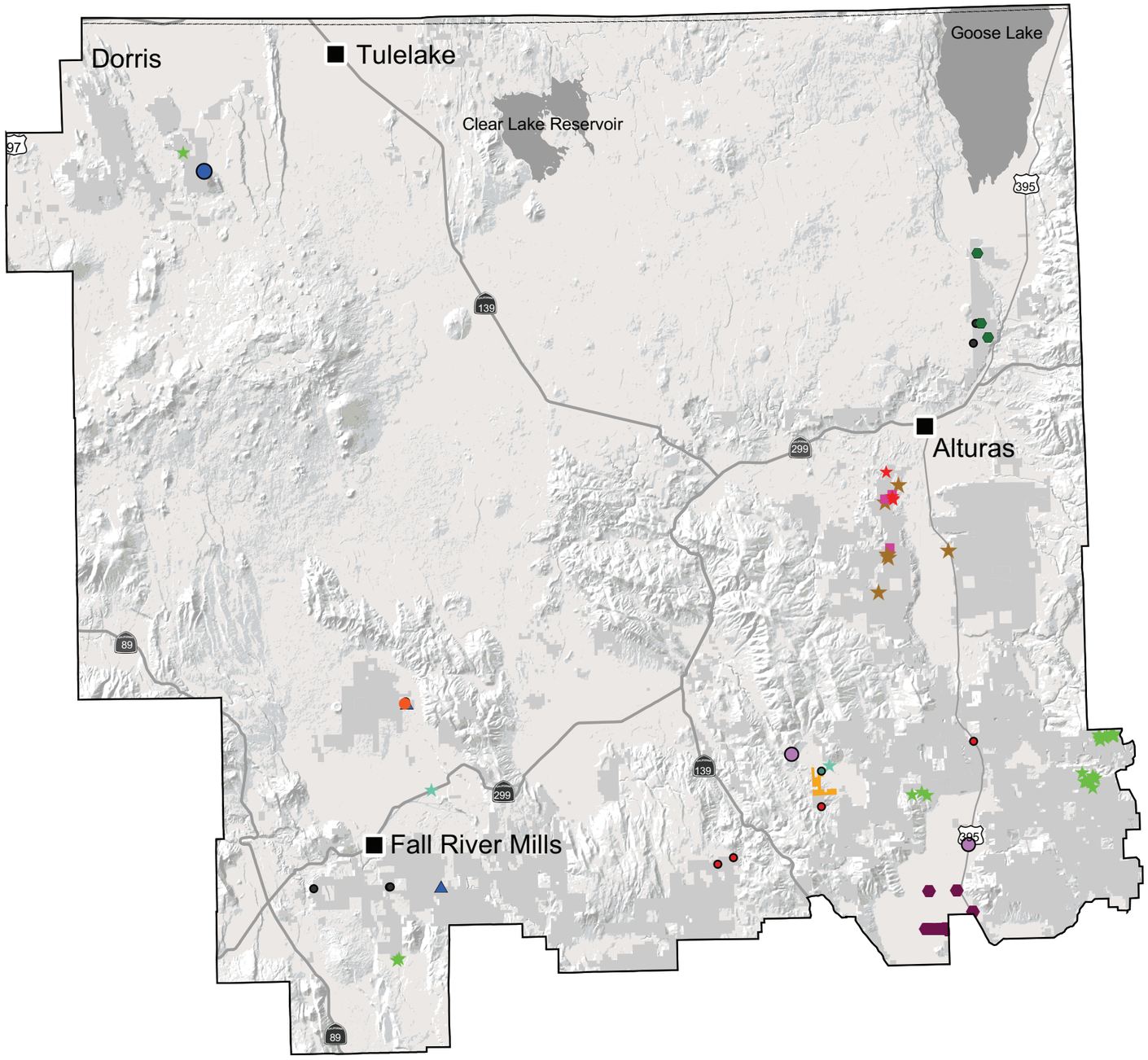
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: VEG - 3

SPECIAL STATUS PLANTS

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

Plant Code and Name

- ILBA-Iliamna bakeri
- ASAG-Astragalus agrestis
- ASPUC-Astragalus pulsiferae var. coronensis
- ERPR-Eriogonum prociduum
- GRHE-Gratiola heterosepala
- LUUN-Lupinus uncialis
- MIEV-Mimulus evanescens
- OREX-Oryzopsis exigua
- ORTE-Orcuttia tenuis
- POBA-Potentilla basaltica
- POFL-Pogogyne floribunda
- POPOE-Polygonum polygaloides ssp. esotericum
- STLA-Stenotus lanuginosus
- THHOH-Thelypodium howellii ssp. howellii
- ERPR, ASAN-Astragalus anxius, IVPA-Ivesia paniculata, POBA

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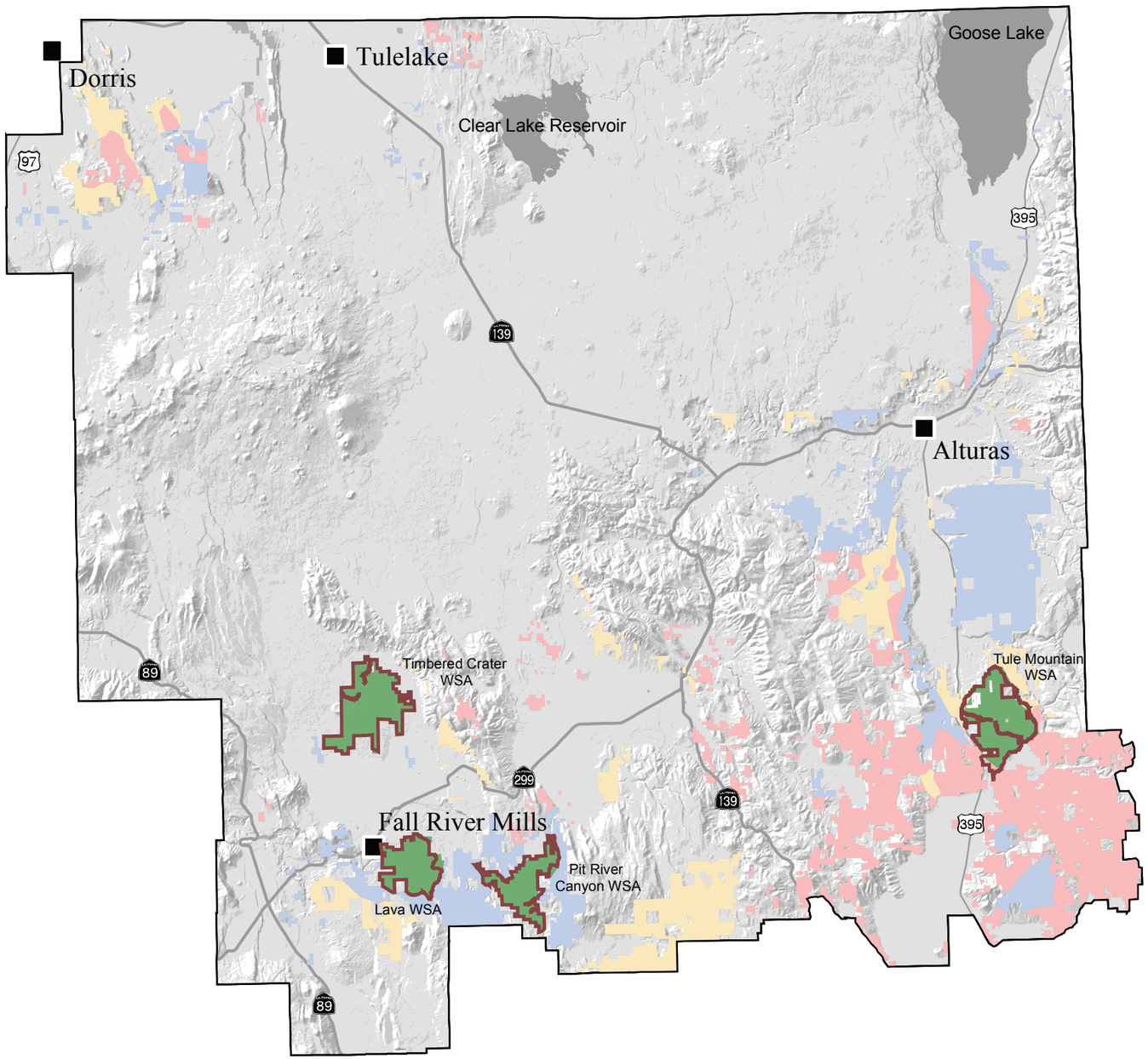
N
W E
S

Nevada
California

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: VRM - 1

VISUAL RESOURCE MANAGEMENT

Legend

- Cities
- Highways
- Lakes
- Wilderness Study Area

Visual Resource Management Classes

- Class I (WSA only)
- Class II
- Class III
- Class IV

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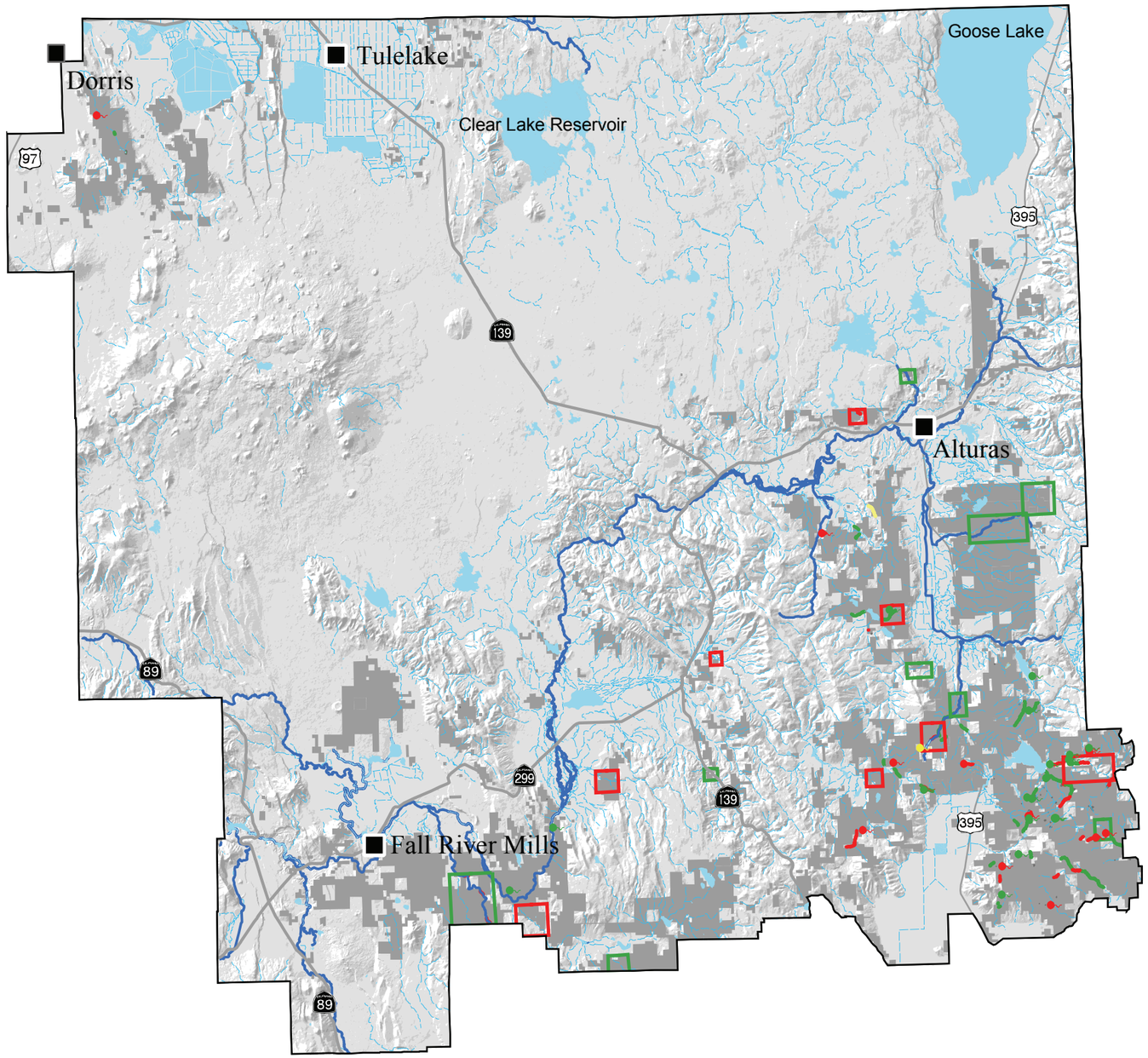
N
W E
S

Kilometers
0 5 10 15 20

Miles
0 5 10 15 20

Map: WATER - 1

WATER QUALITY AND RIPARIAN FUNCTIONAL ASSESSMENT
Existing Conditions



Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management (BLM) Administered Lands

Riparian Functional Assessment Rating

Meadows/Wetlands
- Functioning at Risk
- Properly Functioning
- Unknown

Springs
- Functioning at Risk
- Properly Functioning
- Unknown

Streams
- Functioning at Risk
- Properly Functioning
- Unknown
- Water Quality Below Standards/ Additional Management Needed
- Water Quality Meets Standards/ or Proper Management in Place

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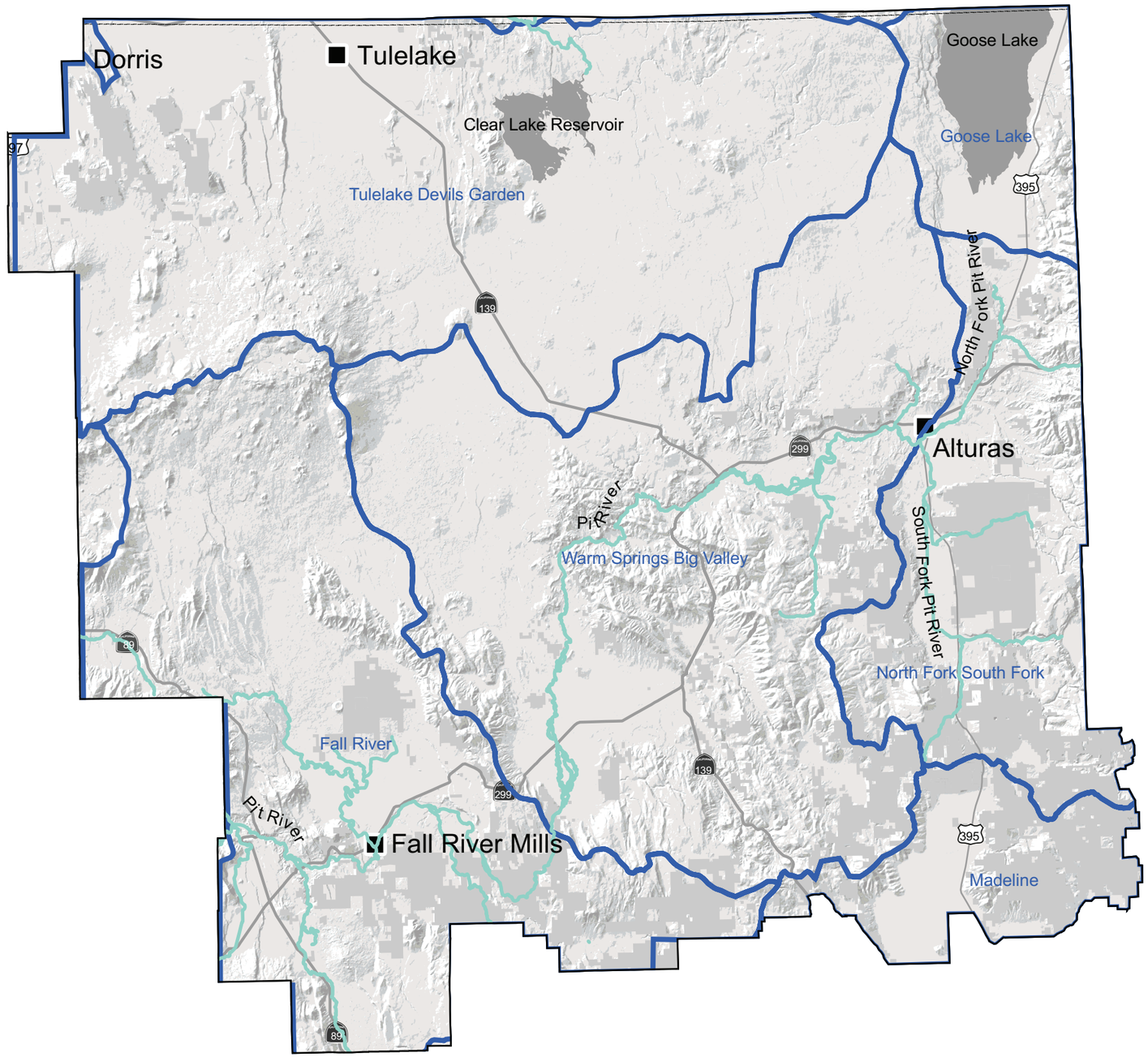
N
W E
S

Kilometers
0 5 10 15 20

Miles
0 5 10 15 20



Map: WATER - 2

WATERSHED BOUNDARIES WITHIN THE ALTURAS FIELD OFFICE

Legend

- Cities
- Highways
- Streams
- Lakes
- Bureau of Land Management
- California
- Watershed Boundaries

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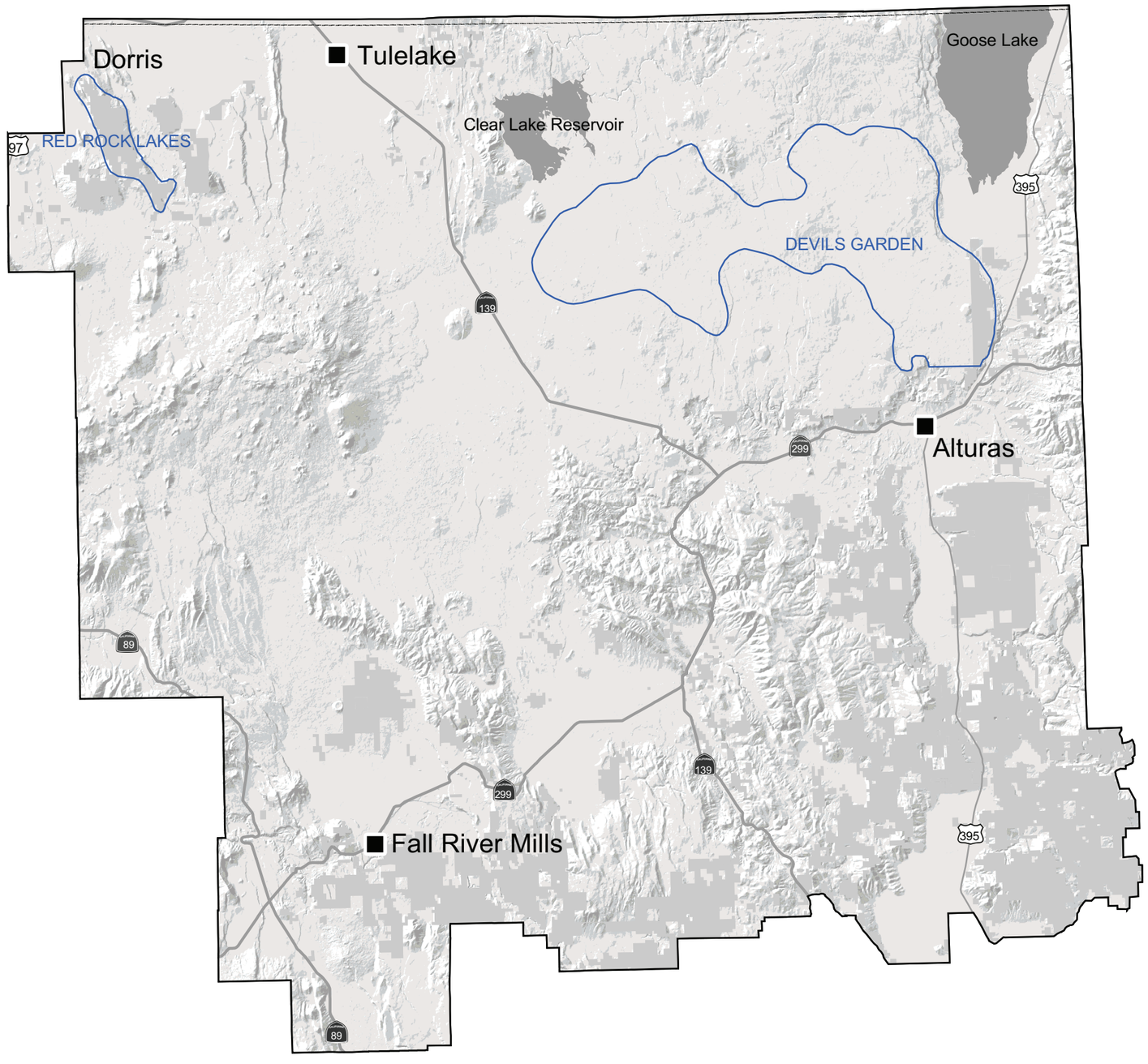
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: WHB - 1

WILD HORSE & BURRO

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Herd Management Areas

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N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15

Map: WILD - 1

OCCUPIED AND DESIGNATED CRITICAL HABITAT FOR MODOC SUCKER

Dorris
Tulelake
Goose Lake
Clear Lake Reservoir
Alturas
Fall River Mills
97
139
299
395
89

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Critical Modoc Sucker Habitat
- Non-Critical Modoc Sucker Habitat
- Modoc Sucker Habitat on BLM

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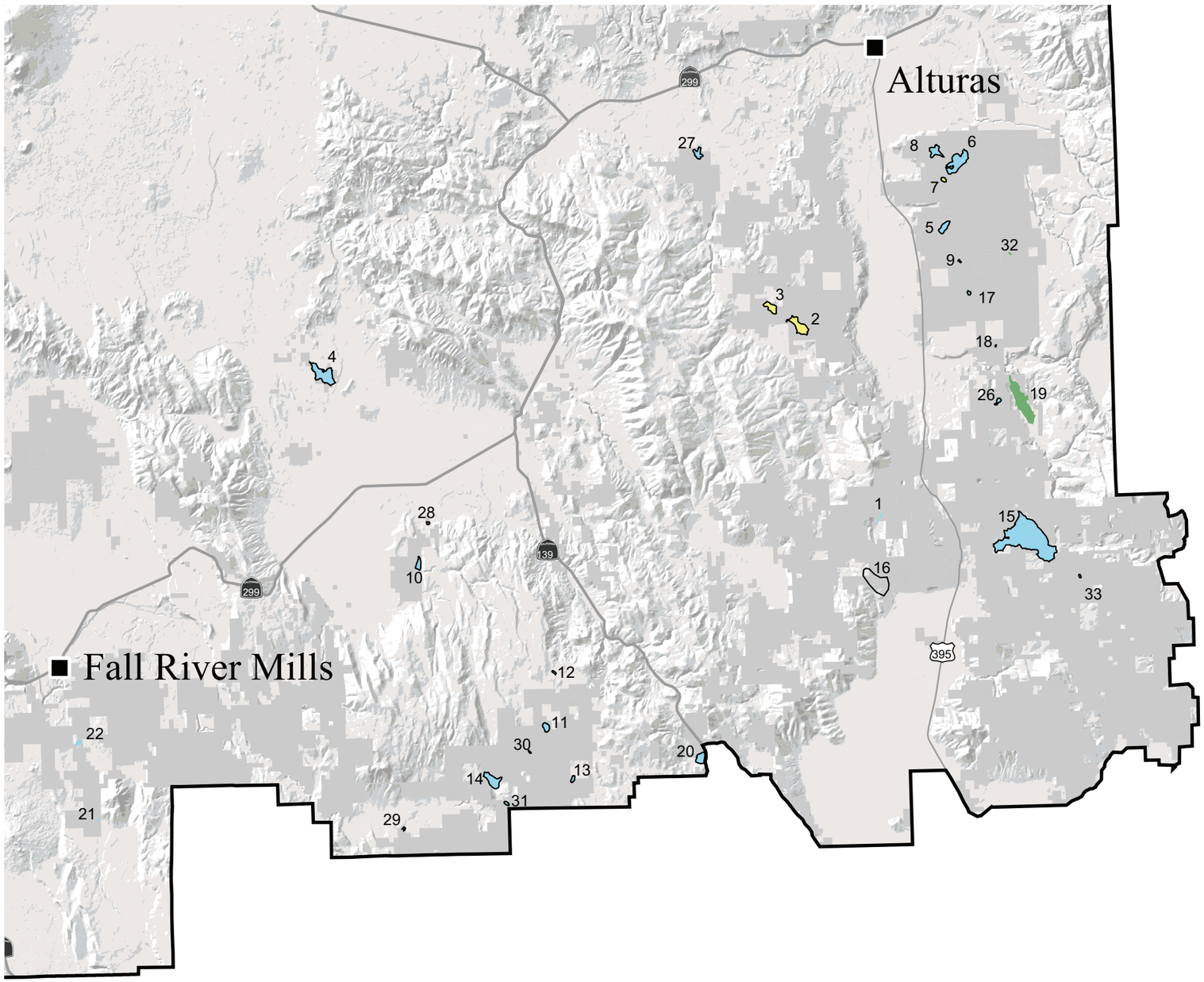
N
W E
S

Nevada
California

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: WILD - 2a

Waterfowl Management

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Proposed Island Fence Only
- Proposed Construction of New Islands
- Existing Constructed Nest Islands
- Proposed Reservior Fence

Refer to Table 2.21-3

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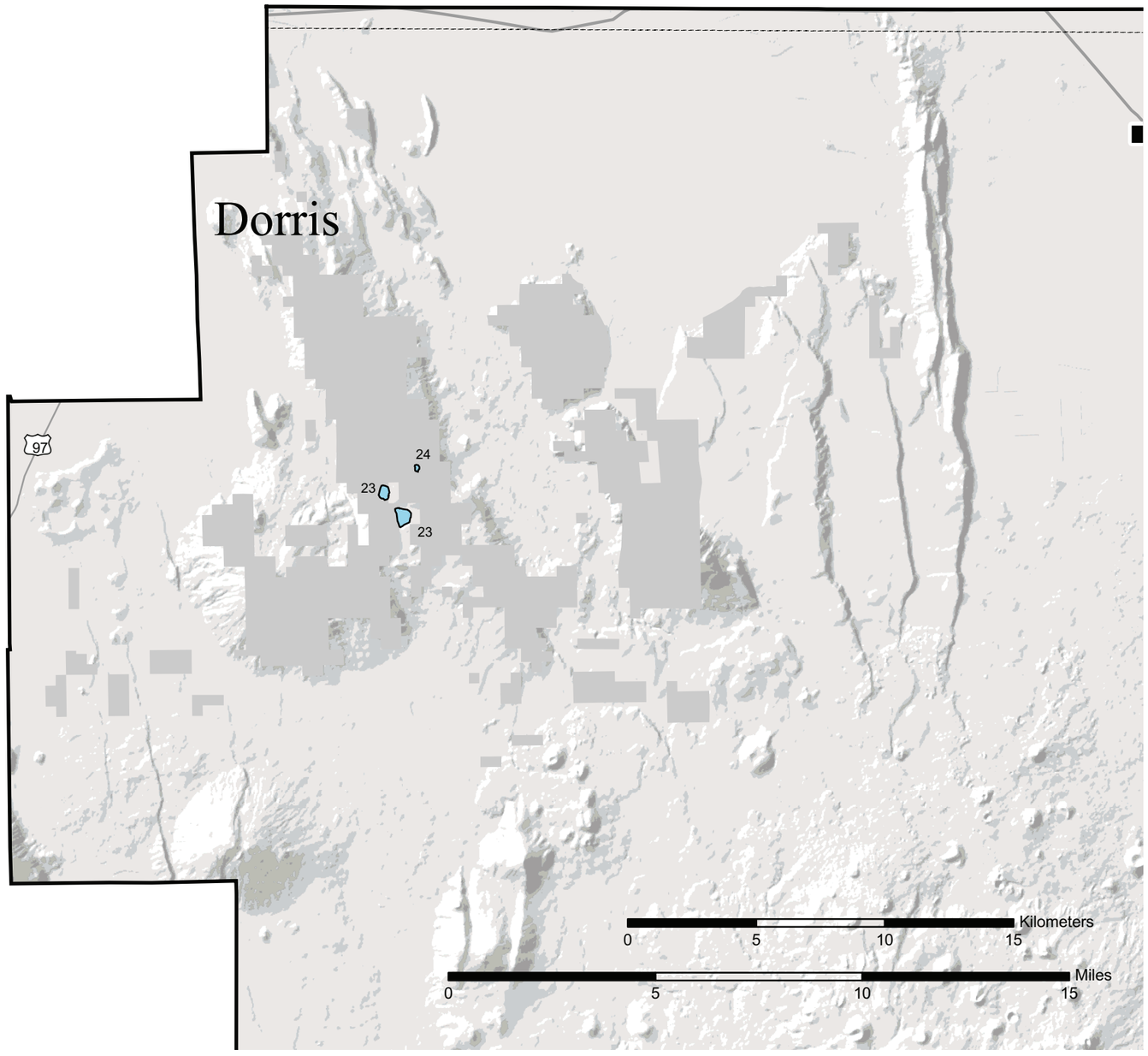
N
W E
S

Nevada
California

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: WILD - 2b

Waterfowl Management (cont.)

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Proposed Island Fence Only
- Proposed Construction of New Islands
- Existing Constructed Nest Islands
- Proposed Reservior Fence

Refer to Table 2.21-3

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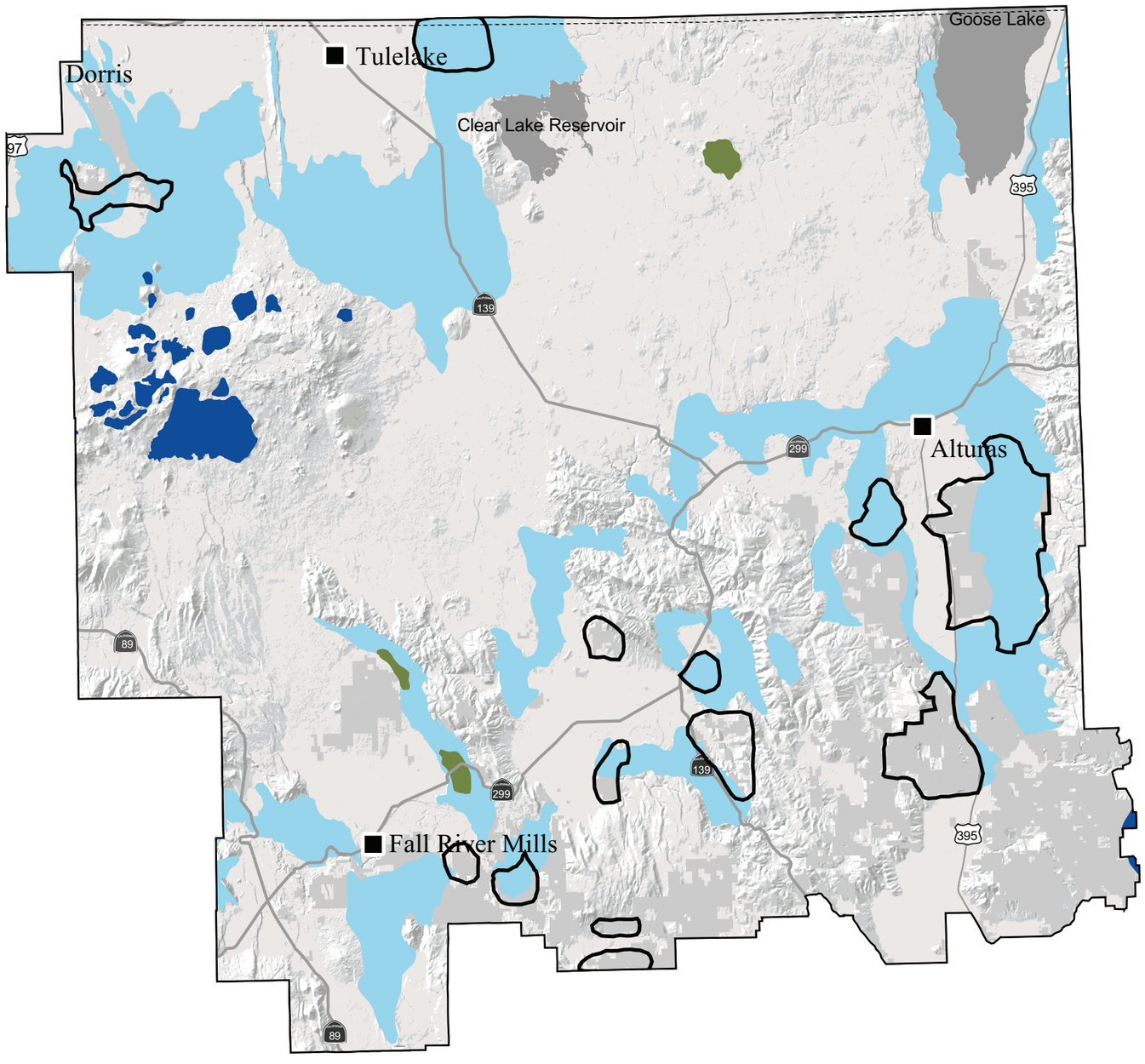
N
W E
S

Map: WILD - 3

DEER RANGE



Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Proposed Priority Management Areas

Description

- Fall Holding Area
- Fawning Ground
- Critical Winter Range

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ALTURAS FIELD OFFICE
Proposed Resource Management Plan / Final EIS

Fall 2006

Source of Data: California
Dept. of Fish & Game, 2004

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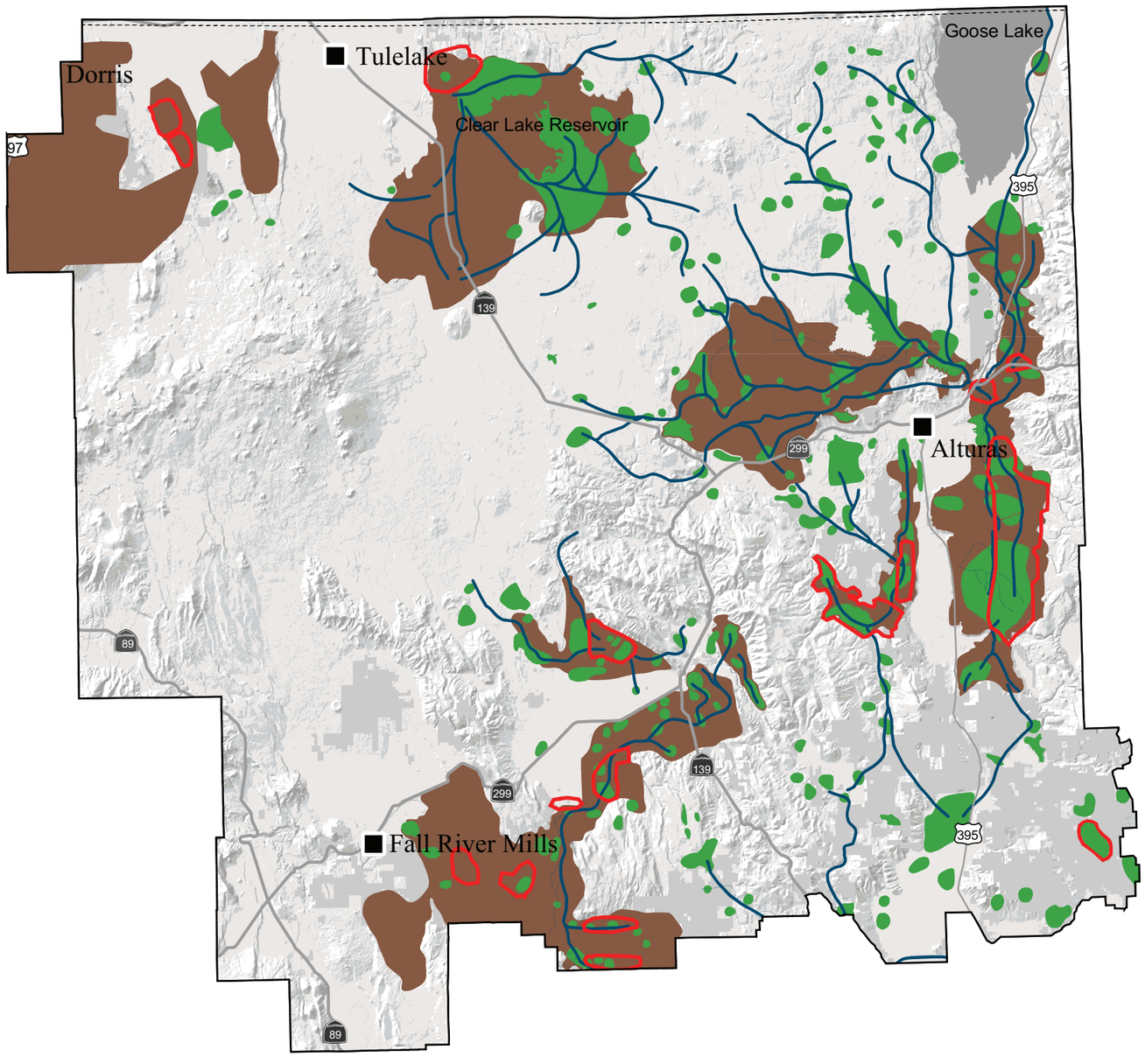
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15

Map: WILD - 4

ANTELOPE RANGE



Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California

Description

- Kidding Grounds
- Migration Corridor
- Winter Range
- Priority Habitat

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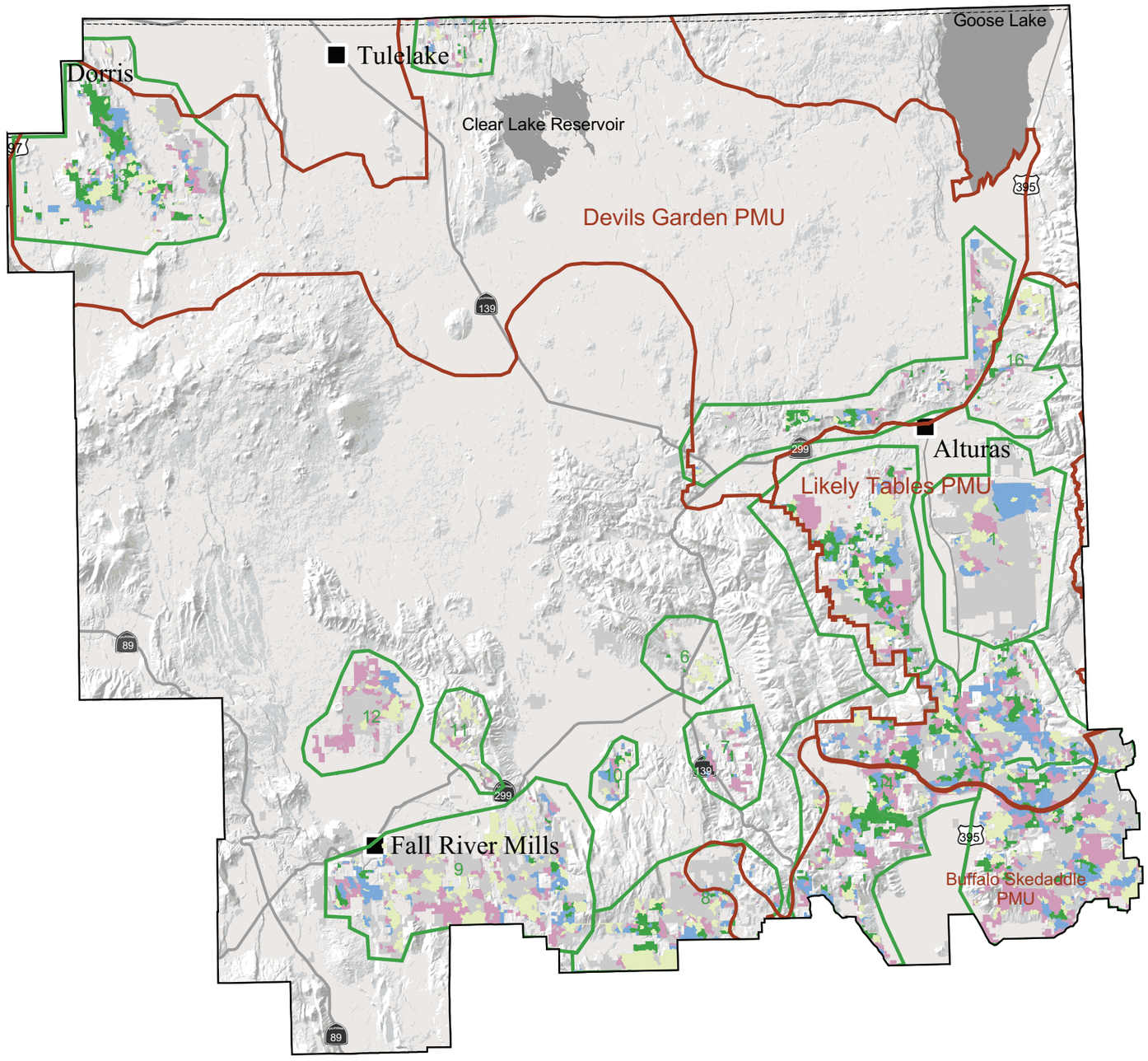
N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15



Map: WILD - 5

Wildlife Management Areas

Legend

- Cities
- Highways
- Lakes
- Bureau of Land Management
- California
- Wildlife Management Areas
- Sagegrouse Population Mgmt Units

Juniper Canopy Class

- 1-5%
- 6-20%
- 21-35%
- > 35%

Refer to Table 2.21-1

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N
W E
S

Kilometers
0 5 10 15

Miles
0 5 10 15

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
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