

8/2000



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

**Winnemucca Field Office
Winnemucca, Nevada**



August 2000

Sonoma-Gerlach and Paradise-Denio Management Framework Plan Amendment and Draft Environmental Impact Statement



**"Everything is connected to everything else...
the complex and interdependent relationships
between the land, air, people and animals."**

MISSION STATEMENT

The Bureau of Land Management is responsible for stewardship of our public lands. The BLM is committed to manage, protect and improve these lands in a manner to serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife habitat, wilderness, air and scenic quality, as well as scientific and cultural values.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Nevada State Office
P.O. Box 12000 (1340 Financial Blvd.)
Reno, Nevada 89520-0006
<http://www.nv.blm.gov>

In Reply Refer To:
1610 (NV-910)

August 11, 2000

Dear Reader:

Enclosed for your review and comment is the Sonoma-Gerlach and Paradise-Denio Management Framework Revised Plan Amendment and Draft Environmental Impact Statement (EIS) for a Management Plan for the Black Rock Desert. This EIS sets forth the management prescription the Bureau of Land management is proposing for the management of the Black Rock Desert.

The proposed planning area encompasses portions of the West Arm of the Black Rock Desert in northwestern Nevada and comprises approximately 452,086 acres of public lands administered by the Winnemucca Field Office within Humboldt, Pershing and Washoe counties, Nevada. No private lands would be directly affected by management direction under the Proposed Action or alternatives.

This draft is a re-issue of the draft released for public review in September 1998. Due to the large volume of comments, the BLM felt that the best way to utilize the public comments was to incorporate them into a re-write of the document and issued a new draft.

Points of contention in the previous draft that have been either eliminated or modified are: common pool, visitor use days, large scale event restriction, Off-Highway Vehicle (OHV) closure, Area of Critical Environmental Concern (ACEC) designation and Visual Resource Management (VRM) Classification.

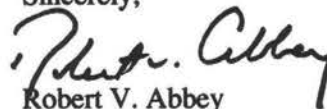
Public comments concerning the adequacy of the Draft EIS will be accepted until November 8, 2000, and must be submitted in writing to EIS Project Manager, Bureau of Land Management, Winnemucca Field Office, 5100 E. Winnemucca Boulevard, Winnemucca, Nevada 89445.

In addition, public meetings to accept verbal comments are scheduled for the following dates and locations. All meetings will start at 7:00 p.m.

September 12, 2000	Red Lion inn, 1401 Arden Way, Sacramento, California
September 13, 2000	Nevada State Office, 1340 Financial Boulevard, Reno, Nevada
September 14, 2000	Winnemucca Field office, 5100 E. Winnemucca Boulevard, Winnemucca, Nevada
September 19, 2000	Cedarville Field Office, 602 Cressler Street, Cedarville, California
September 20, 2000	Gerlach Community Center, 410 Cottonwood, Gerlach, Nevada
September 21, 2000	Lovelock Community Center, 820 6 th Street, Lovelock, Nevada

A Final Environmental Impact Statement will be prepared that will consider the comments received after the public review and comment period. This Final EIS may be in an abbreviated format. Therefore, you should retain this Draft as a reference. For additional information, contact Les Boni at the above address or at 775-623-1500.

Sincerely,

A handwritten signature in cursive script that reads "Robert V. Abbey".

Robert V. Abbey
State Director, Nevada

Enclosure
As Stated

**SONOMA-GERLACH AND PARADISE-DENIO
MANAGEMENT FRAMEWORK REVISED PLAN
AMENDMENT**
and
ENVIRONMENTAL IMPACT STATEMENT
for
THE MANAGEMENT OF THE BLACK ROCK DESERT

(X) DRAFT **() FINAL**

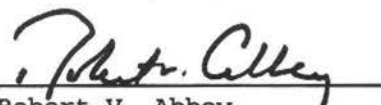
Lead Agency:	U.S. Department of the Interior Bureau of Land Management
Project Location:	Humboldt, Pershing and Washoe Counties, Nevada
Comments on this EIS Should be Directed to:	EIS Project Manager Bureau of Land Management Winnemucca Field Office 5100 E. Winnemucca Boulevard Winnemucca, Nevada 89445 (775) 623-1500
Date Draft EIS Filed with EPA:	August 11,2000
Date by Which Comments Must Be Received by the BLM:	November 8,2000

ABSTRACT

The Revised Draft Plan Amendment and Environmental Impact Statement for the Management Framework Plans for Sonoma-Gerlach and Paradise-Denio sets forth the management prescription the Bureau of Land Management is proposing for the management of the Black Rock Desert in Humboldt, Pershing and Washoe Counties, Nevada. This amendment is in response to the ever increasing public use occurring on the West Arm of the Black Rock Desert. The accompanying EIS fulfills the National Environmental Policy Act, which mandates that federal agencies analyze the environmental impacts of major undertakings.

The proposed planning area encompasses portions of the West Arm on the Black Rock Desert in northwest Nevada and comprises approximately 452,086 acres of public lands administered by the Winnemucca Field Office within Humboldt, Pershing and Washoe Counties, Nevada. No private lands would be directly affected by management direction under the Proposed Action or alternatives.

Responsible Official for EIS:


Robert V. Abbey
State Director, Nevada

ACRONYMS

ACEC	Area of Critical Environmental Concern
ADI	Areas of Development Interest
Ag	Silver
AML	Appropriate Management Level
AMS	Analysis of the Management Situation
ARPA	Archaeological Resource Protection Act
ATV	All Terrain Vehicle
Au	Gold
AUM	Animal Unit Month
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
cfs	cubic feet per second
DEIS	Draft Environmental Impact Statement
DUL	Desired Use Level
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act of 1976
FR	Federal Register
FTE	Full Time Equivalent
GIS	Geographic Information System
HA	Herd Area
Hg	Mercury
HMA	Herd Management Area
HMP	Habitat Management Plan
IMR	Intermountain Research
ISA	Instant Study Area
KGRA	Known Geothermal Resource Area
KOP	Key Observation Point
LAC	Limits of Acceptable Change
LCT	Lahontan Cutthroat Trout
MFP	Management Framework Plan
MOU	Memorandum of Understanding
MUD	Multiple Use Decision
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NCA	National Conservation Area
NDOW	Nevada Division of Wildlife

NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NORA	Notice of Realty Action
NPS	National Park Service
OCTA	Oregon California Trails Association
OHV	Off-Highway Vehicle
PDMFP	Paradise-Denio Management Framework Plan
pH	Potential of Hydrogen
PL	Public Law
PLIC	Public Lands information Center
ppm	parts per million
RAMP	Recreational Area Management Plan
RFD	Reasonable Forseeable Development
RMIS	Recreation Management Information System
ROS	Recreational Opportunity Spectrum
RMP	Resource Management Plan
SGMFP	Sonoma-Gerlach Management Framework Plan
SHPO	State Historic Preservation Officer
SMA	Special Management Area
SMAP	Soldier Meadows Activity Plan
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SUV	Sport Utility Vehicle
T&E	Threatened and Endangered
TNC	The Nature Conservancy
USBM	U.S Bureau of MInes
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VC	Visitor Center
VCS	Visitor Contact Station
VRM	Visual Resource Management
WSA	Wilderness Study Area

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EXECUTIVE SUMMARY

INTRODUCTION

This Revised Plan Amendment and Draft Environmental Impact Statement (DEIS) is a revision of a Draft Plan Amendment and DEIS published in September of 1998 (USDI 1998c). This Revised Plan Amendment and DEIS analyzes three alternatives for managing approximately 443,540 acres of public land administered by the Bureau of Land Management (BLM) in the Black Rock Desert area of northwest Nevada, an area that includes the Black Rock Desert playa (Map 1). The plans to be amended are the Sonoma-Gerlach and Paradise-Denio Management Framework Plans (USDI 1982a, b).

The purpose and need for this plan amendment/EIS is to comply with Bureau policy to develop guidance for the Black Rock Desert Special Recreation Management Area (USDI 1982a, b), as well as to address the increasing recreational use and associated adverse impacts to area resources by special recreation permit events and dispersed recreation use. The objectives and actions identified in the three alternatives are intended to guide decision making for recreation and other uses in the Black Rock Desert area and to minimize adverse impacts to cultural, scenic, and natural resources in the area while providing for compatible resource use and development opportunities.

DESCRIPTION OF ALTERNATIVES, INCLUDING THE PROPOSED ACTION

No Action Alternative

This alternative represents continuing present management as directed under the Sonoma-Gerlach and Paradise-Denio Management Framework Plans and other approved activity plans for resources in the plan area. The objectives and management directions of these land-use plans have been maintained and updated to conform with current BLM regulations and policies.

A Recreation Area Management Plan (RAMP) similar in content to this plan amendment would be developed. Under this alternative, the recommendation in the Approved Soldier Meadow Activity Plan (USDI 1998) to expand the Soldier Meadow Area of Critical Environmental Concern (ACEC) from approximately 300 acres to 35,000 acres would be carried forward. This would include a 3,500-acre mineral withdrawal and a no oil and gas and geothermal leasing restriction on 35,000 acres.

Management activities within the plan area would be addressed on a site-by-site basis. Visitor amenities

would be minimal. Visual resources would be managed according to present VRM classifications, which include all four VRM classes

Alternative 1 - Proposed Action (Preferred Alternative)

This alternative proposes to place some restrictions on recreation and commercial activities within the Black Rock Desert management area. In addition, this alternative provides added protective measures for cultural resources, Native American values, paleontological resources and visual resources.

The preferred alternative would place some limitations on camping, access, off-highway vehicle use, and large scale recreation events. A fee system is proposed for dispersed recreation within the management area. Special Recreation Permits (SRPs) would be evaluated on a case by case basis, subject to a fee in accordance with existing regulations. Returning events would be restricted to current locations pending monitoring results for adverse impacts. The southern portion of the playa would be emphasized for location of new events.

Recreation enhancements and visitor amenities would include construction of a primitive campground, a visitor facility; expanded educational outreach; the offering of an interpretive program, and trail and day trip opportunities. The outreach would include an annual meeting with user groups and an annual report about the plan.

Commercial activity restrictions include a locatable mineral withdrawal along the one mile National Register corridor of the Applegate-Lassen Emigrant Trail and portions of the Soldier Meadow ACEC. Oil, gas, and geothermal leasing would not be allowed along the Applegate-Lassen trail and portions of its setting, at Trego Hot Spring, and within the proposed Soldier Meadow Area of Critical Environmental Concern (ACEC). No sodium and potassium leasing would be permitted within the plan area. Rights-of-way actions would not allow above ground facilities in the plan area located east of County Road 34 and Soldier Meadow Road. Only underground facilities would be allowed in this area.

Alternative 1 proposes additional protective management for visual resources, proposing VRM class II standards for the entire plan area (except in WSAs). Under this alternative, as in the No Action, the recommendation in the approved Soldier Meadow Area Activity Plan (USDI 1998) to expand the Soldier Meadow ACEC from approximately 300 acres to 35,000 acres would be carried forward.

Alternative 2

This alternative proposes additional restrictions on camping, access, off-highway vehicle use, noxious weeds as well as commercial uses, including minerals, land tenure, and rights-of-way. Specific restrictions include closing all dune fields and eliminating mechanized cross country travel in non-playa areas, limiting travel on the emigrant trails to permitted uses only, and closing most roads and trails.

Under this alternative, all SRPs would be assessed a fee according to existing regulations, and a fee system for dispersed recreation would be in place.

Commercial restrictions would include withdrawal of the entire plan area from locatable and leasable minerals. In addition, this alternative provides added protective measures for cultural resources, Native American values, paleontological resources, and visual resources. The level of visitor amenities in Alternative 2 would be similar to Alternative 1. Major differences between Alternatives 1 and 2 are that under Alternative 2, visual resources of the entire plan area would be managed to VRM Class I standards, the entire plan area is proposed as an Area of Critical Environmental Concern (ACEC), a locatable mineral withdrawal is proposed except for Valid Existing Rights, and no oil and gas and geothermal leasing will be allowed.

MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES

Several laws, Executive Orders, regulations, memoranda of understanding, cooperative agreements, Department of Interior manuals, BLM instruction memoranda, and other policies and direction are common to all alternatives. Management direction specific to the Soldier Meadow ACEC within the plan area is also common to all alternatives. That direction is in the Soldier Meadow Activity Plan (SMAP), approved in 1998, and incorporated by reference in all three alternatives. The Soldier Meadow ACEC would be expanded, per the SMAP recommendation, from 307.22 acres to a minimum of approximately 35,000 acres. Under all alternatives, a minimum of 3,500-acre locatable mineral withdrawal would also be pursued per SMAP recommendation. There would also be no oil, gas or geothermal leasing on the 35,000-acre ACEC (Map 9). Since ACECs and mineral withdrawals must be designated through the BLM planning process, these recommendations would be considered in this planning effort.

Where guidance in this revised plan amendment and the SMAP differ in that portion of the plan area within the Soldier Meadow ACEC, the more restrictive guidance will prevail. This guidance and prevailing direction will also apply to any additional acres added to the ACEC through this revised plan amendment.

ISSUES AND CONCLUSIONS

Issues identified previously in the September 1998 draft plan amendment and draft environmental impact statement have been included and management conclusions are outlined in the proposed action and alternatives. Since the No Action Alternative would continue present management, it is anticipated that the negative impacts to the area's resources will continue and accelerate as the number of visitors increases.

Alternative 1 (Proposed Action) would place some limitations on activities which have adversely affected some of the natural and cultural resources within the plan area and provide additional management guidelines for preserving resources while allowing for dispersed use, special recreation events, and commercial activities. A key objective of this management plan would be to decrease those negative impacts in the short and long term even as the number of visitors continues to increase.

Alternative 2 would place further limitations on activities which have adversely affected some of the natural and cultural resources within the plan area and provide additional management guidelines for preserving resources and for dispersed use and special recreation events. This management plan would additionally decrease those negative impacts in the short and long term.

Table S-1 summarizes the important management issues and conclusions identified during the planning process and addressed by the alternatives.

Table S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
RECREATION: PLANNING		
Prepare a Recreation Area Management Plan (RAMP).	Implement this revised plan amendment and draft environmental impact statement in lieu of a RAMP.	Same as Alternative 1.
RECREATION: SPECIAL RECREATION PERMIT EVENTS		
Evaluate and authorize Special Recreation Permit events on a case-by-case basis, subject to existing regulations, and consider the nature of the event, potential impacts to resources, conflicts with other events, and impacts to quality of other visitors' experiences.	Authorize recurring events in the same areas as currently authorized unless unmitigatable adverse impacts are documented, in which case events and/or locations would be re-evaluated. In general, permit new events in the southern playa area (see Map 2A; also see Chapter 3 for definition of southern playa area). Other events proposed in non-playa areas would be evaluated on a case-by-case basis considering the nature of the event, conflicts with other events, potential impacts to resources and the quality of other visitors' experiences.	Same as Alternative 1, except that the type, numbers, size, and/or duration of permitted events would be limited to protect unique natural and cultural resources and settings.
Same as Alternative 1.	Continue to make fees from Special Recreation Permits available for program developments (fee demonstration).	Same as Alternative 1.
Evaluate, on a case-by-case basis and through an environmental analysis process, any requests in Special Recreation Permit applications to remove natural resources.	Under Special Recreation Permits, prohibit removal of natural resources, unless approved by a BLM Authorized Officer.	Under Special Recreation Permits, prohibit removal of natural resources.
Same as Alternative 1.	Require BLM law enforcement at permitted events, as determined by a BLM Authorized Officer.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
RECREATION: DISPERSED RECREATION, INCLUDING VEHICLE ACCESS		
A brochure or map of the general transportation system may be developed. No roads planned for closure or reclamation. Decisions would be made on a case-by-case basis at the discretion of the Field Manager.	Continue to inventory and designate roads and trails. Classify areas as open , limited , or closed (see glossary and Table 2-2), taking into consideration the plan objectives (see Maps 3 and 4A). Consider closing and reclaiming roads and trails that do not serve the objectives of the plan for this alternative.	Same as Alternative 1, except that more areas could be closed to meet plan objectives for this alternative.
Access to and from the playa would not be restricted.	Vehicular access to and from the playa would be limited to designated access roads (see Map 3).	Vehicular access to and from the playa would be limited to a few primary designated access roads.
With the exception of WSAs, public lands within the proposed plan area would remain classified as open for OHV use. WSAs would remain closed to cross-country travel; designated roads and ways within WSAs would be open . Discretionary closures could be made in emergency situations such as when an action poses risk of damage to resources.	The playa would remain open for off-highway vehicle (OHV) use. OHV traffic in non-playa areas between the plan area boundary and playa (including mound/dune fields and detached mounds/dunes) would be limited to designated existing roads and trails, and dry washes (see Maps 3 and 4A). OHV activity in wilderness study areas would be limited to designated roads and ways (see glossary for definitions).	The playa would be open for OHV use, and the remainder of the plan area would be limited to a few primary access roads and, by permit only, the Applegate-Lassen Trail. Cross-country travel in non-playa areas would not be allowed. Exceptions would be made for administrative purposes.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
RECREATION: DISPERSED RECREATION, INCLUDING VEHICLE ACCESS (continued)		
The plan area would be open (as detailed directly above).	Mound/dune fields in the southern playa area (see Map 3) will remain limited until a cultural resource inventory and mitigation/avoidance and landform study have been completed. Mound/dune fields that have no cultural resources or unique landform features would be open to OHV use southwest of the OHV boundary line. Such dune fields having cultural resources or unique landform features could be open to OHV use if adequately mitigated through data recovery or closing of specific features to OHV activity.	All dune fields would be closed to OHV use.
No restrictions.	Allow cross-country access for research projects in limited areas, only with written approval of a BLM Authorized Officer.	Allow cross-country access for research projects in closed and limited areas, only with written approval of a BLM Authorized Officer.
No restrictions.	Allow mechanized travel on portions of the Applegate-Lassen Trail and Nobles Route that are currently well traveled by mechanized vehicles (see Map 3).	Allow mechanized travel by permit only on portions of the Applegate-Lassen Trail and Nobles Route that are currently well traveled by mechanized vehicles.
No restrictions.	All intact segments of the Applegate-Lassen and Nobles Route emigrant trails would be closed to mechanized traffic.	Same as Alternative 1.
Same as Alternative 1.	Continue to classify Wilderness Study Areas as closed to cross-country travel; allow motorized access only on designated existing roads and ways (see Map 3). Exceptions may be made for administrative purposes.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
RECREATION: DISPERSED RECREATION, INCLUDING VEHICLE ACCESS (continued)		
Trail and day-trip opportunities may be developed on a case-by-case basis.	Identify trail and day-trip opportunities and develop supporting literature/brochures.	Specify trail and day-trip opportunities.
No action identified.	Evaluate areas outside the plan area for suitability as OHV intensive-use areas.	Same as Alternative 1.
Rely on existing environmental education program and public outreach to educate users about protecting and preserving the natural and cultural resources in the Black Rock Desert region in relation to OHV use.	Expand environmental education and public outreach in relation to OHV use (see Public Outreach section).	Same as Alternative 1.
Allow overnight vehicular camping throughout the plan area. In Soldier Meadow ACEC (presently approximately 300 acres, but potentially up to 35,000 acres considering proposed ACEC expansion), camping would not exceed 5 consecutive days. Camping designations could occur through discretionary action by a BLM Authorized Officer.	Allow overnight vehicular camping in open and limited areas within 100 feet of roads and trails. Where the playa meets mound/dune fields and in detached mound/dune fields, allow overnight dispersed camping in dune interspaces that have a flat, hard surface (see Map 3). In Soldier Meadow ACEC (35,000 acres), camping would not exceed 5 consecutive days.	Establish designated camping areas to be made available for use by permit only.
Provide facilities based on need, available funding, and public input.	Provide facilities based on need and available funding. Establish a primitive campground in the vicinity of Flowing Wells (see Map 2A).	Same as Alternative 1.
Design facilities to blend with given settings.	Design facilities to meet VRM Class II standards.	Design facilities to meet VRM Class I standards.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
RECREATION: DISPERSED RECREATION, INCLUDING VEHICLE ACCESS (continued)		
No fees for dispersed recreation.	Initiate fee collections system for dispersed recreation.	Same as Alternative 1.
RECREATION: PUBLIC OUTREACH (Note: See Partnerships for additional information of similar nature.)		
Continue to operate a Visitor Contact Station, in the vicinity of Gerlach, on a periodic basis at peak use times.	Construct a visitor facility using a phased approach. <u>Phase 1:</u> Operate a Visitor Contact Station in the vicinity of Gerlach during high-use time periods. <u>Phase 2:</u> Construct a Visitor Center, with full-service interpretive and facility amenities.	Same as Alternative 1.
Staff Visitor Contact Station on a periodic basis with volunteers and BLM employees.	Through cooperative agreements, staff Visitor Contact Station or Visitor Center on a full-time basis during peak use times.	Enter into cooperative agreements to staff a Visitor Center.
Seek grants, cooperative agreements, and volunteer services to provide limited amenities such as information kiosks and brochures.	Seek grants, cooperative agreements, and volunteer services to fund, build, maintain and staff a visitor center.	Same as Alternative 1.
Provide educational outreach on a case-by-case basis, in conjunction with a specific event.	Develop and implement an educational outreach program that includes information kiosks, public workshops, training, and presentations to community and civic organizations, schools, and recreational user groups.	Same as Alternative 1.
Develop and enter into cooperative agreements to assist in maintaining management presence.	Develop and enter into cooperative management agreements with user groups to assist with interpretive program.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
RECREATION: PUBLIC OUTREACH (continued) (Note: See Partnerships for additional information of similar nature.)		
Respond to information requests from the public, media and tourism entities as they arise.	Develop comprehensive interpretive information and public education materials for the plan area. Prepare, publish, and distribute a yearly report about activities, plan implementation progress, and monitoring efforts in the plan area.	Same as Alternative 1.
Distribute available resource information and present public education talks on request.	Provide information on all resources in the plan area to the public through brochures, kiosks at main access points, and scheduled presentations during heavy use periods. Exhibits, videos, audio tapes, and radio also may be used.	Same as Alternative 1.
Install information kiosks <i>at</i> key access points.	Install information kiosks <i>near</i> key access points.	Same as Alternative 1.
Same as Alternative 1.	Encourage low-impact use and back-country ethics, such as <i>Leave No Trace</i> and <i>Tread Lightly!</i>	Same as Alternative 1.
Provide recreation event schedules to the public as event schedules become available.	Provide recreation event schedules to the public, the Nevada Tourism Commission, and other recreational marketing or provider entities.	Recreation event schedules <i>would not</i> be provided to the public.
Monitor recreational uses and patrol the plan area on a periodic basis using BLM staff and volunteers.	Increase BLM presence and visitor services, contingent on funding and staffing from grants and fee collection.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
VISUAL RESOURCE MANAGEMENT (VRM)		
Non-WSA lands would retain VRM classifications in current land use plans (see Map 5)	Non-WSA lands within the plan area would be VRM Class II, except for the Cassidy and southern Calico Mountains ADIs. The Cassidy and Calico ADIs would be VRM Class III during locatable mineral operational activities, and VRM Class II for reclamation (see Map 6).	Non-WSA lands would be VRM Class I (see Map 6).
Same as Alternative 1.	Manage Wilderness Study Areas as VRM Class I, per interim management guidance.	Same as Alternative 1.
Lands within the plan boundary released by Congress from Wilderness consideration would revert to VRM classifications as identified in the current land use plan (see Map 5).	Lands within the plan boundary released by Congress from Wilderness consideration would be managed as VRM Class II.	Any lands within the plan boundary released by Congress from Wilderness consideration would be managed as VRM Class I.
Same as Alternative 1.	Design any new signs and facilities in the plan area to meet VRM Class II standards.	Design signs and facilities to meet VRM Class I standards.
WILDERNESS VALUES		
Same as Alternative 1.	Manage lands designated as Wilderness Study Areas in accordance with interim management guidance, pending Congressional decision on the proposed Wilderness status.	Same as Alternative 1.
Same as Alternative 1.	Wilderness Study Areas would remain closed to cross-country travel; mechanized access would be allowed only on designated existing roads and trails (see Map 3).	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
WILDERNESS VALUES (continued)		
Continue to manage Wilderness Study Areas as VRM Class I. Manage lands released by Congress from wilderness consideration to VRM classifications in current land use plans (see Map 5).	Manage Wilderness Study Areas as VRM Class I. Manage lands released by Congress from wilderness consideration as VRM Class II (see Map 6).	Manage Wilderness Study Areas as VRM Class I. Manage lands released by Congress from wilderness consideration as VRM Class I standards (see Map 6).
Same as Alternative 1.	Establish trailheads at select Wilderness Study Area trails (see Map 6).	Trailheads <i>would not</i> be established.
Same as Alternative 1.	Inventory and evaluate existing trails within Wilderness Study Areas and consider them for designation in the National Trail System.	Existing trails within WSAs <i>would not</i> be inventoried or considered for designation in the National Trail System.
Same as Alternative 1.	Consider establishing a segment of the National Desert Trail through the plan area, including portions of the Pahute Peak and High Rock Lake WSAs (no construction).	Consider establishing a segment of the National Desert Trail, but do not route the trail through any WSAs within the plan area.
CULTURAL RESOURCES		
Same as Alternative 1.	<u>Applegate-Lassen Trail and Nobles Route</u> : Continue to list a 1-mile wide corridor along the Applegate Lassen Trail on the National Register. Also continue to list the Applegate-Lassen and Nobles Route as National Historic Trails (see Map 2A).	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
CULTURAL RESOURCES (continued)		
Same as Alternative 1.	In analyzing proposed projects, continue to consider National Register values, including Applegate-Lassen Trail and its setting, in accordance with Section 106 of the National Historic Preservation Act (NHPA).	Same as Alternative 1.
The Applegate-Lassen Trail viewshed would be managed in accordance with Section 106 of NHPA and the current VRM classes (see Map 5).	Manage Applegate-Lassen Trail viewshed to VRM Class II, except for Cassidy Mine and South Calico Areas of Developmental Interest (ADIs). These two ADIs would be managed to VRM III during locatable mineral operation, but to VRM II for reclamation. Temporary adverse impacts to the trail viewshed would be evaluated on a case-by-case basis, except for special recreation permits on the playa, which would be managed in accordance with the recreation Proposed Action (see Map 6).	Manage the Applegate-Lassen Trail viewshed to VRM Class I.
Evaluate projects having potential to adversely impact non-visual elements of Applegate-Lassen Trail setting on a case-by-case basis.	Evaluate and mitigate actions having potential for either short or long-term adverse impacts (including noise) to non-visual elements (such as solitude) of the Applegate-Lassen Trail setting. Mitigate and evaluate temporary adverse impacts on a case-by-case basis, except for special recreation permits on the playa, which would be managed in accordance with the recreation Proposed Action.	Discretionary actions with potential for short and long-term adverse impacts to nonvisual elements of the Applegate-Lassen Trail setting would not be allowed. Evaluate temporary adverse impacts on a case-by-case basis.
Same as Alternative 1.	Manage the Nobles Route as National Register eligible with contributing elements (such as intact trail traces).	Evaluate the entire Nobles Route viewshed as a cultural landscape and manage it as National Register eligible.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
CULTURAL RESOURCES (continued)		
<p>Prohibit mechanized travel on intact traces of the Applegate-Lassen Trail and Nobles Route when authorizing individual permits.</p> <p>Same as Alternative 1.</p>	<p>Prohibit mechanized travel on intact traces of the Applegate-Lassen Trail and Nobles Route.</p> <p>Allow mechanized travel on portions of the Applegate-Lassen Trail and Nobles Route that are currently well traveled by mechanized vehicles.</p>	<p>Same as Alternative 1.</p> <p>Allow mechanized travel by permit only on portions of the Applegate-Lassen Trail and Nobles Route that are currently well traveled by mechanized vehicles.</p>
<p>Conduct inventories and mitigation, as required for compliance with federal laws and regulations.</p>	<p>Develop a historic context, research design and sampling strategy for the plan area. Inventory, record, evaluate, and manage cultural resource sites.</p>	<p>Same as Alternative 1.</p>
<p>No systematic cultural resource inventory of the mound/dune fields in the southern playa area would be undertaken.</p>	<p>Mound/dune fields in the southern playa area (see Map 3) will remain limited until a cultural resource inventory and mitigation/avoidance has been completed. Mound/dune fields that have no cultural resources or unique landform features would be open to OHV use southwest of the OHV boundary line. Such dune fields having cultural resources or unique landform features could be open to OHV use if adequately mitigated through data recovery or closing of specific features to OHV activity.</p>	<p>Since all mound/dune fields would be closed to OHV use, no systematic cultural resource inventory would be undertaken.</p>
<p>Conduct additional research on the Applegate-Lassen Trail and Nobles Route as part of project required Section 106 compliance.</p>	<p>Conduct additional research on the Applegate-Lassen Trail and Nobles Route in coordination with the National Park Service Long-Distance Trails Office, Oregon-California Trail Association, and other interested entities.</p>	<p>Same as Alternative 1.</p>

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
CULTURAL RESOURCES (continued)		
<p>Classify sites by management-use categories (scientific, conservation for future, traditional, public, experimental, discharge from management, as discussed in Management Guidance Common to All Alternatives), as time and funding allow. Interpret sites on a case-by-case basis.</p>	<p>Manage the following historic sites and routes for public use:</p> <ul style="list-style-type: none"> • Applegate-Lassen Trail • Nobles Route • Fremont Route • Historic camp sites on above three routes • Hardin City • The Lassen-Clapper Murder site <p>Consider other well known and/or heavily impacted cultural sites for public use designation. Interpret sites using non-intrusive methods. Coordinate interpretation of Emigrant Trail with National Park Service Long-Distance Trails Office. For Hardin City, prepare treatment plan. Designate appropriate prehistoric sites for public use, along with interpretation.</p>	<p>The following sites and routes would be managed for conservation use:</p> <ul style="list-style-type: none"> • Applegate-Lassen Trail • Nobles Route • Fremont Route • Historic camp sites on above three routes • Hardin City • The Lassen-Clapper Murder site
<p>No action identified.</p>	<p>Fully record all rock art sites. Designate appropriate rock art sites for public use, along with interpretation.</p>	<p>Manage prehistoric rock shelter, occupation sites with probable or known buried deposits and quarry sites, hunting blinds, lithic scatters, pebble mounds, rock art sites, and historic sites with an emphasis on conservation use.</p>

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
CULTURAL RESOURCES (continued)		
Distribute available historic, prehistoric, and emigrant trail information and present public education talks on request.	Provide information on prehistory and history to the public through brochures, kiosks at main access points, visitor contact/visitor center, and scheduled presentations during heavy-use periods. Consider exhibits, videos, audio tapes, and radio. Include protective messages in interpretive and educational material.	Same as Alternative 1.
Respond to requests to conduct research on a case-by-case basis.	Promote and encourage research projects.	Evaluate requests to conduct research with an emphasis on conservation use.
Classify prehistoric and historic sites by management use categories (described above and in Management Guidance Common to All Alternatives) on a case-by-case basis.	Manage prehistoric and historic resources with an emphasis on scientific use. Preserve a representative sample of sites and manage for conservation use.	Manage prehistoric and historic resources with an emphasis on conservation use. Manage a representative sample for scientific use.
Post protective signs (with positive message), as need arises and personnel and funding allow.	Post protective signs (with positive message) at well-known, at-risk cultural resource sites. Coordinate signing of Applegate-Lassen Trail and Nobles Route with the National Park Service Long-Distance Trails Office.	Same as Alternative 1.
Patrol sensitive cultural resource sites periodically on heavy-use holiday weekends	Patrol sensitive cultural resource sites during heavy use periods. Increase BLM/volunteer presence and training.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
CULTURAL RESOURCES (continued)		
Respond to partnerships and volunteer offers and seek funding and assistance, on a project-by-project basis, to assist with implementing projects .	Seek partnerships with universities, researchers, Native Americans, user groups, and others to implement cultural objectives. Also encourage volunteer participation. Seek challenge cost-share monies and grants as funding sources and use fee demonstration monies for implementation.	Same as Alternative 1.
NATIVE AMERICAN VALUES		
Same as Alternative 1.	Consider Tribal recommendations in project planning.	Follow Tribal recommendations in land-use planning to the maximum extent allowed by law.
Consult tribes on a project-by-project basis.	Consult Tribes to identify sensitive areas requiring special protection.	Same as Alternative 1.
Same as Alternative 1.	Consult Native American Tribes prior to authorizing actions that have potential to impact areas of Native American concerns. Also consult for mitigation activities and when Native American remains are discovered.	Same as Alternative 1.
Evaluate, on a case-by-case basis, those activities that have potential to adversely impact traditional cultural properties.	Manage traditional cultural properties (and their settings) identified by Native Americans to VRM Class II standards.	Manage the traditional cultural properties (<i>and their settings</i>) identified by Native Americans to VRM Class I standards.
Involve tribes in cooperative management of traditional cultural properties on a project-by-project basis..	Involve tribes in cooperative management of traditional cultural properties.	Same as Alternative 1

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
NATIVE AMERICAN VALUES (continued)		
Same as Alternative 1	Make decisions, on a case-by-case basis, about access to traditional cultural properties that are National Register eligible.	Access to National Register eligible traditional cultural properties and sacred sites would remain open to Native Americans, but other users would be limited.
Share data on a case-by-case basis.	Negotiate with Tribes to develop and implement a cultural resource data-sharing agreement that allows tribes access to archeological site records protected by Archaeological Resources Protection Act.	Same as Alternative 1
Consider recommendations regarding revegetation on a case-by-case basis.	Emphasize revegetation with native plants, including plants used by Native Americans, in reclamation efforts.	Same as Alternative 1.
Include information on Native Americans in public education, interpretive materials, and presentations on a case-by-case basis.	Include Native American information in public education/interpretive materials and presentations. Invite Native Americans to participate in preparation and review of this information.	Same as Alternative 1.
PALEONTOLOGY		
Conduct vertebrate collection under current and valid permits. Manage invertebrate casual use collection under existing laws and regulations.	Evaluate paleontological resources for scientific and educational significance. Require inventories for paleontological resources for surface-disturbing activities in sensitive areas. Evaluate, avoid, and mitigate adverse impacts to paleoenvironmental resources.	Evaluate activities under permitting review to identify and prevent adverse impacts. Limit access to known paleontological resources to permitted activities.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
PALEONTOLOGY (continued)		
Evaluate paleontological locales for use categories on case-by-case basis.	Evaluate paleontological locales for significance and scientific and education use.	Manage non-degraded resources for conservation use.
Evaluate requests to conduct paleontological and paleoenvironmental research on a case-by-case basis.	Develop cooperative agreements to inventory, record, and evaluate paleontological locales.	Develop cooperative agreements for systematic approach to inventory, map and evaluate fossil-bearing strata.
Have limited number of monitor, patrol and public education efforts.	Increase number of monitor, patrol and public education efforts .	Same as Alternative 1.
ENERGY AND MINERAL RESOURCES: LOCATABLE MINERALS		
Defer proposal for 3,500-acre mineral withdrawal per the Soldier Meadow ACEC Activity Plan to a separate land use plan amendment	Pursue mineral withdrawals in the following two areas totaling about 39,500 acres, subject to Valid Existing Rights and Congressional approval: <ul style="list-style-type: none"> • Approximately 3,500 acres for Soldier Meadow, Activity Plan • Approximately 36,000 acres along a corridor one-mile wide (one-half mile on either side) of the Applegate-Lassen Emigrant Trail listed on the National Register (see Map 9) 	Pursue a mineral withdrawal for the entire plan area of approximately 443,540 acres, subject to Valid Existing Rights and Congressional approval.
All public lands within the plan area would remain open to location of minerals per the 1872 Mining Law and subject to future withdrawal in Soldier Meadow.	All public lands within the planning area, except for the two areas identified above for withdrawal, would remain open to location of minerals per the 1872 Mining Law (see Map 9).	Pending Congressional approval, all public lands within the plan area would be closed to location of minerals , except for Valid Existing Rights.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
ENERGY AND MINERAL RESOURCES: LOCATABLE MINERALS (continued)		
Manage locatable minerals activities to VRM standards in current land use plans (see Map 5).	Manage locatable mineral activities in the plan area to VRM Class II throughout the period of operations, except for Cassidy Mine and Southern Calico ADIs, which would be managed to VRM Class III during operations and VRM Class II for final reclamation (see VRM Management; Map 6).	Any minerals activities, subject to withdrawal and existing rights, would maintain VRM Class I standards throughout their operations.
Manage plans of operations to current VRM standards (see Map 5).	Plans of operations would mitigate adverse impacts to visual resources to maintain the appropriate VRM Class II and III.	Plans of operations, subject to withdrawal and existing rights, would need to mitigate impacts to visual resources to maintain VRM Class I.
Mining notices are not currently evaluated for VRM.	Mining notice operations would need to mitigate impacts to visual resources to maintain the appropriate VRM Class II and III.	Mining notice operations would need to mitigate impacts to visual resources to maintain VRM Class I.
Same as Alternative 1.	<u>Non-WSA lands</u> : For surface management, continue to manage per 43 CFR 3809.	Same as Alternative 1, subject to Valid Existing Rights and mineral withdrawal.
Same as Alternative 1.	<u>WSA lands</u> : Continue to manage WSAs according to 43 CFR 3802, subject to Valid Existing Rights.	Same as Alternative 1, subject to Valid Existing Rights and mineral withdrawal.
Same as Alternative 1.	Mining-related surface use and occupancy would be managed under 43 CFR 3715 and mitigated to the appropriate VRM standard.	Same as Alternative 1, subject to Valid Existing Rights and mineral withdrawal.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
ENERGY AND MINERAL RESOURCES: LEASABLE MINERALS		
Continue to allow oil, gas, and geothermal leasing in the plan area (except for Soldier Meadow ACEC) under current land use plans, which includes stipulations for "No Surface Occupancy" along the Applegate-Lassen Trail corridor and up to the crest of the Black Rock Range, along the visible remnants of the Applegate-Lassen Trail south of the Union Pacific railroad tracks and along the corridor north from the tracks to the crest of the Black Rock Range and to High Rock Lake (see Appendix C).	Oil, gas, and geothermal leasing would be allowed in the plan area, except for the following locations (approximately 147,000 acres): area along the Applegate-Lassen Trail currently managed as leasing with "No Surface Occupancy" stipulations; an area surrounding Trego Hot Springs; a two-mile corridor along the Applegate-Lassen Trail south from the railroad tracks to one-mile south, east, and west of Rabbithole Spring; and the expanded Soldier Meadow ACEC (see Map 11).	Oil, gas and geothermal leasing would not be allowed within the plan boundary.
A separate land use plan amendment would be initiated to implement no geothermal and oil and gas leasing in the Soldier Meadow ACEC.(35,000 acres, per proposed expansion).	Geothermal, oil, and gas leasing would not be allowed in the proposed Soldier Meadow ACEC (35,000 acres, per proposed expansion; Map 11).	Geothermal, oil, and gas leasing would not be allowed within the entire plan area (approx. 443,540 acres).
Manage oil, gas and geothermal per current VRM classes (see Map 5).	Manage oil, gas and geothermal development to VRM Class II standards throughout the period of operations (see Map 6).	Subject to Valid Existing Rights, the leasing of oil, gas, and geothermal would be managed to VRM Class I standards.
No sodium and potassium leasing would be permitted on the playa of the Black Rock Desert.	No sodium and potassium leasing would be permitted within the plan area.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
ENERGY AND MINERAL RESOURCES: SALABLE MINERALS		
Allow mineral material sales and material site rights-of-way and free use permits at the discretion of the BLM authorized officer. Continue to manage permits to existing VRM classes (see Map 5). Develop Blue Pit as community pit.	Allow mineral materials sales and material site rights-of-way free use permits at the discretion of a BLM Authorized Officer. Manage mineral material sites to VRM Class II standards for the life of the permit and final reclamation. Develop Blue Pit as community pit subject to VRM Class II standards.	Allow mineral material sales and material site rights-of-way free use permits out of the Blue Pit for all public users. Mineral material sales and free use permits from within the proposed plan boundary (except for the Blue Pit) would only be allowed to County, State and Federal agencies for construction and maintenance of projects and roads within the plan area. Manage all sites to VRM Class I standards
Unauthorized gravel or borrow pits are addressed on a case-by-case basis as discovered.	Existing gravel or borrow pits would be inventoried, and those no longer in use or that are unauthorized would be reclaimed (see Map 12).	Same as Alternative 1.
LANDS AND REALTY: LAND TENURE (ACQUISITION)		
Land tenure adjustments would continue to focus on acquiring private inholdings that have high resource values. Seek acquisition of easements and/or private land that would provide legal access to public land. See Chapter 3 for acquisition criteria.	Consider land tenure adjustments that would acquire private lands within the plan area, which have high resource values and/or where such land ownership adjustments would result in a net benefit to the public. Seek acquisition of easements and/or private land that would provide legal access to public land. See Chapter 3 for acquisition criteria.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
LANDS AND REALTY: LAND TENURE (DISPOSAL)		
Retain lands in the plan area, except as identified in the lands amendment (USDI 1999). See Chapter 3 for disposal criteria.	Land tenure adjustments that would dispose of public lands within the plan area would only be considered when the selected parcel does not contribute to the plan's overall objective and/or where such land ownership adjustments would result in a net benefit to the public. See Chapter 3 for disposal criteria.	No public land within the plan area would be disposed.
LANDS AND REALTY: RIGHTS-OF-WAY		
<p>No above-ground utility rights-of-way would be authorized within the plan boundary, except in the existing designated transportation corridor near the south boundary of the plan area (see Map 2a). No utility facilities would be allowed to cross the playa of the Black Rock Desert, except for the corridor mentioned above.</p> <p>Communication sites and above-ground facilities would be authorized if they do not impact the viewshed of the Applegate-Lassen Trail.</p>	<p>The plan area located east of County Road 34 and Soldier Meadow Road would be restricted to underground facilities only. Above-ground facilities could be authorized south of the railroad tracks in the existing designated transportation corridor (see Map 2A). No above-ground utility facilities other than the corridor previously mentioned would be allowed to cross the playa of the Black Rock Desert.</p> <p>Communication sites and above-ground facilities would be mitigated to VRM II standards (see Map 6).</p>	No new rights-of-way would be authorized within the plan area, unless the proposed facilities could be mitigated to meet VRM Class I standards.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
LANDS AND REALTY: RIGHTS OF WAY (continued)		
If the High Rock Lake and Calico Mountains Wilderness Study Areas are released, facilities (including communication sites) would be authorized if the proposed facilities can be mitigated to meet VRM Class IV standards and II, respectively (see Map 5).	If the High Rock Lake and Calico Mountains Wilderness Study Areas are released, facilities (including communication sites) would be authorized west of County Road 34 and Soldier Meadow Road if the proposed facilities can be mitigated to meet VRM Class II standards.	If the High Rock Lake and Calico Mountains Wilderness Study Areas are released, facilities (including communication sites) would be authorized if the proposed facilities can be mitigated to meet VRM Class I standards.
LANDS AND REALTY: COMMERCIAL AND NON-COMMERCIAL ACTIVITIES		
Commercial and non-commercial activities including, but not limited to, photography and filming permits would be authorized, subject to environmental analysis and evaluation of potential visual impacts to the Applegate-Lassen Trail.	Commercial and non-commercial activities including, but not limited to, photography and filming permits would continue to be authorized, subject to environmental analysis and evaluation of potential visual impacts to the Applegate-Lassen Trail. Authorized activities would be minimal impact in nature, and would be mitigated to VRM Class II Standards.	Commercial and non-commercial activities including, but not limited to, photography and filming permits would continue to be authorized, subject to environmental analysis and evaluation of potential visual impacts to the Applegate-Lassen Trail. Authorized activities would result in no impacts, and/or would be mitigated to VRM Class I Standards.
RANGE, WILD HORSES, WILDLIFE AND FISHERIES		
Same as Alternative 1.	Manage in accordance with multiple use decisions for the Buffalo Hills, Leadville, Soldier Meadow and Blue Wing/Seven Troughs Allotments. Objectives and management actions may be modified in future multiple use decisions. See Appendix A and Chapter 2 text for details (see Map 13).	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
VEGETATION, INCLUDING NOXIOUS WEEDS		
No specific actions planned.	See "Native American Values" regarding revegetation efforts.	Same as Alternative 1.
Same as Alternative 1.	Coordinate with local and regional cooperative efforts to maintain and restore healthy ecosystems and to prevent and control the spread of noxious weeds.	To minimize potential for introduction or spread of noxious weeds or nonnative vegetation, require weed-free feed for all domestic range animals allowed in the plan area.
Same as Alternative 1.	Seed, reseed, and do weed control as needed to rehabilitate, protect and improve rangelands.	Same as Alternative 1.
Same as Alternative 1.	No plans to require vehicle cleaning. If need arises in future, actions will be addressed then.	To minimize potential for introduction or spread of noxious weeds or nonnative vegetation, require all OHV vehicles to be cleaned immediately before entering the plan area.
SPECIAL STATUS SPECIES		
Same as Alternative 1.	Consult with the U.S. Fish and Wildlife Service on proposed federal actions within the plan area that may affect a federally listed species, and implement management actions in accordance with conservation recommendations.	Same as Alternative 1.
Same as Alternative 1.	Implement objectives and management actions from the Soldier Meadow Activity Plan and in accordance with the Recovery Plan for Rare Species of Soldier Meadow (see Map 15).	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
SPECIAL STATUS SPECIES (continued)		
Same as Alternative 1.	Manage habitat for Lahontan Cutthroat Trout (LCT) in Donnelly Creek (see Map 15, inset) in accordance with the Recovery Plan for LCT and the LCT Species Management Plan for the Quinn River/ Black Rock Basins and North Fork of the Little Humboldt Subbasin.	Same as Alternative 1.
No action.	Designate and improve road crossings on Donnelly Creek. Prohibit OHV use in part of Donnelly Creek drainage that is potential habitat for Lahontan cutthroat trout. Enforce 300-foot buffer along creek. Prohibit firewood cutting and gathering along creek. Do public outreach	Same as Alternative 1.
AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)		
Initiate a separate land use plan amendment to expand Soldier Meadow ACEC from approximately 300 acres to 35,000 acres, per the Soldier Meadow Activity Plan.	Expand Soldier Meadow ACEC from approximately 300 acres to approximately 35,000 acres, per the Soldier Meadow Activity Plan (see Map 15).	Propose a Black Rock Desert ACEC of approximately 443,540 acres, including a minimum of 35,000 acres per the Soldier Meadow Activity Plan .
PARTNERSHIPS		
Seek assistance through partnerships and recruit volunteers to work periodically (staff a Visitor Contact Station, gather visitor use data, monitor Wilderness Study Areas) and accomplish other projects as they arise.	Enter into partnerships with users, community/civic organizations, public and private agencies, and interested individuals to assist with resource monitoring, visitor use data collection, and plan implementation.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
PARTNERSHIPS (continued)		
Same as Alternative 1.	Develop partnerships and volunteer agreements for in-kind services as a basis for funding proposed projects, volunteer incidental expenses, and visitor center staff salaries.	Same as Alternative 1.
Coordinate with user groups, individuals, partners and volunteers to accomplish various identified tasks in the plan (such as acquire and install information kiosks).	Coordinate with user groups, individuals, partners and volunteers to accomplish various identified tasks in the plan (such as acquire and install information kiosks). A steering committee would be established for this coordination.	Same as Alternative 1.
Hold meetings, as needed, with individuals and groups who are in partnership or cooperative agreements, to review event proposals prior to issuing permits, and then after events to identify any needed mitigations and changes in future permitting.	Hold annual meetings with individuals and groups, who are in partnership or cooperative agreements, to outline plans for the year, including new issue identification and resolution.	Same as Alternative 1.

S-1. SUMMARY OF ALTERNATIVES		
No Action Alternative	Alternative 1 (Proposed Action)	Alternative 2
MONITORING		
Same as Alternative 1.	Monitoring would consist of a Limits of Acceptable Change (LAC), or comparable study, to determine resource impacts, visitor use, and growth trends within plan area. Among the resources to include in the LAC study are cultural resources, soils and mound/dune fields (erosion and build-up), vegetation, and wildlife habitat (both invertebrate and vertebrate).	Same as Alternative 1.
Some data would be collected on recreational use, but it would be limited to sporadic inventory types of collection.	Develop a data collection and management framework to collect reliable, quantitative and statistical information on recreation trends and experiences (visitor satisfaction, growth, conflict issues), current and future recreation impacts on resources (wildlife, vegetation, soils, mound/dune fields, and cultural), and recreation-carrying capacity.	Same as Alternative 1.

NEXT PLANNING STEPS

The Winnemucca BLM Field Manager is recommending a Preferred Alternative to the Nevada State Director, based on issues and information identified through the planning process, coordination and consultation with other entities, and the impact analyses of the alternatives. This Revised Draft Plan Amendment and Draft Environmental Impact Statement (DEIS) will be distributed to the public, including other government agencies and interest groups, for a 90-day review and comment period. Public meetings will also be scheduled to present the Revised Plan Amendment and DEIS.

Following the public review and comment period, the Field Manager of the Winnemucca BLM Field Office will recommend a Proposed Plan Amendment to the Nevada State Director. After evaluating public comments, the BLM will select an alternative as analyzed, or will modify an alternative from the range of alternatives analyzed. The Proposed Plan Amendment/Final EIS will be filed with the Environmental Protection Agency (EPA) and distributed to the public for a 30-day review. This 30-day review period will be published in the Federal Register as a Notice of Availability for the Proposed Plan Amendment and Final EIS. The plan amendment will be approved following the 30-day review and protest period, resolution of any protests, review of any comments on the EIS, and the Governor of Nevada's consistency review. The Record of Decision for the plan amendment will then be prepared and the plan will be implemented.

A yearly report of accomplishments and activities in the plan area will be published and distributed. Monitoring and evaluation of the plan and management activities will be conducted at five-year intervals.

CHAPTER 1
INTRODUCTION

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CHAPTER 1 INTRODUCTION

OVERVIEW

This revised plan amendment and Draft Environmental Impact Statement (DEIS) analyzes alternatives for managing public lands administered by the Bureau of Land Management (BLM) in the Black Rock Desert region of northwest Nevada. The plans to be amended are the Sonoma-Gerlach Management Framework Plan and the Paradise-Denio Management Framework Plan (USDI 1982a, b; hereafter referred to as land-use plans). This chapter describes the general planning area, the purpose and need for developing this plan amendment, and the planning process and status.

This document is a revision of a draft plan amendment and EIS published in September of 1998.

THE PLAN AREA

The plan area encompasses approximately 443,540 acres of public lands administered by the BLM Winnemucca Field Office in the northwest corner of the state of Nevada (see Map 1). Most of the plan area is located in the west arm of the Black Rock Desert plus a small portion outside the Black Rock Wilderness Study Area (WSA) which is southwest of Black Rock Point. Within the plan area boundary, but not under the jurisdiction of the BLM, are approximately 10,620 acres of private land (private inholdings); these private lands are not subject to management direction in this plan amendment (see Map 2a). Portions of three counties are within the planning area: Humboldt, Pershing, and Washoe (see Maps 1 and 2a). The plan boundary was determined using various criteria, including management objectives and geography.

The plan area stretches lengthwise some 35 to 40 miles from just north of Soldier Meadow, south to the community of Gerlach. At its widest, the plan area measures about 15 miles; however, most of the plan area ranges between 5 and 8 miles wide. Portions of two mountain ranges are within the plan area (Calico Mountains along the northwestern boundary, and the Black Rock Range along the northeastern boundary). About 25 percent of the planning area is within areas classified as Wilderness Study Areas (WSAs). Much of the plan area is a playa (pronounced "ply-ah"), or intermittent dry lake (see Appendix D, Figure 1). Four creeks are within the plan area boundary: Mud Meadow, Willow, Cherry, and Donnelly. Other hydrological features inside the plan area include High Rock Lake, which is intermittent, and numerous cold and hot springs. The only major developments on public lands within the plan boundary are railroad tracks along the southern boundary, above-ground power lines, underground fiber optic lines, and a maintained road known as High Road. Historical emigrant trails criss-cross the plan area (see Appendix D, Figure 2). All public lands within the plan boundary are open to mining claims under the authority of the 1872 Mining Law.

BACKGROUND

The Black Rock Desert, one of the largest dry lake beds in North America, is a favorite recreation area for thousands of people. Over the past decade, visitor use in the Black Rock Desert has increased steadily to the point of causing concern for protecting other resource values in the area, including cultural, paleontological, and scenic resources (described in Chapter 3), as well as protecting values for continued recreational and other uses. The increasing use of public lands in the West is related to population growth, a demand for recreation opportunities in vast open spaces, and focus on eco-tourism and cultural tourism by an increasingly urban world.

The concept of special management for the Black Rock Desert dates to the 1960s, when members of Trails West, Inc., proposed to the National Park Service (NPS) that this area, together with the High Rock Canyon area, be declared a national monument. In the 1970s, the National Park Service evaluated the national monument proposal and concluded that the area was impressive, but did not meet national monument qualities.

In 1982, the Sonoma-Gerlach and Paradise-Denio land-use plans designated the Black Rock Desert as a Special Recreation Management Area (SRMA). These two land-use plans also recognized the area's increasing popularity and directed that a management plan be prepared for the Black Rock Desert to provide a framework for guiding its various uses.

In 1990, the High Rock/Black Rock Emigrant Trail Coalition submitted a proposal to Congress to create a National Conservation Area (NCA) on almost one million acres. The NCA proposal included some of the proposed plan area. The coalition represented the Oregon-California Trails Association (OCTA), Sierra Club, Public Resources Associates, the National Park and Conservation Association, Nevada Wildlife Federation, Nevada Bighorns Unlimited, Nevada Historical Society, Trails West, and Friends of Nevada Wilderness. The NCA proposal emphasized preserving the historic 1850s emigrant trail network (including the Applegate-Lassen Trail, Nobles Route, and Captain John C. Fremont's exploration route), along with its associated viewshed and other features (wildlife, vegetation, isolation, and distant horizons).

In March 1993, the Winnemucca BLM (Nevada) and the Susanville BLM (California) prepared an Interdistrict Management Summary to consolidate into one document the current management policy and planned actions for areas under consideration as a National Conservation Area. By 1997, however, no Congressional action had been taken on the NCA proposal, so the BLM Winnemucca Field Office proposed to amend its Sonoma-Gerlach and Paradise-Denio Management Framework Plans by identifying management direction for the Black Rock Desert area to resolve issues associated with increased recreational uses occurring there. The High Rock Canyon area managed by the California BLM Surprise Field Office was to be addressed under a separate plan.

In addition to the aforementioned NCA proposal, Senator Richard Bryan has drafted legislation (Senate Bill 2273) to create an NCA at the Black Rock Desert, and hearings have been held. To date, no Congressional actions have been made. If Congress designates the area as an NCA, this plan amendment would be adjusted to meet the parameters provided in the legislation.

Throughout development of this revised plan amendment and draft EIS, input was sought from the Sierra Front-Northwestern Great Basin Resource Advisory Council (RAC). The RAC provided a value statement and goal to summarize their expectations for managing the plan area, as follows:

RAC Value Statement: The Black Rock Desert is characterized by aesthetic, cultural, paleontological, dynamic relationships, and valuable resources to be protected for present and future generations.

RAC Goal: Protect the scenic, cultural and natural resources characteristic to the Black Rock Desert, while allowing for compatible uses.

The BLM incorporated into the plan those objectives that were mutually agreed on between BLM and the RAC, as well as RAC recommendations for specific resources.

PURPOSE AND NEED

The main purpose of this plan amendment and EIS is to establish and provide management direction for the various recreational and other uses of the Black Rock Desert while protecting the cultural, paleontological, scenic, and other natural resource values of the area.

In addition, this plan amendment and EIS will substitute for a Recreation Area Management Plan (RAMP), which is required by Bureau policy for Special Recreation Management Areas (SRMAs). The intent of a RAMP, like this plan amendment, is to specify policy, objectives and planned actions.

This plan amendment/EIS is needed for the Winnemucca Field Office to comply with Bureau policy to develop guidance for the Black Rock Desert Special Recreation Management Area, and to address the increasing recreational use of the area.

OVERVIEW OF THE PLANNING PROCESS

The land use planning process, as mandated by the Federal Land Policy and Management Act of 1976 (FLPMA), requires BLM to solicit and incorporate public input in developing management guidance for public lands, while complying with the laws and policies established by Congress and the Executive branch of the federal government.

Amendments to approved land use plans are developed using this land use planning process, which involves the following nine basic steps:

- Issue Identification
- Development of Plan Criteria
- Inventory and Data Evaluation
- Analysis of the Management Situation
- Formulation of Alternatives
- Estimation of Effects of Alternatives
- Selection of the Preferred Alternative
- Selection of the Proposed Plan Amendment
- Monitoring and Evaluating

These nine steps are summarized individually below.

Issue Identification: Issues are concerns of the BLM and the public regarding management of specific resources in a planning area. An issue is an opportunity, conflict, or problem concerning management of public lands and their associated resources. Issue identification helps focus the planning process, directing the interdisciplinary analysis and documentation toward resolution of the issues. Issues for this plan amendment and EIS are described in a following section of this chapter.

Development of Planning Criteria: The BLM formulates planning criteria to guide development of a land use plan amendment. The criteria are derived from laws, Executive Orders, regulations, planning principles, consultation with interest groups and the public, and available resource information for the area. For this amendment, the planning criteria were to:

1. Comply with applicable laws, Executive Orders, and regulations.
2. Use a systematic, interdisciplinary approach to achieve integrated consideration of physical, biological, economic, social, and cultural aspects of public land management.
3. Weigh short and long-term benefits and detriments.
4. Coordinate BLM resource inventory, planning and management activities with the resource planning and management programs of other federal agencies, state and local governments, and Indian tribes (to the extent consistent with applicable laws).
5. Rely on available inventories and existing resource data in the planning area to reach sound management decisions.
6. Develop and implement management actions to accomplish the objectives of the management plan, consistent with direction in the BLM Recreation 2000 Strategy (USDI 1998a).

Inventory and Data Evaluation: Using the above planning criteria, BLM specialists reviewed and evaluated available data. These data included field examinations, published and unpublished studies, and consultations with individuals and staff from other agencies and organizations.

Analysis of the Management Situation: An analysis of the management situation was prepared to describe the condition and capabilities of resources within the planning area. The analysis provides the basis for developing and evaluating alternatives. For this revised plan amendment and draft EIS, the analysis of the management situation is incorporated as the Affected Environment (see Chapter 3) and the No Action Alternative, which represents continuation of present management.

Formulating of Alternatives: Based on the issues and planning criteria, two action alternatives were developed for consideration. A third alternative, No Action, is required by law to represent continuation of current management. Each alternative meets the purpose and need for action and addresses the issues while emphasizing different management.

Estimation of Effects of the Alternatives: In accordance with the National Environmental Policy Act (NEPA) of 1969, the physical, biological, social, and economic effects of implementing each alternative were estimated to allow for a comparative evaluation of impacts (Chapter 3). Site-specific environmental analyses will be prepared for activities proposed to implement the management guidance in the approved Plan Amendment.

Selection of the Preferred Alternative: The Winnemucca BLM Field Manager is recommending a Preferred Alternative to the Nevada State Director, based on issues and information identified through the planning process, coordination and consultation with other entities, and the impact analyses of the alternatives. The Revised Draft Plan Amendment and Draft Environmental Impact Statement (EIS) will be distributed to the public, including other government agencies and interest groups, for a 90-day review and comment period. For this plan amendment, the Preferred Alternative is Alternative 1.

Selection of the Proposed Plan Amendment: Following the public review and comment period, the Field Manager of the Winnemucca BLM Field Office will recommend a Proposed Plan Amendment to the Nevada State Director. After evaluating public comments, the BLM will select an alternative as analyzed, or will modify an alternative from the range of alternatives analyzed in the revised Draft Plan Amendment. The Proposed Plan Amendment/Final EIS will be filed with the Environmental Protection Agency (EPA) and distributed to the public for a 30-day review. This 30-day review period will be published in the Federal Register as a Notice of Availability for the Proposed Plan Amendment and Final EIS. The plan amendment will be approved following the 30-day review and protest period, resolution of any protests, review of any comments on the EIS, and the Governor of Nevada's consistency review. The Record of Decision for the plan amendment will then be prepared and the plan will be implemented.

Monitoring and Evaluation: Monitoring and evaluation of the plan, which are the keys to its implementation success, will be conducted at five-year intervals. Results from monitoring and evaluation will be used to determine the effectiveness of the plan amendment in achieving desired objectives, to ensure that mitigation measures are satisfactory, and to discover whether any changes have been made in related plans of other federal, state, or local governments that necessitate changes in the plan amendment. Information gained through monitoring and evaluation will be incorporated into future planning, including other amendments or revisions to the Sonoma-Gerlach and Paradise-Denio land-use plans.

PLANNING PROGRESS TO DATE, INCLUDING PUBLIC OUTREACH

Preliminary planning to develop management guidance for the Black Rock Desert started during spring of 1997. At that time, public notices announcing public meetings were sent to local newspapers and letters were mailed to known individuals or organizations whose interests would be affected. During July and August of 1997, the BLM held five public meetings: three in Nevada (Gerlach, Lovelock, and Reno) and two in California (Sacramento and Cedarville). An interdisciplinary team comprised of resource specialists from the BLM Winnemucca Field Office and the Nevada BLM State Office analyzed comments from these public meetings to assist in developing possible alternatives for managing the area. In February 1998, the BLM decided to prepare an environmental impact statement due to the scope of the plan. A Notice of Intent to prepare an amendment and EIS was printed in the Federal Register on April 6, 1998. In July 1998, the BLM mailed inquiries to the individuals, organizations, and groups who had expressed an interest in activities concerning the Black Rock Desert. Of the 420 people mailed inquiries, 210 (50%) responded with interest in receiving a copy of the draft EIS.

A draft plan amendment and environmental impact statement was published in September of 1998. A 120-day public comment period followed document publication, which included a 90-day required comment period and a 30-day extension ending February 15, 1999.

Approximately 800 comments were received on the 1998 Draft EIS. A large number of the comments (62 percent) expressed concern about the proposal to implement a common pool and user day limit and the need to base any changes in management of the area on additional impact studies and by specific activity, rather than on number of participants. Because of the large volume of comments and the nature of concerns, the BLM chose to revise the draft to address these concerns to the fullest extent. The revised plan amendment and draft EIS, including revised alternatives, is presented herein in one combined document.

To gather additional public input for the revised draft, the BLM held two public workshops on road inventory, one on June 16, 1999 in Gerlach, and another on June 23, 1999 in Reno. About 40 people attended each session. This input has been used to update the road system in the plan area.

ISSUES IDENTIFIED FOR BLACK ROCK DESERT PLAN AREA

Issues for the Black Rock Desert planning area were compiled from input received from the public and BLM staff in the planning process. The issues are categorized into three groups (Recreation, Cultural Resources/Native American Values, and Visual Resources), as identified below.

Recreation

Off-Highway Vehicle (OHV) Use: This issue mainly concerns dirt bikes and all-terrain vehicles (ATVs). The issue is how to continue to allow OHV use, while protecting other resource values, and in a manner that minimizes adverse impact to other types of use in the plan area.

Public Access: This issue focuses on a public desire to have most roads in the area open to continued access, and also the issue of access for private landowners, within and adjacent to the plan area, who operate businesses that depend on access to public lands in the Black Rock Desert. The issue is how to provide public access to the plan area and access for private landowners, while protecting resource values of the area, particularly visual and cultural resources.

Permitted Events (Recreational, Commercial, Special Use): Limiting the size and types of events to established levels as a means of reducing adverse impacts was an issue with the September 1998 draft plan amendment and EIS. As commenters pointed out when voicing concerns about putting limitations on user days and instituting a common pool, the level of adverse impacts does not always correlate to numbers of people participating in events. Limiting permitted events to certain areas of the playa and plan area is a related issue. The issue is how to allow permitted events while managing for, and protecting, other resource values and uses in the plan area.

Impacts to Non-Playa Areas/Springs: The increasing recreational use has potential to adversely affect these areas. Springs are considered to be fragile environments, and non-playa areas contribute to the overall scenic quality of the plan area and the integrity of the setting of the Applegate-Lassen Trail. Many commenters of the September 1998 draft plan amendment and EIS supported protecting the springs. The issue is how to adequately protect the non-playa areas and springs, while allowing public access and diverse recreational uses in the plan area.

Human Health (Sanitation): Increased use of the plan area presents the issue of providing sanitation facilities for the recreational users. The issue is how to provide for human health needs.

Public Safety: The issue of public safety relates to different types of recreational users in the Black Rock Desert. The different users sometimes have conflicting needs. For example, dispersed OHV use conflicts with casual recreational use such as walking. The issue is how to provide for the needs of a diversity of users.

Cultural Resources/Native American Values

Cultural Resources: The emigrant trails that cross the plan area are at risk of being adversely impacted by increased recreational use of the area. The issue is how to provide opportunities for public enjoyment of the trails, while protecting the trails and their setting.

Visual Resources

Protecting Scenic Qualities: Among the issues for visual resources is how to protect the scenic resource value of the plan area as a whole and how to protect the historic viewshed from the emigrant trails, while allowing various recreational uses by a diversity of users, and while allowing mineral/energy development.

RELATIONSHIP OF PLAN AMENDMENT WITH LAND USE PLANS AND ACTIVITY PLANS

The selected alternative will amend the existing land-use plans (Sonoma-Gerlach and Paradise-Denio MFPs) by establishing objectives, management direction, and actions for the Black Rock Desert plan area. Other than the changes proposed in the amendment, the alternatives are in conformance with the other decisions of these two approved Management Framework Plans. The management direction in all alternatives proposed in this plan amendment incorporates, by reference, all approved activity plans for the planning area, including the Soldier Meadow Activity Plan (SMAP) and the Lahontan Cutthroat Trout Activity Plan.

Where guidance in this revised plan amendment and the SMAP differ in that portion of the plan area within the Soldier Meadow Area of Critical Environmental Concern (ACEC), the more restrictive guidance will prevail. This guidance and prevailing direction will also apply to any additional acres added to the ACEC through this revised plan amendment.

RELATIONSHIP OF PLAN AMENDMENT WITH OTHER PLANS

The alternatives, including the Preferred (Alternative 1), are consistent with the approved resource-related policies and programs of other federal agencies and the state of Nevada. Approved land use plans for adjacent federal administrative units include the Walker Resource Management Plan (1986) for the Carson City BLM Field Office in Nevada, and the Cowhead Massacre Management Framework Plan (1981) for the Cowhead Massacre planning unit in the Surprise BLM Field Office in California.

The alternatives are also consistent with the Washoe County Regional Open Space Plan, the Pershing County Land Use Ordinance, the Humboldt County Master Plan, and Section 3 of Senate Bill 40-Nevada Statewide Policy Plan for Public Lands. These plans support conservation of open space and protection of other natural and scenic resources from unreasonable impairment.

RELATIONSHIP TO STATUTES AND REGULATIONS

This revised Draft Plan Amendment complies with Sections 102 and 202 of the Federal Land Policy and Management Act (FLPMA) (1976) to manage public lands through multiple use and sustained yield. This plan amendment was prepared subject to the National Environmental Policy Act of 1969. The management direction for this plan amendment was developed within the context of the BLM Recreation 2000 Plan (USDI 1998). The alternatives are in accordance with applicable federal statutes and regulations, including, but not limited to, Taylor Grazing Act, Endangered Species Act (ESA), Wild Free-Roaming Horse and Burro Act, National Historic Preservation Act, Clean Water Act, Clean Air Act, Wilderness Act, Congressional mandates, and Executive Orders.

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

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CHAPTER 2

DESCRIPTION OF THE ALTERNATIVES, INCLUDING PROPOSED ACTION

INTRODUCTION

Chapter 2 describes three alternatives: No Action Alternative, Alternative 1-Proposed Action (Preferred Alternative), and Alternative 2. The two action alternatives (Alternatives 1 and 2) were developed to present a range of management options to guide decision-making for recreation and other uses in the Black Rock Desert area and to minimize adverse impacts to cultural and natural resources while providing for compatible resource use and development opportunities. Other alternatives considered but not fully analyzed in this EIS are described at the end of this chapter, following the alternative descriptions.

The alternatives are described by objectives, management direction, and actions for implementing that direction.

OVERVIEW OF ALTERNATIVES

The following descriptions provide an overview of the main differences in each alternative. Refer to the alternative descriptions for details of each alternative.

No Action Alternative: This alternative represents continuing present management as directed under the Sonoma-Gerlach and Paradise-Denio Management Framework Plans and other approved activity plans for resources in the plan area. The objectives and management directions of these land-use plans have been maintained and updated to conform with current BLM regulations and policies.

A Recreation Area Management Plan (RAMP) similar in content to this plan amendment would be developed. Under this alternative, the recommendation in the Approved Soldier Meadow Activity Plan (USDI 1998) to expand the Soldier Meadow Area of Critical Environmental Concern (ACEC) from approximately 300 acres to 35,000 acres would be carried forward. This would include a 3,500-acre mineral withdrawal and a no oil and gas and geothermal leasing restriction on 35,000 acres.

Management activities within the plan area would be addressed on a site-by-site basis. Visitor amenities would be minimal. Visual resources would be managed according to present VRM classifications, which include all four VRM classes

Alternative 1 - Proposed Action (Preferred Alternative): This alternative proposes to place some limitations on recreation and commercial activities within the Black Rock Desert management area. In addition, this alternative provides added protective measures for cultural resources, Native American values, paleontological resources and visual resources.

The preferred alternative would place some restriction on camping, access, off-highway vehicle use, and large scale recreation events. A fee system is proposed for dispersed recreation within the management area. Special Recreation Permits (SRPs) would be evaluated on a case by case basis, subject to a fee in accordance with existing regulations. Returning events would be limited to current locations pending monitoring results for adverse impacts. The southern portion of the playa would be emphasized for location of new events.

Recreation enhancements and visitor amenities would include construction of a primitive campground, a visitor facility; expanded educational outreach; the offering of an interpretive program, and trail and day trip opportunities. The outreach would include an annual meeting with user groups and an annual report about the plan.

Commercial activity restrictions include a locatable mineral withdrawal along the one mile National Register corridor of the Applegate-Lassen Emigrant Trail and portions of the Soldier Meadow ACEC. Oil, gas, and geothermal leasing would not be allowed along the Applegate-Lassen trail and portions of its setting, at Trego Hot Spring, and within the proposed Soldier Meadow Area of Critical Environmental Concern (ACEC). No sodium and potassium leasing would be permitted within the plan area. Rights-of-way actions would not allow above ground facilities in the plan area located east of County Road 34 and Soldier Meadow Road. Only underground facilities would be allowed in this area.

Alternative 1 proposes additional protective management for visual resources, proposing VRM class II standards for the entire plan area (except in WSAs). Under this alternative, as in the No Action, the recommendation in the approved Soldier Meadow Area Activity Plan (USDI 1998) to expand the Soldier Meadow ACEC from approximately 300 acres to 35,000 acres would be carried forward.

Alternative 2: This alternative proposes additional restrictions on camping, access, off-highway vehicle use, noxious weeds as well as commercial uses, including minerals, land tenure, and rights-of-way. Specific limitations include closing all dune fields and eliminating mechanized cross country travel in non-playa areas, limiting travel on the emigrant trails to permitted uses only, and closing most roads and trails. Under this alternative, all SRPs would be assessed a fee according to existing regulations, and a fee system for dispersed recreation would be in place.

Commercial restrictions would include withdrawal of the entire plan area from locatable and leasable minerals. In addition, this alternative provides added protective measures for cultural resources, Native American values, paleontological resources, and visual resources. The level of visitor amenities in Alternative 2 would be similar to Alternative 1. Major differences between Alternatives 1 and 2 are that under Alternative 2, visual resources of the entire plan area would be managed to VRM Class I standards, the entire plan area is proposed as an Area of Critical Environmental Concern (ACEC), a locatable mineral withdrawal is proposed except for Valid Existing Rights, and no oil and gas and geothermal leasing will be allowed.

MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES

This section describes guidance that is applicable, and therefore common, to all alternatives, including the No Action. This management guidance includes laws, Executive Orders, regulations, memoranda of

understanding, cooperative agreements, Department of Interior manuals, BLM instruction memoranda, and other policies and direction.

The following resource management direction will continue to be implemented under existing decisions in approved land-use plans and activity plans. The environmental impacts of land-use actions not specifically covered in this plan amendment will be analyzed site-specifically, on a case-by-case basis, and to National Environmental Policy Act (NEPA) requirements. Actions that do not conform with land-use decisions in the approved land-use plans may be modified, denied, or evaluated through the plan amendment process.

Recreation Management

Recreational use in the plan area will follow guidance in Title 43 Code of Federal Regulations (CFR), Subchapter H - Recreation Programs, as revised periodically in the Federal Register. Specific sections of that guidance are listed below:

- Part 8340 - Off-Road [Highway] Vehicles
- Part 8350 - Management Areas
- Part 8360 - Visitor Services (includes closures and restrictions, rules of conduct- public health and safety, property and resources, and state and local law applications)
- Part 8370 - Use Authorizations
- Part 8372 - Special Recreation Permits Other Than on Developed Recreation Sites
- Part 9260 - Law Enforcement

This plan amendment for the Black Rock Desert will provide management guidance not specifically addressed in Title 43 CFR.

Visual Resource Management

Visual Resource Management (VRM) classes are assigned differently for the three alternatives as described in this chapter under Description of Alternatives. The description of the four management classes (I, II, III, and IV) and their guidance, however, will remain consistent (see Table 2-1). These four classes set standards for planning, designing, and evaluating future management projects by identifying various permissible levels of landscape alteration, while protecting overall regional scenic quality. Class objectives range from very limited management activity (Class I), to activity allowing major landscape modifications (Class IV). The VRM system provides a means to identify visual values, establish objectives, and provide timely input to proposed surface-disturbing projects to ensure that VRM objectives are being met.

Visual analyses will be conducted using Key Observation Points (KOPs), which are locations within the plan area that are frequently visited, prominent, popular, or historically used.

Proposed surface-disturbing projects in the plan area will have a visual analysis conducted to evaluate impacts to visual resources. Among the locations for this visual analysis are the Applegate-Lassen Trail linear KOP and local project-specific KOPs developed on a case-by-case basis. After the potential

impacts to visual resources have been identified for these locations, visual design considerations would be incorporated into proposed surface-disturbing projects on a case-by-case basis. Mitigating measures would be developed for each project to minimize adverse impacts to visual resources and to maintain the appropriate VRM class.

The Visual Resource Contrast Rating Process (BLM Manual Handbook 8431) will be used as a project assessment tool in analyzing visual resources and potential adverse impacts from proposed projects.

The following design techniques would be considered to reduce adverse visual impacts from surface-disturbing projects:

- Proper siting or locations
- Reducing unnecessary disturbance
- Repeating the elements of form, line, texture, and color
- Color selection
- Earthwork
- Structure
- Reclamation/restoration
- Linear alignment design

Table 2-1. BLM Visual Resource Management Classes	
Class	Description
I	<u>Objective:</u> Preserve existing landscape character. This class provides for natural ecological changes. It does not, however, preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	<u>Objective:</u> Retain existing landscape character. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color and texture found in the predominant natural features of the characteristic landscape.
III	<u>Objective:</u> Partially retain existing landscape character. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate a casual observer's view. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	<u>Objective:</u> Provide for management activities that require major modification of the existing landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Every attempt, however, should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic landscape elements.
Source: BLM Manual Handbook 8410-1 (USDI 1986)	

The BLM would work closely with operators and permittees to ensure that activities include contouring, shaping, grading, and coloring to blend with existing landscapes to achieve the appropriate VRM Class standards. Ancillary facilities and structures would be sited, constructed, and colored to minimize contrast

with the surrounding landscape. Operators would be required to mimic the basic form, line, color, and texture of the existing landscapes. Long-term projects would be required to incorporate concurrent reclamation activities into their proposals.

Wilderness Values

There are seven Wilderness Study Areas (WSAs) partially within the proposed plan area: Calico Mountain, High Rock Lake, Pahute Peak (also known as Paiute Peak), North Black Rock Range, East Fork High Rock, Little High Rock Canyon, and Selenite Mountains (see Map 7). Section 603(c) of FLPMA directs BLM to manage all WSAs so as not to impair their suitability for preservation as wilderness.

All actions on lands under wilderness review will be processed in accordance with the BLM Manual Handbook 8550-1, entitled Interim Management Policy For Lands Under Wilderness Review (IMP), until Congress either designates those lands as Wilderness Areas or releases them for other uses. Should areas be released from wilderness consideration, management direction in this plan amendment would apply to these areas located within the plan boundary.

According to current management direction for WSAs, and pending Congressional decision on wilderness designation, all WSAs are classified as VRM Class I. This VRM class has the objective to maintain a natural environment essentially unaltered by humans.

Cultural Resources

Management activities will provide for protection of cultural resources according to federal laws, including:

- Antiquities Act of 1906
- National Historic Preservation Act of 1966
- Archeological Resource Protection Act of 1979 (as amended)
- American Indian Religious Freedom Act of 1978 (as amended)
- Native American Graves Protection and Repatriation Act

An agreement involving the Susanville (California), Lakeview (Oregon), and Winnemucca (Nevada) BLM offices will be used in facilitating communication and cooperative efforts to manage and protect cultural resources.

Management of the Applegate-Lassen Trail will incorporate management recommendations of the Comprehensive Management and Use Plan for the California and Pony Express National Historic Trails prepared by the National Park Service (NPS 1999).

Cultural resource inventories, evaluations of National Register eligibility and effect, and consultation with the Nevada State Historic Preservation Office will be undertaken for authorized actions. Such actions would include surface-disturbing management plan proposals in accordance with Section 106 of the

National Historic Preservation Act (NHPA) as defined in the State Protocol Agreement between the Nevada BLM and the Nevada SHPO (USDI 1999).

A one-mile wide corridor along the Applegate-Lassen Trail will remain listed on the National Register of Historic Places and managed accordingly. As required by Section 106 of NHPA, federally authorized actions will be analyzed for their effects on National Register values of the Applegate-Lassen Trail and other National Register eligible sites, including adverse impacts on the integrity of setting of the Applegate-Lassen Trail.

Collection or excavation of cultural materials on public lands is prohibited, except by a BLM permit per the Archeological Resource Protection Act of 1979 (ARPA) and other laws and regulations. Unauthorized collection, excavation, or damage of cultural sites is a prosecutable offense subject to citations and/or misdemeanor and felony penalties. Cultural resource protection laws and regulations will be enforced.

In accordance with BLM Manual Handbook 8110, cultural resources must be categorized according to their potential uses. The following use categories are identified:

Scientific Use: This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties where the method of use is generally archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

Conservation for Future Use: This category is reserved for any unusual cultural property which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, architectural interest, or comparable reasons, is not currently available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and will remain in this use category until specified provisions are met in the future.

Traditional Use: This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well-being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.

Public Use: This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place or for related educational and recreational uses by members of the general public. The category may also be applied to buildings suitable for continued use or

adaptive use, for example, as staff housing or administrative facilities at a visitor contact or interpretive site or as shelter along a cross-country ski trail.

Experimental Use: This category may be applied to a cultural property judged well suited for controlled experimental study to be conducted by BLM or others concerned with the techniques of managing cultural properties, which would result in the property's alteration, possibly including loss of integrity and destruction of physical elements. Committing cultural properties or the data they contain to loss must be justified in terms of specific information that would be gained and how it would aid in the management of other cultural properties. Experimental study should aim toward understanding the kinds and rates of natural or human-caused deterioration, testing the effectiveness of protection measures, or developing new research or interpretation methods and similar kinds of practical management information. Experimental use should not be applied to cultural properties with strong research potential, traditional cultural importance, or good public use potential if it would significantly diminish those uses.

Discharged from Management: This category is assigned to cultural properties that have no remaining identifiable use. Most often these are prehistoric and historic archaeological properties, such as small surface scatters of artifacts or debris whose limited research potential is effectively exhausted as soon as they have been documented. Also, more complex archaeological properties that have had their salient information collected and preserved through mitigation or research may be discharged from management, as should cultural properties destroyed by any natural event or human activity. Properties discharged from management remain in the inventory, but they are removed from further management attention and do not constrain other land uses. Particular classes of unrecorded cultural properties may be named and described in advance as dischargeable upon documentation, but specific cultural properties must be inspected in the field and recorded before they may be discharged from management.

Native American Values

Native Americans will be consulted for all authorized actions that may impact areas of Native American concern. Noxious weeds on lands near Summit Lake Reservation will be controlled using methods described in the BLM Nevada Weed Management Strategy (See Vegetation section). The BLM will coordinate with the Summit Lake Tribe when implementing this strategy on lands near the Summit Lake Reservation. Input from the Tribe on locations of noxious weeds in areas near the reservation will be incorporated into the data base of the weed management strategy (see Noxious Weeds section in Management Common to All Alternatives).

Paleontological Resources

Paleontological resources will be managed to prioritize research needs, facilitate educational and recreational needs, and protect significant sites. Management guidance includes the BLM Manual Handbook 8270 (1998) and 43 Code of Federal Regulations (Part 6600).

Land use planning and implementation will consider the potential for paleontological resources, as well as the significance of them. Firby (1995) presents the following guidelines in determining potential:

- Presence of fossil material recorded in the literature within the area.
- Presence of fossils elsewhere within a stratigraphic unit mapped or recorded as present within the project area.
- Favorability of a stratigraphic unit to contain fossil material based on its assumed depositional environment.

Energy and Mineral Resources

Discussions in this section are subdivided into locatable, leasable, and salable minerals.

LOCATABLE MINERALS

Management of locatable minerals is not a discretionary action for the BLM. Federal lands within the plan boundary remaining open to location of minerals will be managed under the authority of the 1872 Mining Law as amended. Lands located outside the Wilderness Study Areas will be managed under the authority of 43 CFR 3809, Surface Management Regulations to assure that unnecessary or undue degradation of the Federal lands does not occur. Lands located within the Wilderness Study Areas will be managed under authority of 43 CFR 3802, Exploration and Mining, Wilderness Review Program Regulations, and the Manual Handbook 8550-1, Interim Management Policy and Guidelines for Lands under Wilderness Review. Lands withdrawn from mineral entry or located in Wilderness Study Areas will be managed subject to Valid Existing Rights. If designated, wilderness areas would be closed to new mineral location; however, Valid Existing Rights would be managed under the authority of the 1872 Mining Law and the Wilderness Act.

LEASABLE MINERALS

The leasing and development of these minerals is a discretionary action for the BLM. Geothermal leasing and development is conducted under the authority of the 1970 Geothermal Steam Act and regulations contained in 43 CFR 3200. Oil and gas leasing and development is conducted under the authority of the Mineral Leasing Act of February 25, 1920, as amended, and regulations contained in 43 CFR 3100. Sodium and potassium leasing and development is conducted under the authority of the Mineral Leasing Act of 1920, as amended, and the regulations contained at 43 CFR 3500. Lands under wilderness review are managed according to BLM Manual Handbook 8550-1. No new leases may be issued on lands under wilderness review.

SALABLE MINERALS

The disposal of mineral materials is a discretionary action for the BLM. Mineral material disposals are conducted under the authority of the Materials Act of July 31, 1947, as amended, and regulations at 43 CFR 3600. Material site rights-of-way are granted to Nevada Department of Transportation under Title

V of FLPMA and Title 23, Section 317 of the U.S. Code. Mineral material disposals are not permitted in wilderness study areas or Wilderness areas.

Lands and Realty

All BLM and BLM-authorized land and realty actions will be evaluated and processed under existing laws and regulations. Proposed actions will be evaluated on a case-by-case basis and may be authorized, subject to such evaluation and contingent on their consistency with established planning and environmental requirements.

Air Quality Resources

All BLM and BLM-authorized activities will be managed to maintain air quality within the thresholds established by the State of Nevada Ambient Air Quality Standards. Mitigation measures will be developed on a project-specific basis through the NEPA and statutory or regulatory processes to minimize adverse impacts on air quality.

Soil and Water Resource Management

Soil and water resources will be evaluated on a case-by-case basis as part of project-level planning to consider potential project impacts and the sensitivity of soil and water resources in the area. Stipulations will be attached, as appropriate, to ensure protection of these resources.

Soils: Soils will be managed to maintain the natural habitat of the area, or, where applicable, to improve rangeland productivity, and to minimize the potential for accelerated (human-induced) wind and water erosion. Soils data will be used in project planning, and mitigation measures will be developed through the NEPA process to prevent deterioration or degradation of the soils resource.

Water Resources: Water quality will be maintained or improved in accordance with applicable federal standards, as well as those for the state of Nevada. Consultations will be undertaken with state agencies for proposed projects that could significantly affect water quality.

Vegetation Management

In accordance with FLPMA, range betterment funds will be expended for on-the-ground rehabilitation, protection, and improvement of rangelands. Such activities include, but are not limited to, seeding, reseeding, fence construction, weed control, water development, and enhancement of fish and wildlife habitat.

The Winnemucca BLM Field Office strategy for noxious weed management will continue to be prevention and control of the spread of invasive and noxious weeds. This strategy will continue to be implemented through local and regional cooperative efforts with all partners to ensure maintenance and

restoration of healthy ecosystems on BLM-managed lands. Noxious weed control is based on integrated weed management, which emphasizes prevention, education, detection, and quick control of small infestations.

Noxious weed control will be implemented through the BLM Nevada Weed Management Strategy, Winnemucca Field Office Annual Operating Plan and Weed Prevention Schedule. The Winnemucca BLM Field Office is also a participant in the Humboldt County Weed Task Force, a multi-agency group formed by a Cooperative Agreement signed on August 11, 1999. This is an on-the-ground weed control group comprised of various federal, state, county, local government agencies, local businesses, and private individuals.

These efforts are enhanced by an Executive Order issued by the White House on February 3, 1999, making additional funding available to federal agencies and their cooperators for weed control efforts at the local level (Executive Order on Invasive Species 1999).

Special Status Species Management

The BLM will manage lands to meet the goals and objectives of any recovery plans and approved Habitat Management Plans (HMPs) applicable to the area. Section 7 consultations with the U.S. Fish and Wildlife Service (USFWS) will be conducted as required by applicable law. Desert dace and Lahontan cutthroat trout populations will be monitored in cooperation with the USFWS and the Nevada Division of Wildlife (NDOW). All BLM-authorized or initiated activities will consider protecting the habitat of special status species.

Fish and Wildlife Habitat Management

Fish and wildlife habitat will be managed according to guidance provided by BLM Wildlife 2000, the Riparian-Wetlands Initiative for the 1990s, A Strategy for Future Waterfowl Habitat Management on Public Lands, Animal Inn, Watchable Wildlife, Recreational Fisheries Program, U.S. Fish and Wildlife Service, and Nevada Division of Wildlife.

Predator control will be authorized through the Field Office Animal Control Plan, in coordination with the U.S. Fish and Wildlife Service, Nevada Division of Wildlife, and the Animal and Plant Health Inspection Service of the U.S. Department of Agriculture. Protocols were formalized in an Interagency Memorandum of Understanding between the Department of the Interior-BLM and the Department of Agriculture in 1995 (60 F 26045-48, 5-16-95).

Range Management (Livestock and Grazing)

Management actions will be implemented through allotment evaluations for Buffalo Hills, Leadville, Soldier Meadow, and Blue Wing Allotments, which occur partially within the proposed planning area. The Multiple Use Decisions in these allotment evaluations address specific rangeland issues (see Map 13). Management will include annual monitoring to ensure compliance with the Multiple Use Decisions.

Future allotment re-evaluations will incorporate the Standards for Rangeland Health as developed in consultation with the Sierra Front-Great Basin Resource Advisory Council (Appendix A), other publics, and approved by the Secretary of the Interior on February 12, 1997.

Wild Horse and Burro Management

Wild horses and burros in the four Herd Management Areas (Black Rock Range-West, Calico Mountains, Lava Beds, and the Warm Springs Canyon) and one Herd Area (Selenite range) that occur partially within the proposed planning area will be managed at the Appropriate Management Level (AML) in accordance with objectives and management actions established by the Multiple Use Decisions for Buffalo Hills, Leadville, Soldier Meadows, and Blue Wing Allotments (see Map 13).

Annual monitoring data will be collected to evaluate progress toward meeting management objectives. The AML, objectives, and management actions may be modified or changed in future Multiple Use Decisions for the above four grazing allotments.

Wild horses and burros that establish home ranges beyond boundaries of an HMA will be removed. Wild horses and burros will be removed from private lands at the request of the landowner and after reasonable efforts to keep the animals off the private lands have failed.

Hazardous Materials

Public lands in the plan area will be kept free from unauthorized generation, storage, disposal, and transport of hazardous materials.

Hazardous material cleanup, with the possible exception of some emergency actions, will be consistent with management objectives and actions in the approved Plan Amendment. All cleanups will comply with requirements of the National Contingency Plan. The BLM will clean up unauthorized dumps and other nuisance conditions consistent with funding and other workload priority commitments.

Fire Management

Fire management activities will conform to BLM directives and the Winnemucca District Fire Management Plan (USDI 1998d) and subsequent updates in applying appropriate levels of suppression to protect and enhance resource values.

Law Enforcement

The BLM will provide law enforcement to ensure compliance with regulations.

Soldier Meadow Activity Plan

The Soldier Meadow Activity Plan (SMAP), approved in 1998, is incorporated by reference in all alternatives addressed in this draft plan amendment and EIS. The Soldier Meadow ACEC would be expanded, per the SMAP recommendation, from 307.22 acres to approximately 35,000 acres. Under all alternatives, a minimum of 3,500-acre locatable mineral withdrawal would also be pursued per SMAP recommendation. There would also be no oil, gas or geothermal leasing on the 35,000-acre ACEC (see Map 9). Since ACECs and mineral withdrawals must be designated through the BLM planning process, these recommendations will be considered in this planning effort.

Where guidance in this revised plan amendment and the SMAP differ in that portion of the plan area within the Soldier Meadow ACEC, the more restrictive guidance will prevail. This guidance and prevailing direction will also apply to any additional acres added to the ACEC through this revised plan amendment.

Monitoring

A Limits of Acceptable Change or comparable study will be designed, developed, and implemented to monitor and evaluate impacts of the various uses in the plan area. Information derived from such monitoring will be used to guide future management decisions in authorizing activities in the plan area.

DESCRIPTION OF ALTERNATIVES

The three alternatives (No Action, Alternative 1, and Alternative 2) are described below by resource values or management element and their management objectives and actions.

No Action Alternative

The No Action Alternative would continue present management decisions and actions, as approved in the Sonoma-Gerlach and Paradise-Denio land-use plans and activity plans. This alternative is required by NEPA and also serves as a baseline for comparing the alternatives.

RECREATION

Per the current land-use plans, a Recreational Area Management Plan (RAMP) would be developed to provide guidance for recreational use in the Black Rock Desert area. The plan would provide management similar to this proposed amendment. See Chapter 3, Affected Environment and Environmental Consequences, for further discussion.

Special Recreation Permit Events

Special Recreation Permit (SRP) applications would be processed and permits issued, as now, on a case-by-case basis according to BLM Manual Handbook 8372-1 Special Recreation Permits for Commercial Use, 43 CFR 8370-8372, and, when finalized, the Recreation Use Permit Administration: Manual/Policy Statement and Handbook and User Guide. The location of permitted events would be analyzed and determined on a case-by-case basis. The SRPs would be issued if all NEPA and other permit conditions were satisfied.

The current permit evaluation process considers the nature of the event, potential impacts to resources, conflicts with other events, and impacts to the quality of other visitors' experiences. Any requests in Special Recreation Permit applications to remove natural resources are evaluated on a case-by-case basis and through an environmental analysis process. Fees from Special Recreation permits are available for program developments.

During permitted events and other selected times, a Visitor Contact Station/Volunteer Operations Plan For Black Rock Desert Activities is in effect.

Dispersed Recreation, Including Vehicle Access

Note: Current BLM policy indicates the use of the "OHV" acronym (Off-Highway Vehicle) for any vehicle capable of traveling off paved roads. In years past, the term "off-road vehicle (ORV)" was cited in BLM policy and is currently used in 43 CFR 8300, so the terms are considered interchangeable (see glossary). For the purposes of this EIS, OHV is used to describe *any* vehicle capable of leaving paved surfaces and traveling off paved roads within the plan area.

No Action Alternative (continued)

Access to and from the playa would not be limited. Certain roads, ways, and trails within the plan area would be inventoried, designated, and appropriately signed as part of the Winnemucca BLM transportation system, to be developed through a land use plan amendment. A brochure or map of the general transportation system may be developed.

With the exception of Wilderness Study Areas, access would be allowed throughout the plan area (see Map 4A). The WSAs would be accessible by designated roads and ways; the current designation of **closed** to cross-country travel in WSAs would continue. All non-WSA portions of the plan area would remain **open** to OHV use. All mound/dune fields in the plan area would remain **open**. Environmental education and public outreach would be used to educate users about protecting the integrity of the plan area, including the mound/dune fields. Discretionary closures could be made in emergency situations, such as imminent resource damage.

Camping: Overnight camping would be allowed throughout the plan area, per Bureau guidelines. In the Soldier Meadow ACEC, camping would be subject to guidance provided in the Soldier Meadow Activity Plan (USDI 1998b). Camping designations could occur through discretionary action approved by the BLM Authorized Officer.

Facilities: Facility development, other than those proposed under the Soldier Meadow Activity Plan, would be discretionary based on need, available funding, and public input. Any facilities that are developed would be designed to blend with given settings. Fee collection methods or sites would be designed and installed at main access locations (see Map 3).

Trail, Day-trips, and OHV Activity: Trail and day-trip opportunities could be developed on a case-by-case basis. The entire plan area would be **open** for OHV use, except for Wilderness Study Areas.

Public Outreach

A roadside trailer-based Visitor Contact Station would be provided, at peak use times, in the vicinity of Gerlach. The Visitor Station would be staffed with volunteers and BLM employees. Several activity-specific contact groups would introduce and orient visitors to the BLM back-country use ethic. Public education and visitor services would depend on available staffing and funding, as well as management discretion.

The Winnemucca BLM Field Office Volunteer Program would train and certify instructors of *Leave No Trace* and *Tread Lightly!* programs. These programs emphasize use ethics that promote low-impact use.

An educational outreach program incorporating the *Leave No Trace* and *Tread Lightly!* programs would be provided to schools, organizations, and media on a periodic basis, generally in conjunction with a specific event.

No Action Alternative (continued)

The BLM would seek grants, cooperative agreements, and volunteer services to assist in resource management and to provide limited amenities such as information kiosks and brochures. Information requests from the public, media, and tourism entities would be responded to as they are received. Other outreach efforts would be to distribute available resource information and present public education talks on request, install information kiosks at *key* access points, and provide recreation event schedules to the public as event schedules become available.

Enforcement and Safety: Periodically, recreational use would be monitored and the plan area patrolled by the Winnemucca Field Office Ranger and other employees working in the area. To provide for visitor safety, BLM employees and Volunteer Program staff would provide general assistance and information to visitors. During periods that the Visitor Contact Station is in use or other periods when staff and volunteers are collecting visitor use data and/or making public contacts, the Visitor Contact Station/Volunteer Operations Plan for Black Rock Desert Activities would be in effect. This operations plan is available for review at the Winnemucca BLM Field Office.

VISUAL RESOURCES

Guidelines that are currently approved would remain in effect, including management for current VRM classes (see Map 5 and Management Guidance Common to All Alternatives earlier in this chapter). Non-WSA lands would be managed under current VRM classes identified in the MFPs. Any WSA lands that are released by Congress from Wilderness consideration would be managed per VRM classes assigned in the current land use plans.

WILDERNESS VALUES

Until a Congressional decision is made on their wilderness status, the Wilderness Study Areas would be maintained as natural areas and managed to meet VRM I. No activities would be permitted that would degrade the landscape as it existed at the time of WSA designation. Management would follow Interim Management Policy in BLM Manual Handbook 8550-1 (see Management Guidance Common to All Alternatives in this chapter). Lands released by Congress from wilderness consideration would be managed to VRM classifications in current land use plans (see Map 5).

Trailheads would be established at select Wilderness Study Area trails (see Map 6). Existing trails within Wilderness Study Areas would be inventoried, evaluated, and considered for designation in the National Trail System. Consider establishing a segment of the National Desert Trail through the plan area, including portions of the Pahute Peak and High Rock Lake WSAs (no construction).

No Action Alternative (continued)

CULTURAL RESOURCES

Cultural resource management would be limited to inventories and mitigation as needed for specific projects in compliance with federal laws and regulations as referenced earlier in this chapter under Management Guidance Common to All Alternatives. Monitoring and patrol of the area would continue to be focused on holiday weekends and during special events or other peak use times. A one-mile wide corridor along the Applegate-Lassen Trail would continue to be listed on the National Register of Historic Places. The Applegate-Lassen Trail and Nobles Route would continue to be listed as National Historic Trails. Although VRM classes would not be used to manage the viewshed of the Applegate-Lassen Trail, the effects of authorized actions on National Register values of the trail and its setting (including adverse impacts to non-visual elements) would be considered during analysis of proposed projects. Discretionary actions with the potential to adversely impact National Register values may or may not be approved following completion of the NHPA Section 106 process. The BLM would advise proponents of non-discretionary actions to avoid adverse impacts to National Register sites, including the Applegate-Lassen Trail.

Sites would be classified by management-use categories (described under "Management Guidance Common to All Alternatives") as time and funding allow, and sites would be interpreted on a case-by-case basis. The Winnemucca BLM Field Office has brochures, maps, and publications that include information on historic trails and other aspects of the history and prehistory of the plan area. Public education talks would be presented on request. Requests to conduct research projects would be evaluated on a case-by-case basis.

Protective signs with positive messages would be posted as the need arises and personnel and funding allow. Sensitive cultural resource sites would be patrolled periodically on heavy-use holiday weekends.

Partnerships, the volunteer program, and other funding and assistance programs would be used to accomplish some projects. Efforts would be organized on a project-by-project basis.

Other protection for cultural sites and the Applegate-Lassen Trail viewshed is addressed in the following sections of this document : Lands and Realty, Energy and Minerals, Recreation, and Visual Resources.

NATIVE AMERICAN VALUES

Recommendations from Native American Tribes would be considered in land use planning. Native Americans would be consulted prior to authorization of surface-disturbing activities in cases where projects have potential to adversely impact sacred sites or traditional cultural properties. Native Americans would also be consulted for mitigation projects and when Native American human remains are encountered. The following would be undertaken on a project-by-project basis: revegetation with native plants (including medicinal plants); access to, and cooperative management of, traditional cultural properties; and data sharing. Available information on regional Native American culture would be included in public education and interpretive materials and efforts.

No Action Alternative (continued)

PALEONTOLOGY

Vertebrate paleontology collection would be conducted under a current and valid permit. Invertebrate fossils, leaf impressions, and petrified wood collection, as casual use, would be managed under existing laws and regulations, as described in the section "Management Guidance Common to All Alternatives." There would be few public education and monitoring efforts regarding paleontology.

ENERGY AND MINERAL RESOURCES

Locatable Minerals

A separate land use plan amendment would be initiated to pursue a 3,500-acre mineral withdrawal as part of implementing the Soldier Meadow Activity Plan.

All public lands within the plan area would remain open to location of minerals under the authority of the 1872 Mining Law, with the exception of lands withdrawn from mineral entry in the Soldier Meadow ACEC.

Mining plans of operations would be managed to existing VRM standards (see Map 5).

Mining notices and casual use operations are currently not evaluated with regards to VRM standards. Development in wilderness study areas is subject to Valid Existing Rights.

Any WSAs designated as Wilderness would be closed to new mineral location, and Valid Existing Rights would be managed under the authority of the 1872 Mining Law and the Wilderness Act.

Mining-related surface use and occupancy would be managed under 43 CFR 3715 and mitigated to existing VRM standards (see Map 5).

Leasable Minerals

Oil, gas, and geothermal resources would be managed under existing land use plans, regulations and policy, as described in Appendix C.

The 1982 land use plans were implemented with leasing permitted subject to "no surface occupancy" on the 97,288 acres along the Applegate-Lassen Emigrant Trail corridor and portions of its viewshed.

Leasing would not be allowed in the proposed Soldier Meadow ACEC expansion (35,000 acres).

No Action Alternative (continued)

On the portion of the plan area outside the playa, leasing and development of sodium and potassium could be conducted under current management policy and guidance. However, on the Black Rock Desert playa, as stated in the current land use plan, sodium and potassium leasing would not be allowed.

Salable Minerals

Disposal of mineral materials would be conducted under current management policy and guidance (see Management Guidance Common to All Alternatives). Sites are managed according to existing VRM classes (see Map 5).

The current land use plan directs BLM to create a community pit in the vicinity of Gerlach. The most likely choice would be the existing Blue Pit (see Map 12).

Unauthorized gravel or borrow pits are addressed on a case-by-case basis as discovered.

LANDS AND REALTY

Land Tenure (Acquisition)

Land tenure adjustments would focus on acquiring private inholdings that have high resource values. The direction is to seek acquisition of easements and/or private land that would provide legal access to public land. See Chapter 3, Affected Environment and Environmental Consequences for Lands and Realty, for acquisitions criteria.

Land Tenure (Disposal)

The public lands within the planning area have been identified for retention in the Paradise-Denio and Sonoma-Gerlach Management Framework Plans Approved Lands Amendment (USDI 1999). However, after the inventory and application of public benefits criteria, public lands in this area identified as suitable for disposal could be classified for disposal, and the above plan would be amended in accordance with 43 CFR 1610.5-5. See Chapter 3, Affected Environment and Environmental Consequences for Lands and Realty, for disposal criteria.

Rights-of-Way

No above-ground utility rights-of-way would be authorized within the plan boundary, except in the existing designated transportation corridor (see Map 2a) near the southern boundary of the plan area. The Sonoma-Gerlach Management Framework Plan (USDI 1982b, 4.1) designates the transportation corridor as follows: "In the vicinity of the Black Rock Desert Playa from Sulphur to Gerlach, transportation or

No Action Alternative (continued)

utility facilities will be located within a designated corridor bounded one-quarter mile north and two and three-quarter miles south of the Western Pacific Railroad. Only underground utility facilities will be located north of the Western Pacific Railroad.” No utility facilities would be allowed to cross the playa of the Black Rock Desert, except in the corridor previously mentioned. (Note: The railroad is now the Union Pacific.)

Communication sites and above-ground facilities would be authorized if they do not adversely impact the viewshed of the Applegate-Lassen Trail.

If the two Wilderness Study Areas that are not recommended for wilderness designation (High Rock Lake and Calico Mountains WSAs) are released by Congress from wilderness consideration, facilities (including communication sites) could be authorized, contingent on the proposed facilities being mitigated to meet VRM Class IV in the High Rock Lake area and VRM Class II in the Calico Mountains (see Map 5).

Commercial and Non-Commercial Activities

Commercial and non-commercial activities including, but not limited to, photography and filming permits, would continue to be authorized within the plan area, subject to environmental analysis and evaluation of potential visual impacts to the Applegate-Lassen Trail.

RANGE, WILD HORSES, WILDLIFE AND FISHERIES

See “Management Guidance Common to All Alternatives” earlier in this chapter.

VEGETATION

See “Management Guidance Common to All Alternatives” earlier in this chapter. Revegetation efforts would be addressed on a case-by-case basis.

SPECIAL STATUS SPECIES

See “Management Guidance Common to All Alternatives” earlier in this chapter.

No Action Alternative (continued)

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

A separate land use plan amendment would be initiated to expand Soldier Meadow ACEC from approximately 300 acres to 35,000 acres per the Soldier Meadow Activity Plan.

PARTNERSHIPS

The volunteer program and other partnerships now in place would continue to be used to recruit volunteer assistance in managing the Black Rock Desert plan area. Volunteers would periodically staff a Visitor Contact Station, gather visitor use data, monitor Wilderness Study Areas and other areas for impacts to resources, and accomplish other projects as they are identified.

The BLM would coordinate with user groups, individuals, partners, and volunteers to accomplish various identified tasks in the plan area, such as acquire and install information kiosks.

Partnerships and volunteer agreements would be sought for in-kind services as a basis for funding proposed projects, volunteer incidental expenses, and visitor center staff salaries.

Meetings would be held, as needed, with individuals and groups who are in partnership arrangements or volunteer agreements to review event proposals prior to issuing permits, and then after events to identify any needed mitigation and changes in future permitting.

MONITORING

See "Management Guidance Common to All Alternatives." Monitoring would be conducted as personnel and funding allow. The monitoring results would be reviewed for use in determining the need for any future management changes.

Alternative 1 - Proposed Action (Preferred Alternative)

RECREATION

The recreation section is discussed in three subdivisions: Special Recreation Permits; Dispersed Recreation, Including Vehicle Access; and Public Outreach.

Special Recreation Permits

Recreation Objective #1: Manage commercial and competitive uses in an equitable manner to ensure protection of sensitive resources and values while continuing to provide quality opportunities for diverse recreational events.

Management Direction: Evaluate and authorize Special Recreation Permits (SRPs) according to BLM Manual Handbook 8372-1 and 43 CFR 8370, taking into consideration the nature of the event, potential impacts to resources, and conflicts with other events, as well as adverse cumulative impacts to the integrity of setting of the Applegate-Lassen Trail and the quality of visitor experiences.

Actions:

Issue Special Recreation Permits that are consistent with this alternative and comply with NEPA and other permit conditions. Authorize annual or recurring events in the same areas as currently permitted, unless adverse impacts cannot be mitigated. In cases where adverse impacts occurred with past events, the event or its location would be re-evaluated and corrective action applied. Closely coordinate and monitor events for permittee performance and resource protection. In general, new events proposed on the playa would be permitted in the southern playa area, defined as an area south of the line of sight line between Steamboat Rock and Cholona Railroad Crossing (see Map 2A). Other events proposed in non-playa areas would be evaluated on a case-by-case basis considering factors listed above in the management direction.

Base fees for Special Recreation Permits according to existing regulations. Fees from Special Recreation Permits will be used for program development through the fee demonstration program.

Under Special Recreation Permits, prohibit removal of natural resources unless approved by the BLM Authorized Officer.

Require BLM law enforcement at permitted events, as determined by the BLM Authorized Officer.

Alternative 1 - Proposed Action (continued)

Dispersed Recreation, Including Vehicle Access

Recreation Objective #2: Manage motorized and non-motorized casual use to: (1) provide quality visitor opportunities and experiences while protecting sensitive resources and values in the plan area, and (2) provide access to public lands for recreational and other uses.

Table 2-2. OHV Use Designations	
Open Area	An area where all types of vehicle use is permitted at all times, anywhere in the area, subject to operating regulations and vehicle standards in 43 CFR 8341 and 8342.
Limited Area	An area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: Numbers of vehicles, types of vehicle, time or season of vehicle use, permitted or licensed use only, use on existing roads and trails, use on designated roads and trails, and other restrictions as placed in effect.
Closed Area	An area where off-road/off-highway vehicle use is prohibited. Use of off-road/highway vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

Source: 43 Code of Federal Regulations (subpart 8340.0-5, definitions), as used in Recreational Planning.

Management Direction: Provide access at certain locations; designate specific areas within the plan area as **open**, **limited**, or **closed** (see Table 2-2 and the glossary); and identify any exceptions.

Actions:

Inventoried and designated roads and trails are shown on Map 3 and areas classified as being **open**, **limited**, and **closed** are shown on Map 4A.

Reclaim roads and trails that do not serve the objectives for this alternative.

In areas classified as **limited**, vehicular access to and from the playa would be restricted to certain access roads to preclude additional new roads from being developed cross-country during dispersed use activity (see Map 3). All existing access roads would continue to be accessible, and some access roads would be improved. Bypasses around areas prone to heavy rutting would also be repaired and/or upgraded to prevent further rutting.

Classify the playa area as **open**. Classify non-playa areas between the plan area boundary and the playa (including mound/dune fields, and detached mounds/dunes) as **limited** to designated existing roads and trails and to dry washes (see Map 3). This means that cross-country travel

Alternative 1 - Proposed Action (continued)

would not be allowed between the plan boundaries and playa, except for dry washes and designated existing roads and trails. Also, OHVs traveling in dry washes would not be allowed to exit by climbing the banks of washes, but would be required to either follow the wash to the playa, or to exit by an intersecting road.

Cross-country access would be allowed for research projects in **limited** areas only by written approval of the BLM Authorized Officer.

An OHV area is proposed on the southern playa. This area is defined by a line extending from County Road 34 at the second main access to the playa (Bay Area or 12-Mile) to just north of the Bay Area Spit Bar, and then south-southeast across the playa to the High Road (see OHV Area Boundary, Map 3). Mound/dune fields in the southern playa area would be inventoried for cultural resources and unique mound/dune features. If National Register eligible cultural sites, traditional cultural properties, or unique mounds/dunes are recorded in the mound/dune fields in the proposed OHV area, OHV use in these areas would remain **limited** to the playa, dry washes, and designated existing roads and trails, unless adverse impacts to these features can be mitigated. If adverse impacts are mitigated, or if no National Register Eligible cultural resources or unique mound/features are present, this area could be **open** for cross-country travel as well.

Access and cross-country travel for administrative or emergency services (search and rescue, law enforcement, and medical reasons) and ranching-related situations or incidents (feeding stock in extreme winter conditions) would be coordinated with the BLM Authorized Officer.

On the Applegate-Lassen Emigrant Trail and Nobles Route, mechanized travel would not be allowed on intact segments, but would be allowed on designated portions of the trail (see Map 3).

Wilderness Study Areas would remain **closed** to cross-country travel, and motorized access within WSAs would be allowed only on designated existing roads and ways. Exceptions may be made for administrative purposes.

Expand public outreach in relation to OHV use (see Public Outreach section).

Prepare a travel map specific to the proposed plan area for public distribution. On this map, show all designated roads, trails, and dry washes; in WSAs, show all designated roads and ways.

Management Direction: Provide opportunities for outdoor recreational activities.

Actions:

Develop trail and day-hiking trip opportunities and supporting literature/brochures.

Consider evaluating areas outside the plan area for suitability as intensive-use OHV use areas. Such a development would allow visitors to camp within the plan area and travel to a designated OHV area outside the plan area via designated roads. Such an area could have numerous challenge courses for various skill levels and also some long-distance rides.

Alternative 1 - Proposed Action (continued)

Management Direction: Provide overnight camping opportunities.

Actions:

Allow overnight vehicular camping in **open** areas and in **limited** areas within 100 feet of designated roads and trails (see Map 3). In the WSA portions of the plan area, allow vehicular camping only on roads and ways or within cherry-stemmed areas as designated in 1983. Vehicular camping would not be allowed off designated roads and ways in WSAs.

On the playa, overnight dispersed camping would be allowed. Where the playa meets mound/dune fields and in detached mound/dune fields, allow overnight dispersed camping only in dune interspaces that have a flat, hard surface (see Map 4B and Appendix D, Figure 19).

Within the Soldier Meadow ACEC per the approved activity plan for that area, camping is not to exceed 5 consecutive days as compared to the 14 consecutive days limit on other public lands.

Management Direction: Provide visitor services.

Actions:

Establish a primitive campground in the vicinity of Flowing Wells (see Map 2A).

Design facilities to meet VRM Class II standards, which includes blending with surrounding color patterns and terrain.

Management Direction: Establish a fee collection system for dispersed recreational use.

Action:

Develop and install fee collection methods or sites at main access locations (see Map 3).

Public Outreach

Recreation Objective #3: Educate the public about natural resource values and the need for their protection, and provide information about recreational opportunities and visitor safety specific to the plan area.

Management Direction: Provide a facility and staffing for visitor contact.

Actions:

Construct a visitor facility using a phased approach:

- Phase 1* During peak use times, operate a visitor contact station in the vicinity of Gerlach, which is adjacent to the southern part of the plan area;
- Phase 2* Construct a visitor center, with full-service interpretive and facility amenities.

Alternative 1 - Proposed Action (continued)

Pursue cooperative agreements to help staff a visitor facility year-round, on a full-time basis.

Seek grants, cooperative management and volunteer services agreements to fund, build, maintain, and staff a visitor facility and to provide amenities such as information kiosks and brochures.

Management Direction: Develop an educational outreach program to make information available about recreational opportunities and natural/cultural resources in the Black Rock Desert region and to educate recreational and other users about their stewardship role in helping to protect public lands.

Actions:

Design, develop and implement an educational outreach program that includes various interpretive materials, information kiosks, public workshops, training, and presentations to community and civic organizations, schools, and recreational user groups. Consider various outreach approaches, including exhibits, videos, slide shows, audio tapes, and radio transmissions.

Incorporate the *Leave No Trace* and *Tread Lightly!* programs into educational outreach.

Pursue cooperative management agreements with user groups to assist with an interpretive and educational outreach program.

Develop comprehensive interpretive information and public education materials for the plan area.

Install information kiosks *near* key access points to the plan area. Upgrade the existing Gerlach information kiosk, and maintain kiosks on a regular basis.

Provide recreation event schedules to the public, the Nevada Commission on Tourism, and other recreational marketing or provider entities, as appropriate.

Increase BLM presence and visitor services, contingent on funding and staffing from grants and fee collection.

Continue responding to information requests from the public, media and tourism entities as they arise, and attend training in interpretive techniques to enhance visitor opportunities and experiences.

Prepare, publish, and distribute an annual report about the activities, plan implementation progress, and monitoring efforts in the plan area.

Include environmental education messages in any special recreation permits and also in agency articles about the plan area.

Alternative 1 - Proposed Action (continued)

VISUAL RESOURCE MANAGEMENT (VRM)

VRM Objective #1: Protect the integrity of setting of the Applegate Lassen Trail and the scenic qualities of the plan area while allowing mineral development and other uses of resources within the plan area

Management Direction: Protect the overall scenic qualities of the plan area.

Actions:

The VRM classification for the non-Wilderness Study Area lands within the plan area would be VRM Class II, except for the Cassidy and Southern Calico Mountains Areas of Developmental Interest (ADIs), which have high potential for occurrence of certain locatable minerals (see Map 9). The VRM classification for these two ADIs would be VRM III during locatable mineral operational activities and VRM Class II for reclamation.

If the WSA-lands within the plan boundary are released by Congress from Wilderness consideration, the lands would revert to VRM Class II.

Design any new signs and facilities in the plan area to meet VRM Class II.

Management Direction: Protect scenic qualities associated with Wilderness values.

Actions:

Manage Wilderness Study Areas (WSA) as VRM Class I, per Interim Management Policy in BLM Manual Handbook 8550-1.

WILDERNESS VALUES

Wilderness Objective #1: Protect Wilderness values in Wilderness Study Areas.

Management Direction: Manage activities within Wilderness Study Areas to protect wilderness characteristics, including visual integrity.

Actions:

Manage lands released by Congress from Wilderness consideration to VRM Class II.

Establish trailheads at select Wilderness Study Area trails (see Map 7).

Inventory, evaluate, and consider existing trails within Wilderness Study Areas for designation in the National Trail System.

Alternative 1 - Proposed Action (continued)

Consider establishing a segment of the National Desert Trail through the plan area, including portions of the Pahute Peak and High Rock Lake WSAs (no construction). Establishment of a segment of this trail is provided in existing land use plans (USDI 1982a, b).

CULTURAL RESOURCES

Cultural Resources Objective #1: Protect the integrity of emigrant trails (including Nobles Route) and the setting of the Applegate-Lassen Trail while allowing recreation and other uses.

Management Direction: The Applegate-Lassen Trail viewshed would be managed as VRM Class II, except for areas of locatable minerals in the Cassidy Mine and Southern Calico Mountains ADIs, which would be managed as VRM III during operation, but VRM II for reclamation. Temporary actions would be evaluated on a case-by-case basis.

Actions:

Discretionary actions would meet VRM Class II. Non-discretionary actions would be mitigated to VRM Class II. Temporary impacts to the trail viewshed would be evaluated on a case-by-case basis.

Management Direction: Protect non-visual elements of Applegate-Lassen Trail setting.

Actions:

Discretionary actions having potential to cause short and/or long-term significant adverse impacts (such as noise) to non-visual elements of the setting of the Applegate-Lassen Trail (such as solitude) would not be allowed. Non-discretionary actions would be mitigated to avoid these types of impacts in both the short and long term. Impacts of a temporary nature would be evaluated and mitigated on a case-by-case basis, except for Special Recreation Permits in the playa, which would be evaluated in accordance with the criteria discussed under "Recreation" in Alternative 1 (Proposed Action).

Management Direction: Protect intact traces of emigrant trails while providing opportunities for public enjoyment.

Actions:

The Nobles Route would be managed as National Register eligible with contributing elements. Intact trail traces and camp sites of the Nobles Route would be considered contributing elements. Other portions of the route would be considered non-contributing elements. Disturbances to intact trail traces, including mechanized travel, would not be allowed. Travel would be allowed on non-contributing segments of the Nobles Route (such as currently well-traveled sections of the trail).

Alternative 1 - Proposed Action (continued)

Disturbances to intact traces of the Applegate-Lassen Trail, including mechanized travel, would not be allowed. Mechanized travel on the main Nobles and Applegate-Lassen Trail routes that are currently well traveled by motorized vehicles would be allowed to continue.

Cultural Resources Objective #2: Provide opportunities for the education and enjoyment of the public while maintaining the integrity of setting of the Applegate-Lassen Trail.

Management Direction: Manage the following historic sites and routes for public use:

- Applegate-Lassen Trail
- Nobles Route
- Fremont Route
- Historic camp sites on above three routes
- Hardin City
- Lassen-Clapper Murder site

Consider other well known and/or heavily impacted cultural sites for public use designation.

Actions:

The above trails, routes, and sites would be interpreted through non-intrusive interpretive methods not exceeding VRM Class II.

Interpret historic trails, campsites along trails, and other historic sites through use of brochures, audio tapes, and/or interpretive broadcast stations. Also provide some general information through kiosks.

Brochures would be available at the Visitor Contact Station in Gerlach, kiosks, the Winnemucca BLM Field Office, and other locations to be identified.

Enter into cooperative agreements with the Oregon-California Trail Association and other interested persons/organizations for historic trail interpretation. Historic trail interpretive efforts would be undertaken in coordination with the National Park Service Long Distance Trails Office.

For Hardin City, prepare and implement a treatment plan (a plan for mitigating adverse impacts to cultural values at the site). Pursue alternative funding sources for implementing the treatment plan and/or seek cooperative agreements. Also, implement a signing program to discourage looting of the site.

Management Direction: Provide general information on the prehistory and history of the plan area.

Actions:

Prepare brochures that summarize pertinent information and make them available at a Visitor Contact Station near Gerlach, kiosks, and the Winnemucca BLM Field Office.

Alternative 1 - Proposed Action (continued)

Management Direction: Designate appropriate prehistoric sites for public use.

Actions:

Prehistoric sites that are well known and/or have been heavily impacted by unauthorized collection, excavation, or other activities would be considered for public use. A representative sample of the various site types in the planning area would be considered for public use management. Sites would be interpreted using non-intrusive methods. The damage to cultural resources caused by unauthorized collection/excavation and other forms of vandalism would be emphasized. Before the sites were interpreted to the public, remaining portions of sites would be recorded and their impacts mitigated.

Management Direction: Designate appropriate rock art sites for public use.

Action:

Fully record all rock art sites. Rock art sites well known to the public would be considered appropriate for public use management. Rock art sites managed for public use would be interpreted through signing, brochures, and/or guided or self-guided tours.

Cultural Resources Objective #3: Provide research opportunities while preserving a representative sample of sites for future study.

Management Direction: Manage appropriate prehistoric rock shelters, occupation sites, quarry sites, hunting blinds, lithic scatters, pebble mounds, rock art sites, and historic sites for scientific and conservation use, as appropriate.

Action:

Encourage researchers to pursue studies in the Black Rock Desert Plan area. Seek cooperative agreements, funding for cost/share projects, and contracts for this purpose.

Cultural Resources Objective #4: Identify, record, evaluate, and manage cultural resource sites.

Management Direction: Record and evaluate known cultural sites.

Actions:

Record and assign known sites to the following use categories: scientific use, conservation for future use, traditional use, public use, experimental use, and discharged from management in accordance with BLM Manual Handbook 8110. Sites currently being adversely impacted by recreation, unauthorized collection/excavation, or other uses would be prioritized for evaluation. Sites would also be evaluated for National Register eligibility. Measures such as public education, OHV closures, monitoring and patrol activities, and data retrieval would be considered for cultural sites which are being adversely impacted by casual use and/or unauthorized collection/excavation and vandalism.

Alternative 1 - Proposed Action (continued)

Management Direction: Inventory cultural resource sites in the plan area.

Actions:

Develop a research design, historic context and sampling strategy for the plan area. Evaluate sites for National Register eligibility and management needs, assigning sites to use categories (see section "Management Guidance Common To All Alternatives"). Include emigrant and other historic trails in plan area in research design. The latter research should be done in coordination with the National Park Service Long-Distance Trails Office, Oregon California Trail Association, and other interested entities.

Management Direction: Inventory cultural resources in mound/dune fields in proposed OHV area in the southern playa area (see Maps 2C and 3).

Actions:

Inventory and evaluate cultural resources in mound/dune fields in the southern playa area.

Avoid or mitigate (i.e., data recovery) National Register Eligible sites.

Management Direction: Seek partnerships to implement some project work.

Actions:

Seek partnerships with universities, researchers, Native Americans, and others to implement projects addressing Native American values. Coordinate with the National Park Service Long Distance Trails Office. Also encourage volunteer participation in research. Seek challenge cost share monies and grants as funding sources.

Cultural Resources Objective #5: Protect cultural resources.

Management Direction: Identify, monitor, patrol, and manage cultural resources for needed protection.

Actions:

Identify National Register sites that are being adversely impacted by casual use and/or looting activity.

Post protective signs with positive messages at well-known cultural resource sites that are being damaged and/or impacted, or are at risk for adverse impacts.

Patrol cultural resource sites during peak times of visitor use.

Increase the presence of BLM law enforcement and resource personnel and volunteers for monitoring.

Include protective messages in interpretive and educational material.

Alternative 1 - Proposed Action (continued)

If above protection methods are unsuccessful, consider access closures or mitigation of impacts through data recovery.

(Note: Additional protection for cultural sites and the Applegate-Lassen Trail setting is provided under actions for Lands and Realty, Minerals, Recreation, and Visual Resources.)

NATIVE AMERICAN VALUES

Native American Values Objective #1: Manage uses and resources to provide full consideration of Native American traditional and cultural concerns in activity planning and the land use approval process.

Management Direction: Ensure that Native American values are considered and incorporated in project planning.

Actions:

Involve tribes in cooperative management of traditional cultural properties identified by Native Americans.

Consider Tribal recommendations in project planning.

Negotiate with tribes to develop and implement a cultural resource data-sharing agreement that allows tribes access to archeological and historic site records protected by the Archaeological Resources Protection Act.

Consult Tribes to identify sensitive areas requiring special protection. These areas would be managed in a like manner as sensitive archeological sites.

Reclamation efforts would emphasize revegetation of native plants used by Native Americans.

Native American Values Objective #2: Manage land uses so as to limit adverse impacts to traditional cultural properties important to Native Americans.

Management Direction: National Register Eligible traditional cultural properties identified by Native Americans and their setting would be managed to conform with VRM Class II standards.

Action:

Discretionary land uses would be permitted if they conform to VRM Class II standards and, except for Native American traditional uses, denied if they do not. Non-discretionary land uses would be mitigated to conform with VRM Class II standards.

Alternative 1 - Proposed Action (continued)

Management Direction: Manage Traditional properties identified by Native American Tribes for Traditional Use.

Action:

Traditional cultural properties that are eligible for National Register designation would remain *Open* for Native American traditional and religious use.

Native American Values Objective #3: Educate the public regarding regional Native American culture.

Management Direction: Include Native American values in interpretive outreach.

Actions:

Include Native American information in public education/interpretive materials and presentations.

Invite Native Americans to participate in preparation and review of this information.

PALEONTOLOGY

Paleontology Objective #1: Identify, evaluate and protect paleontological and paleoenvironmental resources in the plan area.

Management Direction: Assign paleontological locales to appropriate use categories (Scientific Use, Conservation for Future Use, Traditional Use, Public Use, or Experimental Use).

Actions:

Evaluate known paleontological locations for scientific and educational significance.

When new localities are discovered, evaluate them for significance.

Develop cooperative agreements with professional and/or professionally supervised amateur volunteer groups to inventory, record locales, and make evaluations.

Management Direction: Consider impacts to paleontological and paleoenvironmental resources when permitting authorized actions.

Actions:

Paleontological inventories would be required for large-scale, surface-disturbing activities authorized in sensitive areas. Authorization of such activities would be subject to stipulations that significant resources would be avoided or mitigated.

Alternative 1 - Proposed Action (continued)

Authorized actions would be evaluated for potential adverse impacts to paleoenvironmental resources, and any adverse effects would be avoided, if possible, or mitigated prior to permitting authorized actions.

Management Direction: Encourage paleontological and paleoenvironmental research in the plan area.

Action:

Encourage researchers to pursue studies in the plan area. Seek cooperative agreements, funding for cost/share projects, and contracts for this purpose.

Management Direction: Protect paleontological and paleoenvironmental resources from destruction through increased public outreach efforts and increased monitor/patrol activities.

Actions:

During periods of high visitor use, increase monitoring of sensitive areas by volunteers and/or BLM personnel.

Include information on the value of, and need to protect, paleontological and paleoenvironmental resources in public outreach efforts.

Involve rockhounding, OHV, amateur paleontological groups, and other resource interest groups in public education and/or monitoring activities.

ENERGY AND MINERAL RESOURCES

The minerals section is subdivided into three sections: locatable minerals, leasable minerals, and salable minerals.

Energy and Mineral Resources Objective #1: Allow development of mineral resources compatible with the overall plan objectives while preventing unnecessary and undue degradation of the public lands.

Locatable Minerals

Management Direction: Manage locatable minerals within the proposed plan area to avoid adverse impacts to the desert dace habitat and cultural sites in the Soldier Meadow ACEC.

Action:

Pursue a 3,500-acre locatable mineral withdrawal within the proposed Soldier Meadow ACEC, subject to Valid Existing Rights (see Maps 9 and 15).

Alternative 1 - Proposed Action (continued)

Management Direction: Manage locatable minerals within the proposed plan area to avoid adverse impacts along the Applegate-Lassen Emigrant Trail.

Action:

Pursue a 36,000-acre locatable mineral withdrawal along the one-mile wide corridor of the Applegate-Lassen Emigrant Trail subject to Valid Existing Rights and Congressional approval (see Maps 9, 10a and 10b).

Management Direction: Manage locatable minerals to minimize adverse impacts to the visual resources of the plan area.

Actions:

All mining plans of operations would include mitigating measures intended to minimize adverse impacts to visual resources throughout the period of operations.

In the Southern Calico Mountains and Cassidy Mine ADIs, plans of operation would be managed to VRM Class III during operations and VRM Class II for final reclamation. Plans of operation in all other locations within the plan boundary would be required to maintain VRM Class II throughout the period of operations.

Exploration plans of operations would be considered temporary and must be reclaimed to VRM Class II standards immediately following project completion. Temporary facilities, such as staging areas and storage trailers, would be removed at the end of each phase of operations.

The BLM would work closely with mining-notice level operations to mitigate potential adverse impacts to visual resources to maintain the appropriate VRM Class II and III standards.

Manage locatable minerals in accordance with 43 CFR 3715, Use and Occupancy under the Mining Laws. Proposed activities would include mitigating measures that would meet the appropriate VRM Class II and III standards.

Leasable Minerals

Management Direction: Manage geothermal, oil and gas leasing to avoid adversely impacting the desert dace habitat in Soldier Meadow.

Action:

Geothermal, oil and gas leases would not be issued in the proposed Soldier Meadow ACEC of approximately 35,000 acres (see Maps 11 and 15).

Alternative 1 - Proposed Action (continued)

Management Direction: Manage geothermal, oil and gas leasing to minimize adverse impacts to National Register values of the Applegate-Lassen Emigrant Trail, the Nobles Route, and Native American values associated with hot springs.

Action:

Do not allow oil, gas, or geothermal leasing in the following areas (see Map 11):

- One mile either side of the Applegate-Lassen Emigrant Trail, from one mile east of Rabbithole Spring to the Union Pacific railroad tracks and then north to Black Rock.
- From Black Rock north to the proposed Soldier Meadow ACEC expansion, one mile to the west of the Applegate-Lassen Emigrant Trail, and to the crest of the Black Rock Range to the east.
- One mile either side of the Applegate-Lassen Emigrant Trail, starting from the west side of the proposed Soldier Meadow ACEC expansion to the mouth of High Rock Lake.
- The viewshed looking east from the mouth of High Rock Canyon
- Approximately 1,280 acres around Trego Hot Springs.
- Total proposed no leasing: approximately 147,000 acres.

Management Direction: Manage leasable minerals to minimize adverse impacts to the visual resources of the proposed plan area.

Actions:

Require all long-term authorizations to maintain the visual setting consistent with VRM Class II and as detailed in the Visual Resource Management element of the plan throughout the period of operations.

Exploration and drilling activities would be considered temporary and would be reclaimed immediately following those activities to VRM Class II visual standards. Temporary facilities such as staging areas and storage trailers, would be removed at the end of each phase of operations.

No new leases would be issued on lands in Wilderness Study Areas.

Leasing of sodium or potassium would not be allowed within the plan boundary.

Salable Minerals

Management Direction: Allow mineral material sales and free-use permits at the discretion of the BLM Authorized Officer.

Actions:

A community gravel pit would be established in the existing Blue Pit (see Map 12).

All approved permits would mitigate to VRM Class II standards, as described in the Visual Resource Management section of this plan, throughout the period of operations.

Alternative 1 - Proposed Action (continued)

All concurrent and final reclamation and mitigation measures would meet VRM Class II standards.

Existing unauthorized gravel or borrow pits within the proposed plan boundary would be inventoried. Sites not identified for continued use by the BLM and Washoe, Humboldt, and Pershing counties, and the state of Nevada would be reclaimed.

LANDS AND REALTY

This section is presented in four subdivisions: Acquisition, Disposal, Rights-of-Way, and Commercial and Non-Commercial Activities.

Lands and Realty Objective #1: Consider land tenure adjustments and authorize commercial and non-commercial activities, within the plan boundary, that are consistent with the plan's objectives.

Land Tenure (Acquisition)

Management Direction: As opportunities arise, pursue acquisition of private lands and easements through donation, exchange, and purchase.

Actions:

Acquisitions would specifically focus on lands that hold high cultural and historical value, and on lands that contain high resource values including, but not limited to, habitat for special status species. The BLM would seek acquisition of easements and/or private lands that would provide legal access to public land.

Process acquisitions using criteria described in Chapter 3.

Land Tenure (Disposal)

Management Direction: Land tenure adjustments that would dispose of public land, within the plan area would only be considered when the selected parcel does not contribute to the plan's overall objective, and/or where such land ownership adjustments would result in a net benefit to the public.

Actions:

Process disposals using criteria described in Chapter 3.

Reserve easements to the United States, where appropriate, to ensure public access on public lands conveyed out of federal ownership.

Alternative 1 - Proposed Action (continued)

Rights-of-Way

Lands and Realty Objective #2: Authorize rights-of-way to facilitate transportation and utility needs.

Management Direction: Authorize rights-of-way within the guidelines of the alternative's objective.

Actions:

Above-ground facilities would continue to be authorized south of the railroad tracks in the existing designated transportation corridor (see Map 2A), subject to environmental analysis. The Sonoma-Gerlach Management Framework Plan (USDI 1982b, 4.1) designates the transportation corridor as follows: "In the vicinity of the Black Rock Desert Playa from Sulphur to Gerlach, transportation or utility facilities will be located within a designated corridor bounded one-quarter mile north and two and three-quarter miles south of the Western Pacific Railroad. Only underground utility facilities will be located north of the Western Pacific Railroad." (Note: The railroad is now the Union Pacific.)

The area located east of County Road 34 and Soldier Meadow Road, and north of the railroad tracks in the designated transportation corridor would be restricted to underground facilities only. No utility facilities would be allowed to cross the playa of the Black Rock Desert, other than in the corridor previously mentioned.

If the two Wilderness Study Areas that are not recommended for wilderness designation (High Rock Lake and Calico Mountains WSAs) are released by Congress from Wilderness consideration, facilities including communication sites, could be authorized west of County Road 34 and Soldier Meadow Road. If they were designated, there would be a setback from the road which would allow for utility construction which would allow for utility construction between the road and a designated boundary. All rights-of-way proposals would be subject to environmental analysis and would be consistent with the overall objectives of this plan. Communication sites and above-ground facilities would be mitigated to meet VRM Class II standards.

Commercial and Non-Commercial Activities

Management Direction: Provide opportunities for commercial and non-commercial activities consistent with the objectives for this alternative.

Action:

Authorize commercial and non-commercial activities including, but not limited to, photography and filming, subject to environmental analysis and evaluation of potential adverse visual impacts to the Applegate-Lassen Trail. Authorized activities would be minimal impact in nature and mitigated to VRM Class II Standards.

Alternative 1 - Proposed Action (continued)

RANGE, WILD HORSES, WILDLIFE, AND FISHERIES

See "Management Guidance Common to All Alternatives."

VEGETATION

See "Management Guidance Common to All Alternatives."

SPECIAL STATUS SPECIES

Special Status Species Objective #1: Protect habitat for Lahontan cutthroat trout in Donnelly Creek.

Note: In addition to management actions below, see "Management Guidance Common to All Alternatives."

Management Direction: Reduce sediment and other harmful substance introductions in Donnelly Creek.

Actions:

Designate and improve road crossings on Donnelly Creek.

Prohibit off-highway vehicle use in the part of Donnelly Creek drainage identified as potential habitat for Lahontan cutthroat trout, which is being considered for re-introduction (see Maps 2A and 15).

Management Direction: Protect and retain streamside vegetation to provide shading and cover on Donnelly Creek.

Actions:

Enforce the 300-foot buffer creek regulation (per guidance of Nevada Division of Wildlife) on camping along Donnelly Creek.

Prohibit firewood cutting and gathering along Donnelly Creek.

Management Direction: Protect spawning populations in Donnelly Creek when Lahontan cutthroat trout are re-introduced.

Action:

Provide information to public land users about the crucial nature of spawning to the survival of Lahontan Cutthroat Trout, and encourage users not to disturb spawning fish.

Alternative 1 - Proposed Action (continued)

AREA OF CRITICAL ENVIRONMENTAL CONCERN

ACEC Objective #1: Protect resource values specific to designation of an area as Area of Critical Environmental Concern.

Management Direction: Provide protection of identified resource values in the plan area through a special designation.

Action:

Expand Soldier Meadow ACEC from approximately 300 acres to approximately 35,000 acres, per the Soldier Meadow Activity Plan (see Map 15).

PARTNERSHIPS

Partnerships Objective #1: Provide opportunities for the public to share and have ownership in the responsibilities of managing public lands and protecting the valued resources.

Management Direction: Seek partnerships to achieve resource protection objectives found in this plan and the Sonoma-Gerlach and Paradise-Denio management framework plans (1982).

Actions:

Enter into partnerships with users, community/civic organizations, public and private agencies, and interested individuals to assist with resource monitoring, visitor use data collection, and plan implementation.

Coordinate with user groups, individuals, partners and volunteers to accomplish identified actions in the plan (such as acquire and install information kiosks). A steering committee would be established for this coordination.

Develop partnerships and volunteer agreements for in-kind services as a basis for funding proposed projects, volunteer expenses, and visitor center staff salaries.

Review and implement suggestions from the Recreation 2000 Update for promoting collaborative leadership and shared responsibility.

Hold annual meetings with individuals and groups who are in partnership or cooperative agreements to outline plans for upcoming year and to identify and address any new issues.

Alternative 1 - Proposed Action (continued)

MONITORING

Monitoring Objective #1: Establish a system to evaluate visitor use trends, growth, and associated positive or adverse resource impacts.

Management Direction: Develop and implement a Limits of Acceptable Change study or a similar study.

Actions:

Develop and implement a Limits of Acceptable Change (LAC) or comparable study to determine resource impacts, visitor use, and growth trends within the plan area. The LAC study would focus on multiple resources, including cultural values, soils and dunes (erosion and build-up), vegetation, and wildlife habitat (both invertebrate and vertebrate species).

Coordinate with the National Park Service Long-Distance Trails Office in developing the LAC or similar program.

Use results of the LAC or similar program, such as impact thresholds of each resource, to determine future management changes.

Design, develop, and implement a data base collection and management framework system to collect reliable, quantitative and statistical information useful to managing the plan area. This would include:

- Recreation trends and experiences (visitor satisfaction, growth, conflict issues).
- Information regarding current and future recreation impacts on resources (wildlife habitat, vegetation, soils, and cultural).
- Recreation-carrying capacities

Management Direction: Inventory mound/dune fields in proposed OHV area in the southern playa area for uniqueness (see Maps 2C and 3).

Actions:

Inventory and evaluate the proposed OHV area in the southern playa area for unique mound/dune features.

Protect unique mound/dunes in the southern playa area from OHV impacts.

Alternative 2

RECREATION

Special Recreation Permits

Recreation Objective #1: Provide opportunities on public lands for special recreational events.

Management Direction: Evaluate and authorize Special Recreation Permits (SRPs) according to BLM Manual Handbook 8372-1 and 43 CFR 8370, taking into consideration the nature of events, potential adverse impacts to resources, and conflicts with other events, as well as cumulative adverse impacts to the integrity of setting of the Applegate-Lassen Trail and the quality of the visitor experiences.

Actions:

Evaluate and authorize Special Recreation Permits for events, subject to existing regulations, and restrictions on the type, numbers, size and/or duration of permitted events to protect unique natural and cultural resources and settings.

Authorize annual or recurring events in the same areas as currently permitted, unless adverse impacts cannot be mitigated. In cases where adverse impacts occurred with past events, the event or its location would be re-evaluated and corrective action applied. An event, such as a land speed record attempt, would be situated in the previously used area and then carefully coordinated and monitored as to permittee performance and resource protection. In general, new events proposed on the playa would be permitted in the southern playa area, defined as an area south of the line of sight line between Steamboat Rock and Cholona Railroad Crossing (see Map 2A). Other events proposed in non-playa areas would be evaluated on a case-by-case basis considering factors listed above in the management direction.

Make fees from Special Recreation Permits available for program development through the fee demonstration program.

Under Special Recreation Permits, prohibit removal of natural resources.

Require BLM law enforcement presence at permitted events, as determined by the BLM Authorized Officer.

Dispersed Recreation, Including Vehicle Access

Recreation Objective #2: Support opportunities for recreational uses and access to public lands for recreation and other uses.

Alternative 2 (continued)

Management Direction: Provide access at designated places; designate specific areas within the plan area as **open**, **limited**, or **closed** (see Table 2-2 and glossary) and identify any exceptions; and provide opportunities for various types of outdoor recreational activity.

Actions:

Inventoried and designated roads and trails are shown on Map 3 and areas classified as being **open**, **limited**, and **closed** are shown on Map 4A.

Reclaim roads and trails that do not serve the objectives for this alternative. Inventoried and designated roads and trails are shown on Map 3.

Classify playa areas as **open**. All other areas are **limited** to designated access roads (see Map 3). *Cross-country travel in non-playa areas would not be allowed.*

Limit mechanized travel on the Applegate-Lassen Trail and Nobles Route to those portions currently well traveled by mechanized vehicles. Travel on the Applegate-Lassen Trail would be allowed by permit only. On the Applegate-Lassen Emigrant Trail and Nobles Route, mechanized travel would not be allowed on intact segments but would be allowed on designated portions of the trail (see Map 3).

Wilderness Study Areas would remain **closed** to cross-country travel, and mechanized access to WSAs would be allowed only on designated existing roads and ways.

Exceptions to **closed** and **limited** areas would be made for administrative and emergency services (search and rescue, law enforcement, and medical reasons) and ranching-related situations or incidents (feeding stock in extreme winter conditions), as coordinated with the BLM Authorized Officer.

Management Direction: Allow some overnight camping.

Actions:

Establish designated camping areas available for use by permit only.

Management Direction: Provide campsite facilities.

Actions:

Establish a primitive campground in the vicinity of Flowing Wells (see Map 6).

Design facilities to meet VRM Class I standards.

Management Direction: Establish a fee collection system.

Action:

Design and install fee collection stations at *all* access points.

Alternative 2 (continued)

Public Outreach

Recreation Objective #3: Provide information to the public about recreational opportunities and protection of the natural and cultural resources.

Management Direction: Provide a facility and staffing for visitor contact.

Actions:

Construct a visitor facility using a phased approach:

- Phase 1* During high-use periods, a visitor contact station would be operated in the vicinity of Gerlach, which is adjacent to the southern part of the Black Rock Desert planning area;
- Phase 2* Construct a visitor center, with full-service interpretive and facility amenities.

Staff visitor facility through cooperative agreements on a year-round, full-time basis.

Seek grants, cooperative management agreements, volunteer service agreements, and cooperating associations to fund, build, maintain, and staff a visitor center.

Management Direction: Support an educational outreach program to make information available about recreational opportunities in the Black Rock Desert region. Educate recreational and other users about their stewardship in helping to protect resources in the plan area.

Actions:

Install new information kiosks *near* key access points. Upgrade the existing Gerlach information kiosk. Maintain kiosks on a regular basis.

Develop and implement an intensive educational outreach program that includes information kiosks, public workshops, training sessions, and presentations to community and civic organizations, schools, and recreational user groups.

Develop and enter into cooperative management agreements with user groups to assist with an interpretive program.

Develop comprehensive interpretive information and public education materials for the plan area.

Encourage low-impact use and back-country ethics through such programs as *Leave No Trace* and *Tread Lightly!*.

Recreation event schedules would not be provided to the public, the Nevada Commission on Tourism, or other recreational marketing or provider entities.

Alternative 2 (continued)

Increase BLM presence and visitor services, to the extent of funding and staffing available from grants and fee collection.

VISUAL RESOURCE MANAGEMENT (VRM)

VRM Objective #1: Protect the integrity of the setting of the Applegate-Lassen Trail and other unique scenic qualities within the plan area.

Management Direction: Protect the overall scenic qualities in the plan area to VRM Class I standards.

Actions:

Lands outside the Wilderness Study Area would be classified as VRM Class I per BLM Manual Handbook 8400-Visual Resource Management.

Design any new signs and facilities in the plan area to meet VRM Class I standards.

Management Direction: Protect scenic qualities associated with Wilderness values.

Actions:

Wilderness Study Areas would be classified as VRM Class 1.

Manage Wilderness Study Areas per Interim Management Policy (IMP) in BLM Manual Handbook 8550-1. If and when WSA lands within the plan boundary are released by Congress from Wilderness consideration, the lands would remain VRM Class I.

WILDERNESS VALUES

Wilderness Values Objective #1: Protect wilderness values of Wilderness Study Areas.

Management Direction: Manage activities within Wilderness Study Areas to protect wilderness characteristics, including visual integrity.

Actions:

Manage lands released by Congress from Wilderness consideration to VRM Class I.

Do not establish any trailheads.

Do not inventory existing trails within Wilderness Study Areas nor consider them for designation in the National Trail System.

Alternative 2 (continued)

CULTURAL RESOURCES

Cultural Resources Objective #1: Preserve the setting of the Applegate-Lassen Trail and Nobles Route to the maximum extent possible.

Management Direction: Manage the Applegate-Lassen trail viewshed to VRM Class I.

Actions:

Proposed uses would be evaluated using VRM I standards. Discretionary actions that do not meet these standards would not be authorized. Non-discretionary actions would be mitigated to conform to VRM I standards.

Discretionary actions with potential for short/long-term adverse impacts to non-visual elements of the Applegate-Lassen and Nobles Route setting would not be allowed. Impacts of a temporary nature would be evaluated on a case-by-case basis, except for the recreation events in the playa, which would be evaluated in accordance with the first recreation objective.

The entire viewshed of the Applegate-Lassen Trail and Nobles Route would be evaluated as a cultural landscape and managed as if it were National Register eligible.

Cultural Resources Objective #2: Protect cultural resources to the maximum extent possible while allowing education of the public.

Management Direction: The following historic sites and routes would be managed for conservation use: The Applegate-Lassen Trail, Nobles Route, Fremont Route and historic campsites along these routes as well as Hardin City, and the Lassen Clapper Murder site. Other historic sites would be evaluated for conservation use as they are identified.

Actions:

Mechanized access to, and camping in, the above cultural resources would be allowed by permit only. Mechanized travel on intact traces of the Applegate-Lassen Trail and Nobles Route would not be allowed. Mechanized travel on portions of the Applegate-Lassen Trail and Nobles Route that are currently well traveled by mechanized vehicles and camping at campsites along these routes would be allowed by permit only. The number of permits would be determined by the Limits of Acceptable Change.

No signing or facilities would be allowed at these historic sites and trails.

Alternative 2 (continued)

Brochures providing general information about the historic trails and other cultural resource sites would be prepared and made available to the public. Site protection would be emphasized. Videos and exhibits would be acceptable interpretive mediums.

The Nobles Route would be managed as if eligible for the National Register.

Cultural Resources Objective #3: Protect cultural sites while allowing minimal scientific research.

Management Direction: Manage prehistoric rock shelter, occupation sites with probable or known buried deposits and quarry sites, hunting blinds, lithic scatters, pebble mounds, rock art sites, and historic sites with an emphasis on conservation use.

Action:

Allow only non-destructive scientific research at sites managed for conservation use (see above list in Objective 2 management direction), and allow invasive research only at sites managed for scientific use.

Cultural Resources Objective #4: Identify, record, and evaluate archeological sites in the plan area for management purposes.

Management Direction: Record and evaluate known cultural sites.

Actions:

Record and assign known sites to the following use categories: scientific use, conservation for future use, traditional use, public use, experimental use in accordance with BLM Manual Handbook 8110. Sites currently being impacted by recreation, unauthorized collection/excavation, or other uses would be given priority for evaluation. Sites would also be evaluated for National Register eligibility.

Inventory cultural resource sites in plan area.

Develop research design, historic context and sampling strategy for the plan area. Assign sites to use categories (see above). Evaluate sites for National Register eligibility. Research on historic trails would be undertaken in coordination with the National Park Service Long Distance Trails Office, Oregon-California Trails Association and interested entities.

Alternative 2 (continued)

Cultural Resources Objective #5: Protect cultural resources.

Management Direction: Identify, monitor, patrol and manage cultural resources for needed protection.

Actions:

Post protective signs with positive messages at cultural resource sites that are well known.
Coordinate signing of historic trails with the National Park Service Long Distance Trails Office.

Patrol cultural resource sites during heavy use periods.

Utilize BLM personnel and volunteers for monitoring. Increase BLM/volunteer presence.

Include protective messages in interpretive and educational material.

Note: Other protection for cultural sites and the Applegate-Lassen Trail setting would be provided as addressed in the Lands and Realty, Minerals, Recreation, and Visual Resources programs.

Management Direction: Seek alternate means of implementing some project work.

Action: Seek partnerships, volunteers, grants, and challenge cost-share arrangements as means of getting staff, materials, and monies to implement projects.

NATIVE AMERICAN VALUES

Native American Values Objective #1: Manage uses and resources to provide full consideration of Native American traditional and cultural concerns in activity planning and the land use approval process.

Management Direction: Manage, monitor and protect areas of significance to Native American in the same manner as for sensitive archeological sites.

Actions:

Follow Tribal recommendations in land use planning to the maximum extent allowed by law and the land use application review process.

Consult Tribes to identify sensitive areas requiring special protection.

Involve Tribes in cooperative management of traditional cultural projects.

Consider revegetation with native plants, including plants used by Native Americans, in reclamation efforts.

Alternative 2 (continued)

Native American Values Objective #2: Manage uses and resources to preserve Native American traditional cultural properties.

Management Direction: Limit access to National Register Eligible traditional cultural properties identified by Native Americans.

Actions:

Discretionary land uses would not be authorized if they conflict with traditional cultural properties identified by Native Americans.

National Register Eligible traditional cultural properties identified by Native Americans would be closed to all users, except for Native Americans using the property for traditional purposes.

Hot springs would be closed to camping, unless by Special Permit.

Management Direction: National Register Eligible traditional cultural properties identified by Native Americans and their setting would be managed to conform with VRM Class I standards.

Actions:

Discretionary land uses, except for Native American traditional uses, would be permitted if they conform to VRM Class I standards and denied if they do not.

Non-discretionary land uses would be mitigated to conform with VRM Class I standards.

Native American Values Objective #3: Expand the public's understanding of Native American cultures.

Management Direction: Provide education and interpretation about regional Native American cultures and lifeways.

Actions:

Include information about Native Americans in public education/interpretive materials and presentations.

Invite Native Americans to participate in preparation and review of this information.

PALEONTOLOGY

Paleontology Objective #1: Protect paleontological and paleoenvironmental resources to the maximum extent possible under existing laws and regulations.

Alternative 2 (continued)

Management Direction: Evaluate activities under permitting review to identify and prevent potential adverse impacts. Access to identified resources would be limited to permitted activities.

Action:

Paleontological collecting permits would be limited to fossil localities threatened by natural forces or human-caused destruction or degradation.

Management Direction: Manage nondegraded resources for conservation use.

Action:

Allow only non-destructive scientific research at sites managed for conservation use.

Management Direction: Protect paleontological and paleoenvironmental resources from destruction through increased public outreach efforts and increased monitor/patrol activities.

Actions:

During times of high visitor use, increase monitoring of sensitive areas by volunteers and/or BLM personnel.

Include information on the value of, and need to protect, paleontological and paleoenvironmental resources in public outreach efforts.

Involve rockhounding, OHV, amateur paleontological groups and others in public education and/or monitoring activities.

Paleontology Objective #2: Systematically identify and evaluate resources.

Management Direction: Develop cooperative agreements or other mechanisms to systematically inventory, map, and evaluate fossil bearing strata.

Action: Work with professional and amateur volunteer groups to identify fossil localities.

Management Direction: Encourage paleontological and paleoenvironmental research in the plan area

Action: Encourage researchers to pursue studies in the plan area. Seek cooperative agreements, funding for cost/share projects, and contracts for this purpose.

ENERGY AND MINERAL RESOURCES

Energy and Mineral Resources Objective #1: Allow development of mineral resources compatible with the overall plan objectives, while preventing unnecessary and undue degradation of the public lands.

Alternative 2 (continued)

Locatable Minerals

Management Direction: Manage locatable minerals for the plan area to avoid adverse impacts to all resource values in the plan area.

Action: Pursue a mineral withdrawal for the entire plan area (approximately 452,000 acres of public lands) (see Map 2A), subject to Valid Existing Rights and Congressional approval.

Management Direction: Manage locatable minerals to VRM Class I standards.

Actions:

Plans of operations would mitigate adverse impacts to visual resources to maintain VRM Class I standards throughout the period of operations.

The BLM would work with mining notice operators to mitigate adverse impacts involving visual resources to meet VRM Class I standards

Mining-related surface use and occupancy would be managed under 43 CFR 3715. Proposed activities would include mitigation measures that meet VRM Class I standards.

Leasable Minerals

Management Direction: The plan area would be closed to leasing.

Actions:

Evaluate the Valid Existing Rights of current leaseholders within the plan area.

Developments on existing leases would mitigate impacts to visual resources to meet VRM Class I standards.

Salable Minerals

Management Direction: Establish the Blue Pit as a community gravel pit (see Map 12).

Actions:

Allow mineral material sales and free use permits out of the existing Blue Pit.

All present and future approved permits must maintain VRM Class I standards, as described in the Visual Resource Management section of this plan throughout their periods of operation.

Alternative 2 (continued)

All pits would be contoured and colored to mimic and blend with the natural setting for final reclamation.

The Blue Pit would be managed in a manner as to not be visible from the playa.

Management Direction: Except for the existing Blue Pit, do not allow mineral material sales or free use permits within the plan boundary other than use by the BLM; Washoe, Pershing or Humboldt counties; and the state of Nevada for construction and maintenance of projects and roads within the plan area.

Action:

Existing and currently unauthorized gravel or borrow pits would be inventoried. If the BLM; Washoe, Humboldt, and Pershing counties; and the state of Nevada do not want to use the sites, the pits would be reclaimed.

LANDS AND REALTY

Lands and Realty Objective #1: Process land tenure adjustments and authorize rights-of-way and commercial/non-commercial activities within the plan boundary that are consistent with objectives for this alternative.

Land Tenure (Acquisition)

Management Direction: As opportunities arise, pursue acquisition of private lands and easements through donation, exchange, and purchase.

Actions:

Acquisitions would specifically focus on private lands that hold high cultural and historical value, and on lands that contain high resource values including, but not limited to, habitat for special status species. The BLM would seek acquisition of easements and/or private lands that would provide legal access to public land.

Process acquisitions using criteria described in Chapter 3.

Land Tenure (Disposal)

Management Direction: No public land within the plan area would be made available for exchange or sale.

Alternative 2 (continued)

Rights-of-Way

Management Direction: Any rights-of-way authorized would meet objectives of this alternative.

Actions:

Any rights-of-way authorized within the plan area would be mitigated to meet VRM Class I standards. No utility facilities would be allowed to cross the playa of the Black Rock Desert.

If the High Rock Lake and Calico Mountains Wilderness Study Areas are released by Congress from Wilderness consideration, facilities (including communication sites) could be authorized if the proposed facilities can be mitigated to meet VRM Class I standards.

Commercial and Non-Commercial Activities

Management Direction: Provide opportunities for commercial and non-commercial activities consistent with the objectives for this alternative.

Actions:

Commercial and non-commercial activities including, but not limited to, photography and filming would be authorized, subject to environmental analysis and evaluation of potential visual impacts to the Applegate-Lassen Trail.

Authorized activities would result in no adverse impacts, and/or would be mitigated to VRM Class I Standards.

RANGE, WILD HORSES, WILDLIFE AND FISHERIES

See "Management Direction Common to All Alternatives."

VEGETATION

Vegetation Objective #1: Maintain native vegetative communities.

See "Management Guidance Common to All Alternatives."

Alternative 2 (continued)

Management Direction: Restrict potential for introduction or spread of non-native vegetation or noxious weeds in the plan area.

Actions:

Require weed-free feed, for two weeks prior to turnout, for all domestic range animals (livestock and horses) allowed in the plan area.

Seed, reseed, and conduct weed control as needed to rehabilitate, protect, and improve rangelands.

Require all OHV vehicles be cleaned immediately before entering the plan area.

SPECIAL STATUS SPECIES

See "Management Guidance Common to All Alternatives."

AREA OF CRITICAL ENVIRONMENTAL CONCERN

ACEC Objective #1: Protect resource values through special designation.

Management Direction: Protect resource values through designation as an Area of Critical Environmental Concern.

Action: Propose a Black Rock Desert Area of Critical Environmental Concern of approximately 443,540 acres.

PARTNERSHIPS

Partnerships Objective #1: Protect resource values through partnerships.

Management Direction: Seek partnerships to achieve resource protection objectives found in this plan and the Sonoma-Gerlach and Paradise-Denio management framework plans (1982).

Actions:

Partnerships would be developed with users, community/civic organizations, public and private agencies, and interested individuals to assist with resource monitoring, visitor use data collection, and plan implementation.

Alternative 2 (continued)

Coordinate with user groups, individuals, partners and volunteers to accomplish identified actions in the plan (such as acquire and install information kiosks). A steering committee would be established for this coordination

Partnerships and volunteer agreements would be developed for in-kind services as a basis for funding proposed projects, volunteer incidental expenses, and visitor center staff salaries.

MONITORING

Monitoring Objective #1: Establish a long-term, ongoing monitoring program to evaluate visitor use trends, growth and associated positive or adverse resource impacts.

Management Direction: Develop and implement a Limits of Acceptable Change-type study.

Actions:

A Limits of Acceptable Change (LAC) study or comparable study would be developed and implemented to determine resource impacts, visitor use, and growth trends within plan area. Among the resources to include in the LAC study would be cultural values, soils and dunes (erosion and build-up), vegetation, and wildlife habitat (both invertebrate and vertebrate species).

Develop a LAC or similar study in coordination with the National Park Service Long-Distance Trails office. Use the program results to determine how future management changes would impact thresholds of each resource.

Collect and evaluate reliable, quantitative and statistically valid information useful to managing the plan area, including:

- Recreation trends and experiences (such as visitor satisfaction, growth, and conflict issues).
- Current and future recreation impacts on resources (including wildlife habitat, vegetation, soils, and cultural).
- Recreation-carrying capacity.

Other Alternatives Considered, Including Those Eliminated From Detailed Analysis

The September 1998 Sonoma-Gerlach and Paradise-Denio MFP Amendment and Draft EIS (USDI 1998c) presented a No Action Alternative and three action alternatives, including the Proposed Action Alternative, Alternative 2 (Resource Protection), and Alternative 3 (Resource Use). Among actions defined in the Proposed Action Alternative were: an ACEC for the entire plan area; VRM II management of the plan area (except for Wilderness Study Areas to VRM I); management of Applegate-Lassen viewshed to VRM II; management of emigrant trails for public use; establishment of a common pool permit allocation system; defining large-scale events and placing restrictions on them; a Visitor Contact Station; designated camping areas at hot springs; closing of some dune areas; access limitations; limiting OHV use to designated roads; a Limits of Acceptable Change study; land tenure for acquiring lands with high resource value or for access, but disallowing disposal of lands for community expansion; and a 3,500-acre mineral withdrawal in Soldier Meadow.

Alternative 2 proposed the following: ACEC for entire plan area; mining withdrawal of entire plan area; management of Applegate-Lassen viewshed to VRM I; management of emigrant trails and most cultural resources for conservation; restriction of special recreation permits (no special recreation permits to large-scale events); temporary Visitor Contact facilities; designated camping areas for use by permit only; OHV restrictions in National Register corridor; OHV restrictions to designated roads, designated accesses; designation of some dune areas and all areas with intact trail ruts as Closed; and land tenure for acquiring lands but limiting disposal of lands for agricultural purposes.

Alternative 3 proposed: a 35,000-acre ACEC in Soldier Meadow; VRM III management of the plan area; management of Applegate-Lassen viewshed as VRM III; redefining Applegate-Lassen National Register Site as a district; management of emigrant trails for public use; issuance of Special Recreation Permits on case-by-case basis; a full-service Visitor Center; designation of area as Open except for Wilderness Study Areas; and a 3,500-acre mineral withdrawal in Soldier Meadow.

These alternatives were considered in detail in the September 1998 EIS, but were not carried forwarded to this revised EIS due to further analysis of the management situation, as well as public comments opposing some proposals including limiting the size of events to certain numbers and using a common pool to authorize permits.

CHAPTER 3

**AFFECTED ENVIRONMENT AND
ENVIRONMENTAL CONSEQUENCES**

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CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes the affected environment within the Black Rock Desert region and those resource management components of the planning area relevant to analyzing the alternatives. Sources for the environmental baseline information include BLM documents, field studies, published sources, and communication with individuals having knowledge of the area. A list of cited references is provided at the end of this document. In general, the discussion follows the order of the summary table at the front of the document. Early discussions in this chapter include descriptions of the plan area's location, physiographic setting, climate, and geology, as well as descriptions and consequences related to soil and water resources in the plan area.

The analysis considers anticipated impacts of implementing each of the three alternatives described in Chapter 2. The discussion is presented by first describing each environmental component likely to be affected, then identifying the impacts of the alternatives to that component.

In accordance with BLM Manual 1790-1 to address certain elements of the human environment, the analysis considered the following critical elements: air quality, ACECs, cultural resources, prime or unique farmlands, floodplains, Native American religious concerns, Special Status Species, hazardous or solid waste, water quality, wetlands and riparian zones, wilderness, paleontological resources, environmental justice, wild and scenic rivers, and noxious weeds. These critical elements have either been addressed or are not present in the plan area or would not be significantly impacted by the management direction in the alternatives and, therefore, are not discussed further. Those that are not specifically addressed within this document were not present in the plan area or would not be significantly impacted (see CEQ guidelines 40CFR 1500.4).

ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects that impact low income and minority populations as a result of federal programs, policies, or activities. This evaluation must consider whether BLM's decision results in any inequity in distribution of benefits or risks. The alternatives were evaluated for environmental justice effects and are not expected to disproportionately affect any particular population. Environmental effects expected to occur would affect the population of the general plan area equally, without regard to nationality, ethnicity, income level, or minority status.

BASELINE COMPARISON AND ANALYSIS

The baseline for comparing impacts is the No Action Alternative, which represents continuation of existing management. Impacts associated with implementing the alternatives are compared to this baseline and include direct, indirect, and cumulative impacts.

ASSUMPTIONS FOR ANALYSIS

The following assumptions were used for the analysis:

- Funding and staffing will be adequate to fully implement all management actions associated with each alternative.
- Regional demographic trends will continue at current rates over the life of the plan.
- Local governments/municipalities within the planning area will require additional lands for community growth and public purpose development.
- There will be increased need for power, communication, and petroleum product transmission and distribution in the future.
- The Federal Communication Commission (FCC) will make additional frequencies available to industry, which will require more communication sites.
- Recreational use of the desert environment will continue to grow with increases in human populations.
- Proposed mineral withdrawals will occur timely and be approved by Congress.
- The Soldier Meadow Activity Plan (SMAP) will continue to be implemented.
- The Wilderness Study Areas (WSAs) recommended "not suitable" will not become wilderness.
- Interest in the geothermal resources in this area has been increasing within the past year and could reach the levels of interest in the mid-to-late 1970s and early 1980s.
- Increasing technological development will allow lower temperature geothermal systems to be used for electrical generation.
- Electrical generating plants would use binary technology.
- None of the main county roads through the plan area will undergo major improvements.
- Sale of decorative and landscape rock from within and adjacent to the plan area will increase.

INCOMPLETE OR UNAVAILABLE INFORMATION

Washes: An inventory of washes for OHV use is underway.

Cultural Resources: Most of the plan area has not been surveyed for cultural resources. Estimates of the significance of known cultural sites and districts have been made from less than 10 percent of the area surveyed.

Paleontological Resources: No systematic paleontological inventory has been conducted in the Black Rock Desert plan area. The relative lack of documented paleontological sites does not reflect the potential number and significance of such sites in the plan area.

Watershed and Riparian Areas: Although ecological site information is available for the entire plan area, riparian ecological status has not yet been determined. Riparian assessments are being done as part of the allotment evaluation process.

Noxious Weeds: Noxious weeds are establishing and spreading relatively unchecked in Nevada. Known locations of noxious weeds on public land managed by the Winnemucca BLM Field Office are only generally mapped. Federal, state, county, and local agencies have only recently started to coordinate in assessing the extent of noxious weeds.

Hunting and Fishing Recreation Use: Actual use data due to hunting and fishing has not been determined.

Commercial Use: In the plan area, commercial use (i.e., filming) has increased, but the information has not been compiled. There has also been an increase of unauthorized commercial activity.

LOCATION AND PHYSIOGRAPHIC SETTING OF THE PLAN AREA

The plan area is located about 110 miles northeast of Reno, Nevada and 78 miles east of Cedarville, California; in portions of Washoe, Humboldt and Pershing counties in northwestern Nevada (see Map 1). The closest population areas are the small communities of Gerlach and Empire, Nevada, which are both located near the plan area's south end.

About half of the plan area encompasses the Black Rock Desert playa (see Appendix D, Figure 1), one of the largest dry lake beds in the United States. The playa extends from near Gerlach, north to the Double Hot Springs area. As a geographic feature, the Black Rock Desert extends north to the Soldier Meadow/High Rock Canyon vicinity. The plan area is bordered on the west by the Calico Range and on the east by the Black Rock Range. The playa dominates the landscape, stretching for 25 miles, with an elevation change of only five feet. The playa's flatness and lack of vegetation allow visitors to drive there during dry months, approximately June through September.

DESCRIPTION OF THE PLAN AREA

General Information and Background

The plan area is located in the northwest portion of the Basin and Range Physiographic Province (Peterson 1981). This province is characterized by elongated, generally north-south trending mountain ranges separated by broad basins filled with thousands of feet of unconsolidated stratified sediments. Adjacent to High Rock Lake is a broad volcanic plateau bisected by deep canyons and several small valleys.

The region's topographic relief is approximately 4,700 feet, with elevations in the plan area ranging from about 3,800 to 8,500 feet. The highest peak in the Calico Mountains is 8,463 feet, and the highest peak in the Black Rock Range is 5,592 feet.

The shorelines, beach terraces, gravel bars, and Black Rock Desert playa are remnants of Lake Lahontan, a Pleistocene pluvial lake that extended across a wide area, interconnecting several of Nevada's northwestern basins. The lake reached a maximum shoreline elevation of 4,380 feet approximately 18,000 years ago (Davis 1982). The playa surface overlies a deep basin containing thousands of feet of wet, stratified saline silt and clay with interbeds of hardpan, sand, and gravel. Maximum depth is about 10,000 feet below the surface.

Sand sheets and mounds/dunes are prominent features of the Black Rock Desert playa. These features developed from wind moving across alluvial flats during the late Pleistocene era and are still active today (Soil Survey Staff 1996). Mounds/dunes are developed on the eastern and southeastern edges of the playa. One of the two quartz sand mound/dune complexes in the Black Rock Desert is within the plan area along the base of the Black Rock Range north of Double Hot Springs (Sinclair 1963). Mounds which develop in linear patterns are believed to form over faults, and are being investigated for uniqueness (see Appendix D, Figure 8).

Some playa surface areas are wet year round, notably the Quinn River sink, areas along the plan area's southwestern part, and in the northwestern part in the vicinity of Mud Meadows Creek. During late fall, winter and spring, a large part of the playa surface is usually wet. During those times, the playa surface may be a sea of mud or have broad areas of standing water. Wind moves the water around, smoothing the playa surface, which maintains the playa's relative flatness (Sinclair 1963). The dune-like features form during the dry season when wind-born sediments accumulate around surface irregularities; these features tend to be eliminated or minimized in the wet season.

Climate

The arid to semi-arid climate of the Black Rock Desert results from a rain shadow effect of the Sierra Nevada Mountain Range, which lies between the Pacific Ocean and Nevada. The Sierra Nevada Range absorbs most storm-front moisture moving east across the area. Annual precipitation of the plan area varies from 5 to 7 inches at lower elevations, up to 15 inches in the mountains. Seventy percent of the precipitation occurs during late fall, winter, and spring. Summer precipitation is light and infrequent.

Average monthly temperatures vary from highs of about 40°F in January, to 95°F in July, and to lows of around 20°F in December and January, to about 60°F in July.

Prevailing wind from the west is strongest April through June. Wind gusts often reach 30 miles per hour and occasionally get higher. During other seasons, the wind is light and variable, occurring when weather fronts pass through the area, or as a result of daily heating and cooling of land surfaces.

Geology

The region's geologic history is complex, including cycles of sedimentation, mountain building, and igneous events. Recent geologic history includes crustal extension accompanied by volcanism, basin and range block-faulting, resulting in regional high heat flow. The geologic landscape (see Map 8) that influences the location and potential for economic mineral values in the plan area is summarized below. In a very general sense, most older rocks occur in the south end of the plan area, and the younger rocks occur in the north.

The oldest exposed rocks in the mountains surrounding the desert are Permian, Triassic, and Jurassic metavolcanic and metasedimentary rocks (Bonham 1969, Johnson 1977, Wilden 1964, and Stewart 1980) ranging in age from approximately 280 million years to 145 million years. These rocks occur primarily in the southern end of the plan area, although isolated occurrences have been mapped on the south and west sides of the Black Rock Range and the Calico Mountains where basin and range faulting has exposed them. The Black Rock outcrop itself is a sequence of Permian meta-andesites and interbedded volcanoclastic and fossiliferous limestone units (Howe 1975; refer to the Paleontology section for a discussion of the fossils occurring in these rocks). Jurassic and Cretaceous granitic plutons occur in scattered locations in the Black Rock Desert region. These plutons are prominent in the landscape along the southern and western desert regions. They range in age from 170 million years at Paiute Peak to 88 million years in the Granite Range (Maldonado et al. 1988).

The older rocks are overlain by a sequence of volcanic, volcanoclastic, and associated tuffaceous sedimentary rocks, ranging in age from 31.3 million years (Bonham 1969) to 14 million years (Noble et al. 1970) and occurring mostly in the Calico Mountains and the Black Rock Range. Volcanic rock types include basalts, andesites, dacites, rhyolitic ash-flow tuffs and flow domes, and associated pyroclastic flows. The sedimentary rocks are primarily of lacustrine and fluvial-lacustrine origin and were deposited contemporaneously with volcanism (refer to the Paleontology section for a discussion of the fossils occurring in these rocks).

Among the youngest regional deposits of Quaternary age are an assemblage of fluvial, aeolian, lacustrine, and alluvial deposits primarily associated with Pleistocene Lake Lahontan and its local tributaries. Four landslide deposits have been mapped in the plan area (see Map 8). Two landslides at High Rock Lake that have been studied (Curry 1984) occurred approximately 11,800 years ago, blocking the drainage through Box Canyon to form High Rock Lake.

The west arm of the Black Rock Desert is a down-faulted basin situated between two north-trending mountain ranges (Calico Mountains on the west, and the Black Rock Range on the east). Thermal waters flowing through faulted and fractured rocks have caused hydrothermal alteration and mineral deposition. Thermal fluids and volcanic rocks in this region tend to be high in silica, as evidenced by obsidian, agate, chalcedony, jasper, geodes, fire opal and common opal within the plan area. The Black

Rock Fault, a long, generally north-south trending fault zone, discontinuously mapped, underlies the playa and extends along western edge of the Black Rock Range. Thermal springs are located along much of its course. Northeast-trending faults have been mapped along the southern edge near the mountains in the vicinity of Trego Siding.

Soils

AFFECTED ENVIRONMENT

Soil Types in Plan Area

There are 14 general soil types within the plan area (see Table 3-1 and Map 4B). These soils have developed on four major land forms: playa, lake plain, fan piedmonts, and mountain. Each of these are discussed individually below.

Playa - An ephemerally flooded, barren area on a basin floor that is veneered with fine-textured sediment and acts as a temporary or the final sink for drainage water (Petersen 1981).

Lake plain - A major landform of some bolson floors that is built of the nearly level, fine-textured, stratified, bottom sediments of a Pleistocene lake (Petersen 1981).

Fan Piedmonts - The most extensive major landform of most piedmont slopes, formed by the lateral coalescence of mountain-front alluvial fans downslope into one generally smooth slope without the transverse undulations of the semi-conical alluvial fans and by accretion of fan aprons. Fan piedmonts commonly are complexes of many landforms (Petersen 1981).

Mountain - A highland mass that rises more than 1,000 feet above its surrounding lowlands and has merely a crest or restricted summit area (relative to a plateau) (Petersen 1981).

Soil Erosion Factors

Water erosion is a function of rainfall, soil erodibility, length of slope, percent slope and vegetation cover. Soil erodibility quantifies the susceptibility of soil detachment by water. Soils with slopes of less than two percent have a slight water erosion hazard, soils with slopes of 2 to 15 percent have a moderate water erosion hazard, and slopes greater than 15 percent have a high water erosion hazard.

Wind erosion is a function of soil erodibility, roughness, climate, length of slope, and vegetation cover. Soil erodibility by wind is directly related to the percentage of dry, nonerodible soils aggregates greater than 0.84 millimeters in equivalent diameter. The soil erodibility is expressed in terms of soil loss in tons/acre/year. Roughness is the spacing between ridge heights. The climate is the erosive wind energy (compiled from the Wind Energy Atlas, U.S.; Wind Speed and Wind Power Duration Tables; and the Wind Power Climatology of the U.S.). The wind erosion hazard for the playa is moderate. The wind erosion hazard for the lake plain and fan remnant landforms is slight to moderate. Wind erosion hazard for the mountains is slight.

Erosion factors that remain constant for the plan area are soil erodibility and climate. Soil erodibility is based on the predominant soil texture. Erosion factors that change based on activities for the plan area are length of slope, percent slope, vegetation cover and roughness. These changes can increase or decrease erosion.

Biological crusts, considered part of the vegetation cover, are seen extensively in the Black Rock Desert area, except for the playa. These crusts protect soils from wind and water erosion. This crust is generally about three millimeters thick and, in cold deserts such as the Great Basin, is formed by cyanobacteria, lichens and mosses. Green algae and microfungi may also occur (Belnap and Gillette 1998). This crust is referred to as cryptobiotic, microbiotic, or microphytic (Belnap and Gillette 1998). The organisms and their activity bind soil particles together. Biological crusts persist through all seasons, and are not affected by drought conditions, snow or cold temperatures (Belnap and Gillett 1998). When the soil crust is broken, the soil is exposed to the full force of wind and water erosion.

Vegetated clay-silt mounds are features of the playa edge dune areas (see Map 4B and Appendix D, Figure 10). These mound/dune fields are in a state of change based on weather cycles and mound height. The vegetation of the mounds consists of black greasewood and seepweed; as the height of the mound increases, the depth to water decreases. This change in depth to water causes the plant to die, the mound naturally erodes, and the process starts over again. The mounds/dunes form when plants establish and trap wind-born sediment. Although the shape and position of these mounds may change over time, vehicle impact will break the vegetation down and disturb the surrounding soils surface. This activity interferes with vegetation regeneration and soil surface recovery (see Appendix D, Figures 11 and 12). Human activity is altering slopes, removing vegetation, destroying crusts, and accelerating the rate of erosion of the mounds/dunes (see Appendix D, Figures 5, 9 and 14).

Table 3-1. Types of Soils in the Black Rock Desert Plan Area	
Map Unit Number and Soil Name	Family/Higher Taxonomic Class
1 - Playa	Playa
2 - Bluewing - Juva	Sandy-skeletal, mixed, Typic Torriorthents/Coarse-loamy, mixed (calcareous), mesic Typic Torrifuvents
3 - Boton - Mazuma - Juva	Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents/Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents/Coarse-loamy, mixed (calcareous), mesic Typic Torrifuvents
4 - Wendane	Fine-silty, mixed (calcareous), mesic Aerice Halaquepts
5 - Toulon - Bluewing	Sandy-skeletal, mixed, mesic Typic Camborthids/Sandy-skeletal, mixed, Typic Torriorthents
6 - Oxcorel - Aboten	Fine, montmorillonitic, mesic Duric Natrargids/Loamy, mixed, mesic shallow Haplic Nadurargids
7 - Singatse - Grumblen - Sojur	Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents/Clayey- skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids/Loamy-skeletal, mixed (calcareous), mesic Lithic Torriorthents
8 - Soughe - Hoot	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids/Loamy-skeletal, mixed, mesic Lithic Haplargids
9 - Wylo - Bucklake - Pickup	Clayey, montmorillonitic, mesic Lithic Argixerolls/Fine, montmorillonitic, mesic Aridic Argixerolls/Clayey-skeletal, montmorillonitic, mesic Aridic Argixerolls
10 - Harcany - Cleavage	Loamy-skeletal, mixed, Pachic Cryobolls/Loamy-skeletal, mixed, frigid Lithic Argixerolls
11 - Devada - Tuffo	Clayey, monmorillonitic, mesic Lithic Argixerolls/Ashy, nonacid, mesic, shallow Vitrandic Torriorthents
12 - Isolde - Goldrun (sand dunes)	Mixed, mesic Typic Torripsamments/Mixed, mesic Xeric Torripsamments
13 - Dune land (parna dunes, other eolian sediments)	n/a
14 - Hawsley (sand/clay/silt sheets)	Mixed, mesic Typic Torripsamments

CONSEQUENCES OF NO ACTION ALTERNATIVE ON SOILS

Continuing present management actions as in the No Action Alternative would result in increased rates of soil erosion and additional losses of soil crusts and vegetative cover on the following landforms: lake plain,

fan remnant, and mountain. Human activities (vehicles, bikes, walking) continue to expand throughout the plan area. Recovery of soil crusts and vegetation in arid regions would take as much as 100 years, providing no further disturbances occur (Lathop 1983).

Uncontrolled and increased activities could erode mound/dunes, lake plain, fan remnant, and mountain landforms. Human activities are likely to expand to include more cross country experiences widening the area soil surface disturbance and vegetative loss. Increased soil surface disturbance would lead to increased wind and water erosions.

The No Action Alternative could result in a decrease in wind erosion on the playa. Increased human activities could increase the playa surface roughness, resulting in more wind-born soil particles being retained on the playa surface. Retention of wind born soil particles would reduce the length of slope that soil particles move, thereby decreasing wind erosion.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON SOILS

By limiting cross-country OHV activity in the non-playa areas, Alternative 1 (Proposed Action) would reduce soil disturbance on lake plain, fan piedmont, and mountain landforms. Limiting OHV use to roads and washes in the non-playa areas would minimize soil disturbance, thereby maintaining vegetation and biological crusts and resulting in decreased erosion.

Reducing OHV use in the mound/dune fields would decrease water erosion resulting from human activity. However, the accelerated erosion would not contribute to degrading water quality and also would not have potential to increase associated flood and sediment damage.

OHV activity on the playa surface would result in decreased erosion by increasing roughness and decreasing the distance that wind-born soil particles travel.

CONSEQUENCES OF ALTERNATIVE 2 ON SOILS

Impacts to soil resources under Alternative 2 would be similar to those of Alternative 1 (Proposed Action) due to limits imposed on cross-country OHV activity.

Eliminating OHV use in the mound/dune fields would decrease water erosion resulting from human activity.

CUMULATIVE IMPACTS ON SOILS

The No Action Alternative would result in long term impacts by increased human-caused erosion on the mounds/dunes, lake plain, fan piedmont, and mountains.

Alternative 1 (Proposed Action) and Alternative 2 would result in long-term decrease in human-caused erosion on the mounds/dunes, lake plain, fan piedmont, and mountains, maintaining the soils and vegetative communities.

Over time under all alternatives, increased human activity will create roughness on the playa, resulting in an increase in the number of dunes.

Water Resources and Riparian Areas

AFFECTED ENVIRONMENT

Streams and Lakes

The proposed plan area has numerous intermittent streams and five perennial streams (streams that have water year-round): Donnelly Creek, Cherry Creek, Slumgullion Creek, Soldier Creek, Mud Meadow Creek (see Map 2A). Most stream flows are generated from springs in stream headwaters and runoff from winter and spring precipitation. Summer storm events are not a significant input to the yearly flow regime in the plan area. Base flows for these streams are generally less than one cubic foot per second, with average yearly flood stage at less than ten cubic feet per second. The location of the watersheds creates streams of moderate-to-high gradients with low-to-moderate sinuosity and bed materials ranging from silt-sand to large boulders. Most streams are characterized by deep, incised channels. Most lotic (flowing water) systems are functioning at risk due to past land management practices, including livestock grazing, water diversion, impoundments and mining, road placement, and cross-country vehicle use.

The upper watersheds in the Calico Mountains and Black Rock Range are characterized by small spring and meadow complexes, which for the most part are functioning at risk. Limiting factors include adverse impacts from livestock and wild horse grazing, road intersections, and cross-country vehicle use.

High Rock Lake, the only intermittent natural lake of any significance within the plan area, is shallow and at capacity no more than 10 feet deep. Its surface area is highly variable, dependent on amount, duration and timing of precipitation. There are three impoundments (Mud Meadow Reservoir, Wheeler Reservoir and Jackson Reservoir) of more than 10 surface acres when full, that are either partially or fully on public land within the plan area. In a normal precipitation year, the Black Rock Desert playa is partially covered by standing water from March until June in a normal precipitation year. The extent and duration of the standing water on the playa varies depending on weather conditions including annual precipitation and temperature regimes.

Springs, Seeps, and Wells

Cold water and thermal (hot) springs, seeps and flowing (artesian) wells are common and significant attributes of the plan area. These water sources originate as precipitation and appear on the land surface as ground water discharge in various situations, as listed below:

- Where the land surface intercepts a water table.
- Where ground water flow intercepts an impermeable barrier.
- As an artesian flow where water is forced to the land surface because of certain subsurface conditions such as the presence of faults that allow ground water to circulate at depths where it will be heated, returning to the surface as hot springs.

- As an unrestrained artesian flow (flowing wells) at locations where a dug or drilled well intercepts ground water in an aquifer with sufficient pressure to flow to the surface under its own power.

Major hot springs within the plan area are Trego, Black Rock (see Appendix D, Figure 4), Soldier Meadow, and Hardin City (see Map 11). Double Hot Springs (see Appendix D, Figure 3) is partially within the plan area. The geothermal potential associated with hot springs in the plan area is described in the Energy and Mineral Section, under Geothermal Potential. Other resource values of these hot springs are discussed in cultural, wildlife and fisheries, and the Soldier Meadow Activity Plan (USDI 1998b). Among the cold water springs is Rabbithole Springs, which is discussed in the cultural section.

Temperatures in most of the springs vary from cold to boiling. Several thermal springs in the plan area have water at temperatures high enough to be a significant health hazard to humans and animals. Water in thermal springs is highly mineralized due to high temperatures. Although very alkaline, thermal spring water may be suitable for stock use and bathing if cooled to an acceptable temperature.

The cold water in some springs, seeps, and flowing wells originates from aquifers in piedmont slopes and alluvial fans. These aquifers are recharged by precipitation and are unaffected by the heat generated in the fault zone circulation system associated with the thermal springs. Water quality varies, but like the thermal springs is generally very alkaline; while suitable for irrigation and stock use, these cold water sources are marginal or unsuited for domestic use.

Springs, seeps, and flowing wells are of considerable significance in the natural and cultural history of the Black Rock Desert. During prehistoric and historic times, Native Americans used them as water sources, special places for bathing, healing, sacred purposes, and warmth during cold weather. Routes of nineteenth century explorers, soldiers, and emigrants were dictated by the location of springs: Several thermal spring pools were modified to create a channel in which water would cool sufficiently for stock use. Food was cooked directly in thermal springs.

Wildlife, amphibians, fish, and birds depend on the vegetative habitat around these water sources, which includes wiregrass, alkali bullrush, cattails, and various species of rushes and sedges. Bacterial inhabitants of the springs, particularly the thermal ones, are the subject of an ongoing study.

Bathing and camping use of the hot springs have caused some detrimental impacts to water quality and riparian vegetation around the hot springs. Grazing animals using the spring complexes also impact water quality.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON WATER RESOURCES AND RIPARIAN AREAS

Continuing present management of allowing unlimited recreational use on springs, meadows, and streambanks could impact these riparian areas. Cross-country vehicle use, camping, and use of warm springs for bathing could contribute to loss of vegetation; introduction of non-native, undesirable vegetation; introduction of foreign materials and chemicals to spring systems; destabilization of banks and soils; and increased sedimentation into aquatic systems. Increasing numbers of people using the plan area could intensify adverse impacts to riparian areas (see Appendix D, Figure 5).

The current information and education program, which is informal and unstructured, would limit opportunities for educational outreach and distribution of information about riparian resource values in the project area and the impacts of human activities on them.

The unique natural values related to water resources and riparian areas in the plan area within the boundary of the Soldier Meadow Activity Plan would be protected by management actions specific to that area.

Open access to spring areas could lead to their degradation. Some riparian habitat could be protected by improving and maintaining access roads. However, riparian areas could be adversely impacted if OHV use of unimproved roads occurs during wet times of the year.

In general, in the short term, this alternative could further increase degradation of water resources and riparian areas. In the long term, riparian function in the plan area would likely decrease.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON WATER RESOURCES AND RIPARIAN AREAS

Measures in Alternative 1 to protect spring areas from degradation would at least maintain, and possibly improve, hydrologic function of these areas. Limiting vehicle use to designated roads would reduce disturbance to riparian areas and decrease erosion rates, particularly in meadow areas during wet periods.

Increased emphasis on interpretation in Alternative 1 (Proposed Action) would educate the public on the functions and importance of healthy riparian areas, as well as their role in helping to protect these resource values. This could lead to a greater appreciation of the riparian resources in the plan area and a decrease in adverse impacts from human use. Increasing the presence of BLM employees and volunteers would help monitor resources and identify and resolve any problems in a timely manner.

In areas where hot springs occur, not allowing geothermal leasing would insure that the springs' flows and temperatures would be maintained.

The part of the plan area within the boundary of the Soldier Meadow Activity Plan would be protected by management actions specific to that area.

In general, in the short term, Alternative 1 would benefit riparian areas by limiting human disturbance. In the long term, riparian resources would be maintained or improved and erosion rates would decrease.

CONSEQUENCES OF ALTERNATIVE 2 ON WATER RESOURCES AND RIPARIAN AREAS

Limiting OHV activities, access, and other activities in the plan area, as proposed under Alternative 2, could, like Alternative 1, maintain and improve riparian resources. However, Alternative 2 could displace recreational use to areas on public and private lands surrounding the plan area, leading to an increase in adverse impacts on riparian areas on those lands. Not allowing geothermal leasing in the plan area would insure that the hot springs' flows and temperatures would be maintained.

CUMULATIVE IMPACTS ON WATER RESOURCES AND RIPARIAN AREAS

Proposed actions in Alternatives 1 and 2 that limit activities in the plan area could lead to increased adverse impacts on riparian areas on public and private lands surrounding the plan area.

Recreation

AFFECTED ENVIRONMENT

Overview of Recreational Use in Plan Area

The plan area, particularly the Black Rock Desert playa, is a favorite recreation place of people from local surrounding communities, other areas in Nevada, and neighboring states of California, Oregon, Idaho and Utah. Visitors from other parts of the U.S. and the world also frequent the area. Most visitors to the plan area come during the time when the playa is dry (usually June through September), with the largest congregations of people participating in organized special recreation events, such as the Burning Man Festival and others.

A wide diversity of recreation occurs in the plan area. Some people visit the plan area to simply enjoy its solitude and naturalness. Others go there to tour historic trails, to enjoy riding off-road vehicles across the desert playa, or to catch a glimpse of a wild horse. Some people participate in recreation individually or in small groups for casual or dispersed activities; others participate in organized events, either as participants (land-sailing, model rocketry, or Burning Man Festival) or as spectators (world land speed record attempts). Among the Black Rock Desert's distinctive values that attract people are its scenic vistas and historic trail settings.

Besides being a popular location for group activities, the playa has also been the location of commercial activities, including photography, filming, and special events including the world land speed record trials and historic wagon train re-enactments on historic trails. In this document, these various types of recreational activities are grouped into two categories (special recreation permit events and dispersed recreation) and described in more detail in following sections.

Visitor Use Trends And Data Collection

During the 1990s, recreational use of the Black Rock Desert area increased markedly. This increased use is attributed in part to advertising and marketing by numerous entities and media sources other than BLM, through internet links and eco-tourism marketing surveys, and outfitter and guide trips (such as hunting and photography). The area's popularity as a recreational site has also increased with continuation and growth of organized events, including land sailing, model rocketry, land speed record attempts, and the annual Burning Man festival (see Tables 3-5 and 3-6; see also Appendix D, Figures 6 and 7).

Internet sites have increased local, regional, national and international attention on the Black Rock Desert and its surrounding region, especially during the last 10 years due to increasing numbers of people with Internet access (see Table 3-2).

Table 3-2. Summary of Black Rock Desert Internet Marketing					
Research Time	Site	Websites Webpages	First 200 Web pages	Potential Market	Subjects Covered
1 hour and 45 minutes	Yahoo	33,766 were indicated	105 (52.5%) were about the Black Rock Desert	52.5% of 33,766 = 17,726 sites by interpolation that could involve the Black Rock Desert in some way	Of 105 sites: 25 Burning Man 10 Land Speed Records, 3 Offroading, OHV Use 3 Historic Trails 5 Amateur Rocketry 59 Mentions
1 hour	Alta-Vista	1,751 were indicated	147 (73.5%) were about the Black Rock Desert	73.5% of 1,751 = 1,287 sites that could involve the Black Rock Desert in some way	Of 147 sites: 53 Burning Man 29 Land Speed Record 8 Historic Trails 3 OHV Use 12 Amateur Rocketry 7 About or by BLM 3 Landsailing 3 Gem/mineral Collecting 29 Miscellaneous
1 hour	Lycos	80 were indicated	(kicked off after 80) 33 (41.25%) were about the Black Rock Desert	41.25% of 7,056 = 2,911 Black Rock Desert sites.	Of 33 Sites: 15 Burning Man. 2 Oregon-California Trails Assn 7 Land Speed Record 4 Amateur Rocketry 5 Miscellaneous
Source: Internet survey conducted by Mike Bilbo (BLM Outdoor Recreation Planner) and Sue Weeks (BLM Volunteer) on 1/12/00.					

Printed media about the Black Rock Desert has also increased in the past three years, continually giving high profile to the Black Rock Desert region. Numerous articles about the Black Rock Desert have been published in local, regional, national, and international magazines and newspapers. Letters-to-the-editor in local and regional newspapers have also promoted interest in the plan area.

Short-term management is aimed at providing safety information for visitors to the area and collecting information about visitor use.

Statistics for visitor growth trends were derived from the Recreation Management Information System (RMIS), an annual recreation statistics reporting data base. Data collection for the Black Rock Desert region is difficult due to the vastness of the area and lack of available staff to collect data.

To determine visitor use trends and possible related resource impacts, the Winnemucca recreation staff began to collect intensive visitor use data during Memorial Day weekend of 1997. About six months later, some photo-monitor points were established as part of ongoing use monitoring. These two efforts

represent preparation for a Limits of Acceptable Change (LAC) study. The BLM estimates that a systematic Limits of Acceptable Change or similar study will require at least three years to compile sufficient data on which to base findings.

A review of data from Visitor Contact Station counts during Memorial Day and July 4th weekends of 1997 and 1998, as well as Visitor Use Data Collection reports for 1997-1999, indicates that the majority of Black Rock Desert visitors for those time periods were Nevada residents. Use data indicates that most visitors (68%) are from northern Nevada. California residents, primarily from the Sacramento and San Francisco/San Jose areas comprise 28 percent of visitors, and the remaining 4 percent travel from other states. May and September are peak months due to Memorial Day and Labor Day holiday weekends.

Vehicle counts and observed visitor use data collection indicated that, during the summer of 1990, approximately 2,740 people visited the Black Rock Desert. By 1999, visitation for dispersed use and special recreation permit events had grown to nearly 53,500 (see Tables 3-3 and 3-5). Data has consistently shown that visitors stayed an average of three days, which translates in 1999 to about 160,467 visitor user days (a "user day" equals one calendar day or any portion of a day).

Fee Demonstration Program

In 1997, the Black Rock Desert was designated as a Fee Demonstration Pilot Site (or Fee Demonstration Site). Because of this designation, all fees collected from special recreation permits or other recreational sources within the plan area remain for use at the fee collection site. For the Black Rock Desert, these funds are applied to resource protection and management, visitor management, and public education outreach (including safety, interpretation, and preservation).

Fee Schedule

Special recreation permit events are subject to fees for competitive and commercial events. Regulations specify that BLM receive the greater fee if a "fee schedule" is assessed (43 CFR 8372). Cost recovery can also be assessed, in which case a permittee pays an amount to an agency, which in turn charges permit processing and monitoring charges against those funds. If permit administration and monitoring costs exceed estimated cost recovery over a permit period, the fee schedule is applied instead. In the case of a fee schedule, the fee is based on the greater amount of: each paid participant, per day; or 3 percent of gross receipts.

On October 1, 1999, recreational fees were raised bureau-wide from \$2.00 per paid participant per day to \$4.00 per paid participant per Federal Register (Vol. 64, No. 145, Thursday, July 29, 1999. Notices 41133). The fee formula uses 1984 as the base year and then makes adjustments for inflation based on changes in the Implicit Price Deflator Index (IPDI), which is published every February as part of the President's economic report to Congress. The fee increase, the first of its kind since 1984, affected competitive and organized group events on BLM-managed lands. Over time, the fee assessment process and fee amounts may be subject to change again.

Special Recreation Permit Events

According to Winnemucca BLM records, the first special recreation permit issued for the proposed management area was in 1983, and five years later the number of special recreation permits started to increase.

In 1999, the Winnemucca BLM office issued 19 special recreation permits (SRPs) for commercial or competitive uses in the plan area. The permits were for a diversity of activities, of various sizes and scope, including: model rocketry launches, outfitting and guiding, landsailing, the golf tournament, the Burning Man festival, and four-wheel-drive Applegate-Lassen Trail tours (see Tables 3-3 and 3-4).

Most events permitted through the Special Recreation Permit system occur on the playa. Playa events that have been occurring annually, with few exceptions, are: Burning Man Festival (see Appendix D, Figure 6), Self-Invitational Golf Tournament (Lucifer's Anvil), AeroPac and Tripoli rocket launches (see Appendix D, Figure 7), SASSASS landsailing, Tin Cup Adventures, and trips offered by several outfitters and guides. The Spirit of America and Thrust SSC land speed record attempts also occurred on the playa. Outfitter and guide events include areas other than the Black Rock playa and consist of very small groups. Historic trail touring trips have occurred along the Applegate-Lassen Emigrant Trail and the Nobles Route. As data in the tables show, growth rates between dispersed use and permitted use correspond.

The activities showing the largest increases in participant attendance from 1990 to 1999 were the Burning Man Festival and amateur rocketry (see Table 3-3). Attendance increased by 2,850 percent from 800 to 23,600 for Burning Man, and by 312 percent from 267 to 1,100 for amateur rocketry. The land speed record has been permitted for only two years (1996 and 1997), and the participant attendance between those two years increased from 250 to more than 2,000. Some events have relatively stable participation each year; those events are landsailing, golf tournament, Applegate-Lassen Trail four-wheel-drive trips, and guided hunting trips.

Table 3-3. Number of Participants Per Special Recreation Permit Event (1990-1999)

Event	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Burning Man	800	250	600	1,000	2,000	4,000	8,000	10,000	14,500	23,600
Amateur Rocketry	267	316	525	197	384	451	339	555	496	1,100
Landsailing	36	71	90	84	100	70	96	100	98	129
Horse Trips	292	100	100	15	48	26	53	12	15	0
Golf Tournament	45	50	46	47	46	48	30	80	40	48
Applegate-Lassen Trail 4WD Trips	42	30	21	49	37	41	58	36	50	50
Land Speed Record	0	0	0	0	0	0	250	2,020	0	0
Cattle Drive	24	11	6	19	16	12	20	0	0	0
Hunting Guides	26	27	28	27	26	27	28	27	26	27
TOTAL	1,532	855	1,416	1,438	2,657	5,863	8,874	12,830	15,225	24,954

Source: BLM Winnemucca Field Office Special Recreation Permit Post-Use Reports and Recreation Management Information System Reports, 1990-1999

Table 3-4. Number of Special Recreation Permits Issued in Black Rock Desert Region (1980-1999)

Year	Outfitter and guided trips (hunting, photography, etc.)	Historic trails trips (horse, wagon, cattle drives, 4WD, etc.)	Horse endurance rides.	Land speed record attempts	Golf	Land sailing	Rocket launches	Arts Festivals	Total
1983				1					1
1984									
1985	2								2
1986	2								2
1987	3							1	4
1988	5	1	1						7
1989	4	2							6
1990	6	2			1	1	1	1	12
1991	6	2			1	1	3	1	14
1992	7	4	1		1	1	2	1	15
1993	8	2	1		1	1	1	1	15
1994	10	2	2		1	1	2	2	20
1995	9	3	1	3	1	1	2	1	21
1996	6	2	1	1	1	1	3	1	16
1997	7	3	1	1	1	1	4	0	18
1998	10	4	1		1	1	4	1	22
1999	9	3			1	1	4	1	19
Total	94	30	9	6	10	10	26	11	196

Source: BLM Winnemucca Field Office Special Recreation Permit Log and Recreation Management Information System Reports

The Winnemucca Field Office encourages permitted organizations to mitigate adverse impacts attendant to their marketing and activities. The organizations cooperate by including public education on their websites and in the literature they distribute. Most permitted organizations also participate in the BLM Volunteer Program during times outside their permit for conducting rehabilitation work throughout the plan area. In addition, permits mandate that permittees follow stipulations directing permittee staff and public land users in methods of public safety and avoidance of environmental degradation.

Having permitted groups actively involved in Black Rock Desert resource management allows BLM recreation staff to continue evaluating and authorizing special recreation permits on a case-by-case basis. Some events are under 5-year permits (golf, traditional rocket events, and landsailing), because their locations remain the same and their events tend to be small in size, duration, and number of participants. Periodically, the BLM receives a request for a special event, such as an international event or a major location change, which requires an environmental assessment (EA) and other planning considerations and coordination.

Before events are permitted, NEPA analysis is conducted, taking into consideration the nature of events, potential impacts to resources, conflicts with other events, and adverse impacts to quality of other visitors' experience.

Dispersed Recreation, Including Vehicle Access

A diversity of recreational uses occurs within the proposed management area, including camping and OHV use. The Black Rock Desert playa and the surrounding area are primary destinations for the majority of dispersed recreation use visitors to northwest Nevada (see Tables 3-5 and 3-6). Most (86%) are repeat visitors, some visiting several times a year. The OHV use is high (62%) for both pleasure and traveling. Visits are largely weekend or short trips (up to four days), with a smaller percentage using the area as a vacation destination. An increasing number of Burning Man participants has made that event part of their annual vacation. Hot springs such as Black Rock Hot Spring, Double Hot Springs, Trego Hot Springs, and several at Soldier Meadow are popular attractions. During late summer and fall, mountainous areas and surrounding foothills in the plan area are heavily used by hunters.

Because camping is part of most activities occurring in the area, it is not a separate category in Table 3-5. The average camping group size is 3.5 people, and the average camping trip is about 4 days. The most popular camping areas, in descending order of popularity are: playa, Trego Hot Springs, Black Rock Hot Springs, High Rock Lake, Soldier Meadow, and Double Hot Springs. A limited amount of hunting and fishing occurs within the plan area. There are certain preferred hunting camping sites and areas within the plan area from which hunters then venture into areas outside the plan area.

Dispersed recreational use increased by about 2,278 percent (23 fold increase) between 1990 and 1999, from about 1,200 to more than 28,000 (see Table 3-6).

Table 3-5. Dispersed Recreational Activity (1993-1995)	
Activity	Percent of Total*
ATV (Quad)/Dirt Bike	62
Sightseeing	28
Hot springs for viewing/bathing	25
Landsailing	18
Rockhounding	15
Historic trail touring	10
Mountain biking	9
Target shooting	7
Horseback riding	7
Hiking	7
Wildlife watching/nature study	4
Photography	4
Golfing	3
Other activities, including hang-gliding, soaring (gliding), and balloon racing.	<1
*The percentage may reflect a variety of activities occurring together, which results in total percentage of use totaling more than 100 percent. Source: Recreation Interviews with Black Rock Desert/High Rock Canyon Visitors, Winnemucca Field Office (1993-1995).	

Table 3-6. Number of Participants in Dispersed Recreation in Black Rock Desert (1990-1999)									
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
1,209	2,419	9,100	4,838	9,677	5,506	17,441	17,820	24,000	28,535
Source: BLM-Winnemucca Field Office and Annual Recreation Management Information System Reports Visitor Data Collection Reports (various years)									

Use research indicates that new and return visits are attracted by word-of-mouth advertising from event participants, Internet marketing of the Black Rock Desert in relation to events, and the travel and tourism

industry. Table 3-2 illustrates how Black Rock Desert marketing is linked to various search topics on the Internet. Dispersed recreation use presents a primary management challenge to protect sensitive and fragile resources in times of increasing recreational use.

Road Management: The playa has three permanent trunk roads or trackways that are essentially two-track roads. These are permanent, because they are extremely compacted and sunken due to cumulative vehicle use. These playa trunk roads link 5 of at least 21 major access points.

A process is underway to develop a Winnemucca Field Office Transportation Plan. That process is evaluating which roads should remain in the district road system and which roads should be non-maintained and unimproved. Roads designated in this plan would be incorporated into the district transportation plan. Most existing roads within the plan area provide access for OHV recreationists, ranchers, miners, and resource specialists for their respective activities. Most of these roads have been inventoried with public input and digitized in the Geographic Information System (GIS).

Off-Highway Vehicle Use And Access: Approximately 62 percent of visitors to the plan area bring ATVs and dirtbikes for recreational experiences (see Table 3-5). Most OHV traffic, including dirt bikes and ATVs, stay on roads and the open playa throughout the proposed plan area. A certain percentage of OHV vehicle users, however, have been operating cross-country in areas of important scenic quality contributing to the overall experience for all visitors, including areas around hot springs (see Appendix D, Figures 5 and 13), mound/dune fields (see Appendix D, Figures 8, 9, 11, 12, and 14), on lower mountain slopes, and inside of Wilderness Study Areas (see Appendix D, Figure 15).

Although camping does not create a significant adverse impact, ATV and dirtbike use related to camping and day use in edge areas has become a management concern. Intensive ATV/dirtbike use has adversely impacted the visual integrity of unique landscape features, including mound springs, mound/dune areas, and important scenic landmarks such as Steamboat Rock and the Black Rock. Both of these landmarks have new roads, leading either to the top or near the top of them, which did not exist, or were just a trace, a few years ago (see Appendix D, Figures 16, 17 and 18).

Further, as emphasized throughout this plan, emigrant trail integrity of setting must be respected and maintained. Cross-country travel by ATVs and dirt bikes is also creating numerous trails on alluvial fans and lower mountain slopes. These soil types cannot recover or sustain such impacts, which is resulting in formation of gullies.

A very small number of four-wheel-drive vehicles travel cross-country within the proposed plan area. Visitor use data indicates that most four-wheel-drive vehicles are operated on the playa and existing roads.

The Black Rock Desert plan area, including its playa, may appear to some people to be appropriate for all types of cross-country travel. The playa tends to be resilient, repairing itself during the wet season from impacts of conventional vehicles incurred the previous dry season. Many non-playa areas (especially mound/dune fields, alluvial fans, mountain slopes, and hot spring sites), however, are sensitive to vehicle use as exhibited by signs of degradation. The concern in the non-playa areas for accelerated erosion from human activity is for their potential to become irreversible. The mountain slopes also do not recover well from vehicular impact; some areas will not recover even if use ceases and will require rehabilitation.

The Applegate-Lassen National Historic Trail is routed along a major fault line associated with hot springs. Emigrants followed these water sources, establishing a pattern of historic trails on and around the playa. Vegetation along this fault established, stabilized, and encouraged growth of mounds/dunes. Over the years, contemporary two-track roads have become superimposed on portions of historic trail segments (see Appendix D, Figure 2). These well-traveled routes allow for historical trail touring, playa access, and casual dispersed use. The Applegate-Lassen Trail, as well as hot springs and landmarks along the trail (such as the Black Rock itself), have numerous OHV tracks on and around them. The same is true of Trego Hot Spring and Coyote Spring, which are located along the 1856 Nobles Route (see Appendix D, Figures 5 and 13).

Public Outreach

Visitor Facility: A Visitor Contact Station near Gerlach has been periodically staffed since Memorial Day 1997. This contact station has been positively received by the public as an interpretive, customer-service site.

Environmental Education/Back-Country Use Ethics: Based on partnerships and cooperative efforts currently underway, educational outreach is provided on a case-by-case basis in conjunction with a specific event, and event organizers are already actively involved in public outreach with the BLM.

Successful management depends on public participation in land use conservation to avoid strict use limitations. Public participation is realized through the national *Leave No Trace* and *Tread Lightly!* programs. These public education outreach efforts had their beginnings in the U.S. Forest Service and have been adopted by all federal public land agencies.

These programs give visitors guidelines on back-country use ethics to aid in resource preservation. In its public education and outreach effort, the Winnemucca Field Office in 1997 placed *Leave No Trace* and *Tread Lightly!* guidelines on its website, <www.nv.blm.gov/Winnemucca>. Since May 1997, the Winnemucca Field Office has conducted an annual *Leave No Trace* train-the-trainer course. These public education efforts have resulted in all special recreation permittees being required to either place the guidelines on their websites or distribute them through event literature.

CONSEQUENCES OF THE NO ACTION ALTERNATIVE ON RECREATION

Impacts on Special Recreation Permit Events

The current evaluation and authorization process for Special Recreation Permits is done in accordance with NEPA, monitoring, and BLM policies (including implementation of stipulations), taking into consideration the potential for public safety conflicts between events and other recreation uses on the plan area. Continuing to allow recurring Special Recreation Permit Events to change locations could increase demands on BLM staff and funding, related to additional environmental analysis, public meetings, and compliance work associated with Section 106 of the National Historic Protection Act and other laws and regulations. The workload would detract from time otherwise focused on implementing recreation projects such as public education, interpretation and monitoring. Permittees would be adversely impacted by the additional time and money spent in NEPA compliance that could translate into additional costs to participants.

Not limiting new events on the playa to the southern playa area could adversely affect the quality of the visitor experience for those visitors who come to the desert to experience the Applegate-Lassen Trail and its setting, as well as for those who come to experience the natural and scenic qualities of the central and northern portions of the plan area. Special recreation permittees, however, would benefit from having more freedom to choose what they consider to be the most optimum event location.

Applications for additional events and larger, more complex events could occur; and event sizes could grow larger. Increased staff workload could exceed BLM management capability. Fee demonstration and cost recovery monies would beneficially impact recreation management, as these monies could be used to implement positive recreation projects in the area where they are collected.

Some special recreation permit applicants may be denied requests to remove natural resources if their actions are viewed as adversely impacting resources. While such denials may inconvenience permittees, and some projects utilizing natural resources may be unfeasible as a consequence, it is likely that, in general, suitable alternatives would be developed, particularly if sufficient time is allowed.

Requiring BLM law enforcement at some permitted events would help ensure the safety of event participants and the general public by providing traffic control and enforcing other safety measures. Some participants may believe that the presence of law enforcement would adversely impact the quality of their experience.

A beneficial impact of Special Recreation Permits is that all permittees are required to disseminate information about *Leave No Trace* principles to event participants. As a consequence, participants learn about their role in caring for the environment. All plan area visitors could potentially be beneficially impacted because the natural resources and scenic qualities of the area would be protected for others to enjoy. These benefits are far reaching when considering that participants at special recreation permit events tend to carry these principles with them beyond the plan area.

Impacts on Dispersed Recreation, Including Vehicle Access

A substantial amount of publicity about the Black Rock Desert in recent years has increased public awareness of the recreational opportunities in the plan area, which has led to increased recreational use of the area. Use of the area is likely to continue to increase with consequent adverse impacts on the solitude, naturalness, and historic setting of the area, as well as conflicting uses.

A lack of limits on cross-country travel, especially by ATVs and dirt bike riders, would continue to allow challenging opportunities for motorized recreationists, but might cause increasing recreational or use conflict with other visitors, especially those who enjoy settings around hot springs and solitude in these and other areas. Retaining all roads and trails in the plan area would mean that adverse impacts to the naturalness of the scenic and historic setting would remain. Additionally, OHV-related impacts described in the affected environment would continue to increase, resulting in continued degradation of the natural and scenic landscape. An increase in new trails and roads resulting from continued cross-country use by ATVs, dirt bikes, and four-wheel-drive vehicles, along with their attendant noise, would adversely impact the experience of visitors who come to the plan area to experience its solitude, serenity, wide-area scenic views, and/or the historic emigrant trails.

Non-motorized recreationists (including hikers, mountain bikers, landsailers, emigrant trail users, pedestrians, and some campers) could be adversely impacted by unlimited OHV use. Such use poses

safety hazards, especially for pedestrians in the dune areas. Allowing unlimited access to the playa could result in new roads or trails being created, causing additional disturbance to the naturalness of the setting and also creating safety hazards at railroad tracks where crossings may be attempted.

Allowing mechanized travel on portions of the Applegate-Lassen Trail that are currently well-traveled by contemporary vehicles would enable recreationists to relive this part of history (see Appendix D, Figure 2). Not closing intact trail segments would provide OHV users with potentially unlimited use, which would irreparably damage these relic trail remnants and adversely impact the experience of historic trail visitors.

Developing trail and day-trip opportunities on a case-by-case basis would allow visitors additional opportunities for hiking. Developing a brochure or map of the general transportation system would be helpful to visitors unfamiliar with the area and would help prevent them from getting lost or stranded, thereby improving the quality and safety of their experience.

Developing and installing fee collection methods or sites at main access locations would adversely impact users, because fees would be collected for recreational opportunities that were previously free. However, the fees would be used to fund public education, interpretation, and resource protection projects in the plan area that would benefit users through facility development and maintenance.

Allowing overnight camping throughout the plan area would benefit users by providing unlimited camping opportunities. Allowing unlimited vehicular camping could result in new roads and trails being created, which would adversely impact the integrity of the setting for those who come to experience the historic trails or the scenic qualities of the plan area.

Impacts on Public Outreach

Operating a Visitor Contact Station (VCS) during periods of high recreation use would benefit recreation users by providing information on recreation opportunities and safety precautions. Because public education and visitor services would remain discretionary, the VCS may not always be in operation at critical times. Limited public education efforts through the VCS, kiosks, brochures, volunteers, and specific requests would provide some users with a better understanding of the area's resources, resulting in a more enjoyable and meaningful visitor experience. Limited dissemination of *Leave No Trace* and other information encouraging respectful treatment of the area and its resources would reduce some adverse impacts to the scenic and historic viewsheds of the plan area with consequent beneficial impacts to users. Under this alternative, benefits of public education may not realize full potential, because outreach efforts could be periodic, eventually resulting in natural and cultural resources degradation from increased use. The area resources could be adversely impacted by intensive, excessive, and unregulated visitor use. This would be undesirable to those visitors who do not use OHV seeking backcountry experiences and solitude.

Private/public marketing strategies could result in creative partnerships, increased funding, full service amenities, and other unique recreational opportunities. With the intensive focus brought to the Black Rock Desert by regional marketing, funding for facilities and related services could increase.

Impacts on Other Recreational Values

The BLM would gain management authority on any private lands acquired within the plan area, which would help preserve the natural and historic setting of the plan area. Users who value the area for these qualities would be beneficially impacted. Any disposal of public lands within the plan area could adversely impact recreation opportunities if the lands were valued by plan area recreation users.

Geothermal leasing stipulations would continue to help protect the naturalness and historic setting of some parts of the plan area benefitting recreation opportunities in those areas. The no-surface occupancy stipulations for geothermal leasing in the current land use plan would continue to protect a corridor along the Applegate-Lassen Trail from geothermal drilling (see Map 11). However, geothermal development could still occur within the plan area outside the trail corridor, thereby adversely impacting the historic setting of the trail as well as the natural scenic setting of the plan area. Geothermal development could also still occur at Trego Hot Springs, which could adversely impact the recreation opportunities (bathing, camping, historic trail experience) at this site. Effects of development outside the "no-leasing" areas on hot springs are unknown, but could result in adverse impacts to recreation opportunities at the springs if the springs dry up as a result.

Since the four VRM classifications (I, II, III, and IV) would be used to analyze impacts of mining and other developments to the visual quality of the plan area, adverse impacts to the historic and natural setting of the plan area could result in adverse impacts to the quality of the visitor experience.

A Limits of Acceptable Change or similar study and other visitor use data collection would be beneficial in providing information for BLM to better manage natural and cultural resources and recreation opportunities and to improve its approach to meeting public recreation needs. However, visitor data would be limited to baseline visitor use.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON RECREATION

Objectives and management direction under this alternative would provide a mix of actions designed to protect fragile resources, while providing the visiting public with continued enjoyable experiences and access.

Impacts on Special Recreation Permit Events

Evaluating and authorizing Special Recreation Permits in accordance with NEPA, conducting monitoring of events, and implementing site-specific stipulations would help prevent adverse impacts to public safety, as well as conflicts with other events and recreation uses in the plan area. Authorizing recurring SRP events in their current locations, rather than allowing events to change locations from year to year, would reduce the need for new analysis on each event relocation, thereby minimizing staff time and funding in complying with planning laws and regulations. This savings in time and funding could be directed toward implementing recreation projects such as public education, interpretation, and monitoring. There would also be time and money saved by recreation permittees as a result of less of their staff time and money being expended on the environmental assessment process. Such savings could possibly be passed on to event participants in the form of reduced costs to them.

Authorizing recurring special recreation permit events in their current locations and limiting new events proposed on the playa to the southern playa area would beneficially impact the quality of the visitor experience for those visitors who come to the desert to experience the Applegate-Lassen Trail and its setting, as well as for those who come to enjoy natural and scenic qualities of the area. The existence of developments in the area outside the southern playa (town of Gerlach, railroad, transmission lines, and paved and improved roads with associated vehicles) makes this area less conducive to a natural, serene, visitor experience than the central and northern portions of the plan area. The southern playa area is also further from the Applegate-Lassen Trail making it less likely that special recreation permitted events in this area would intrude on the experience of the historic trail visitor. Evaluating new special recreation permits proposed for non-playa areas on a case-by-case basis, taking into account the nature of events, potential impacts to resources, conflicts with other events, and cumulative impacts to the integrity of setting of the Applegate-Lassen Trail, and the quality of the visitor experience, would help mitigate adverse impacts to recreation opportunities in this area.

Although special recreation permit events would be allowed to continue under the Proposed Action, permittees would have less freedom to choose their event location.

Applying cost recovery and/or the fee schedule would reduce the economic impact to taxpayers. These fees would allow for adequate monitoring and law enforcement at events, which would ensure public safety and enforcement of protective stipulations. Fees collected from special recreation permits would be used for oversight, public education, interpretation, and monitoring, which would improve the visitor experience.

As in the No Action Alternative, there could be an increasing number of applications for additional events and larger, more complex events. Also, event sizes could grow to proportions that eventually exceed BLM management capability. Funding through Fee Demonstration fees from special recreation permits should defray costs to some degree.

Some special recreation permit users may be denied requests to remove natural resources if these actions are viewed as adversely impacting resources. Such denials may inconvenience permittees, and some projects based on using natural resources may not be feasible. In general, suitable alternatives would likely be developed.

Requiring BLM law enforcement at some permitted events would help ensure the safety of event participants through enforcement of traffic control and other safety measures. Some participants could feel that the official presence adversely impacts the quality of their experience.

Beneficial impacts of requiring Special Recreation Permit permittees to disseminate *Leave No Trace* principles to event participants would be the same as described in the No Action Alternative.

Impacts on Dispersed Recreation, Including Vehicle Access

Since visitor use data indicates most multi-passenger four-wheel drive vehicles are operated on the playa and existing roads, the OHV limitations proposed in Alternative 1 are not expected to significantly nor adversely impact this segment of recreationists. However, the recreation population that uses OHVs, notably dirt bikes and ATVs, for cross-country travel would be impacted by loss of OHV opportunities, since they would be required to confine their activities to the playa (excluding mounds and dunes), dry washes, and existing roads and trails. This loss of OHV opportunity is not expected to be a significant

impact to this segment of recreation users, because many back-country exploration challenges and experiences would continue to be available due to the tremendous road network within the plan area. The OHV users would continue to have unlimited access throughout the playa and would be able to stage and/or camp near access points and other roads. They would also be able to ride into areas adjacent to the plan area.

Following assessment of cultural resources, traditional cultural properties, and unique landform features, some or all of the mounds/dunes in the southern playa area may be opened to cross-country travel, which would allow additional opportunities for OHV recreationists. However, heavy ATV use in this area could result in these dunes eventually becoming deflated to the point of no longer offering a challenge to ATV or dirt bike users.

Limits on OHV use and access would benefit users who come to the plan area to experience the natural scenic and/or historic setting of the area. Assistance from ATV/dirtbike groups and individuals in educating other riders about OHV designated areas would help reduce adverse impacts to other users and user conflicts. Efforts such as *Tread Lightly*, increased BLM and volunteer presence, and BLM law enforcement would help educate the public and reduce unauthorized uses. Allowing mechanized travel on most of the Applegate-Lassen Trail would provide recreationists the opportunity to relive this part of history. Closing intact segments of the Applegate-Lassen trail would protect these historic relicts for the appreciation of future generations, beneficially impacting historic trail visitors.

Some rockhounds who use OHVs to access areas to collect mineral specimens may be adversely impacted by limits on OHV access. Although the number of roads and trails in the plan area should provide hunters adequate access, they may experience some inconvenience from the OHV limits.

Developing trail and day trip opportunities and developing trailheads in WSAs would provide more recreation opportunities for visitors. Developing a primitive campground near Flowing Wells would provide camping opportunities. The campground could also reduce the incidence of camping in other areas, such as hot springs, as well as provide users with less crowded conditions and some facilities for users.

Developing and installing fee collection methods or sites at main access locations would adversely impact users, because fees would be collected to access recreational opportunities, including hunting and fishing, that were previously free. Fees would be used to fund public education, interpretation, and resource protection projects that would be beneficial to some users.

During large special recreation permit events in the southern playa area, dispersed use and access to and through this area could be temporarily limited.

Impacts on Public Outreach

Interpretive facilities in the proposed planning area would provide a wide array of visitor environmental education opportunities. All facilities would be creatively designed to blend with various settings, ensuring no visual intrusions.

The Phase 1 proposal of operating a trailer-based Visitor Contact Station during periods of high recreation use would beneficially impact recreation users by providing information about recreation opportunities and potential hazards. Visitors to the plan area during times outside the peak use season would not have the

opportunity to obtain information from a Visitor Contact Station about recreational opportunities and potential hazards.

The Phase 2 proposal of operating a full-time visitor center would benefit visitors, because information on hazards and recreation opportunities, as well as directions, maps and interpretive information on plan area resources would be available on a full-time basis. Establishing a permanent Visitor Services facility would have a positive impact on visitors, by offering interpretation and customer service at all times. In addition, a Visitor Center would benefit the local economy by hiring local people to staff the center. Such a facility may also serve as a focal meeting point for user support groups and interpretive research and development, benefitting local and regional economies.

Construction of a full-service interpretive visitor center may increase visitation, which could possibly diminish the recreational experiences of some visitors and also the potential for resources to be more adversely impacted. Visitor studies show that the visitation growth trend in the plan area will continue as a result of private industry's tourism marketing. The visitor center could mitigate the adverse impacts of increasing visitor numbers by educating the public about resource protection and appreciation and instilling a sense of stewardship.

The Proposed Action (Alternative 1) would ensure BLM emphasis on back-country use and low-impact use as reflected in the *Leave No Trace* and *Tread Lightly!* programs. Supplemental rules of conduct developed from mitigation measures, stipulations, public input, and other sources would provide enforcement aspects unique to the area.

Public education and interpretive efforts through the visitor contact station or center, kiosks, brochures, exhibits, videos, audio tapes, volunteers, and in response to specific requests would provide users with a better understanding of resources in the plan area, resulting in a more enjoyable and meaningful visitor experience. Distribution of *Leave No Trace* and other information encouraging respectful treatment of the area and its resources would reduce adverse impacts to the scenic and historic viewsheds of the plan area, as well as to natural and cultural resources, with consequent beneficial impacts to the quality of the visitor experience.

Cooperative agreements, volunteers, and grants would help to fund and accomplish public outreach and monitoring in the area. Increased BLM and volunteer presence of the area would help protect the natural scenic and historic setting of the area for the benefit of all users.

Visitors could have a greater sense of security and safety in this harsh high desert area. The importance of BLM presence would be reflected in public service and interagency cooperation on behalf of the visiting public. Volunteer safety would also be emphasized, and training would occur more frequently.

Impacts on Other Recreational Values

Managing most of the plan area to VRM Class II and limiting impacts to other aspects of the environment would help preserve the natural scenic and historic trail setting of the plan area, beneficially impacting the visitor experience.

Acquiring lands within the plan area would provide BLM with management authority for these areas, helping to preserve the natural and historic setting of the plan area to the benefit of users valuing these qualities and providing guaranteed access. Disposal of public land within the plan area would not

adversely impact recreation opportunities, because only land not meeting the needs of the plan objectives would be disposed of. Restrictions on utility facilities and communication sites would help to maintain the naturalness and historic setting of the area, benefitting recreational users. Commercial and noncommercial activities would not adversely impact recreation opportunities, because they would generally be temporary in nature, resulting in little or no disturbance and/or would be mitigated to VRM II.

Proposed reclamation, no leasing, "no surface occupancy," compliance with VRM II and VRMII/III standards, and other mitigation measures for locatable, salable, and leasable minerals in the plan area would help protect the naturalness of the setting in the plan area and associated recreation opportunities including visitor use of the Applegate-Lassen Trail, Trego Hot Springs, Rabbithole Springs and Soldier Meadow. Effects of geothermal development beyond the areas of the hot springs are unknown. If hot springs were to dry up as a result of the drilling, there would be an adverse effect on hot springs bathing, historic trail visitation, and other associated recreation opportunities. Some short-term adverse impacts to the naturalness of the setting of the area would occur, adversely affecting the quality of the visitor experience in the short term, but these would be mitigated in the long term.

Pursuing the minerals withdrawal for a one-mile corridor along the Applegate-Lassen Trail would protect the trail and the portion of the trail setting within the 0.5-mile of the trail from mineral exploration and/or development, benefitting historic trail visitors, hikers and other users. Pursuing the 3,500-acre proposed mineral withdrawal in Soldier Meadow would also protect valued recreation opportunities in this area.

A Limits of Acceptable Change or similar study and other visitor use data collection would beneficially impact recreation by providing information that would allow BLM to better manage natural and cultural resources and recreation opportunities and better respond to the public's recreation needs.

CONSEQUENCES OF ALTERNATIVE 2 ON RECREATION

Under Alternative 2, the visiting public would be limited in recreational pursuits. The proposed management area would receive additional restrictions limiting multiple-use type recreation.

Impacts on Special Recreation Permit Events

Impacts to recreation users and opportunities from management actions for special recreation permits under Alternative 2 would be similar to those under Alternative 1 (Proposed Action), except that Alternative 2 would limit the type, numbers, size, and/or duration of events, and some events may cease to occur within the planning area. In addition, some traditional organizers and participants may be forced to relocate their events elsewhere in the Winnemucca District, the state, or to other states or to reduce the size and/or duration of the event.

Impacts on Dispersed Recreation, Including Vehicle Access

Although limited opportunities for OHV travel would remain on the playa, and by permit on the Applegate-Lassen Trail, both cross-country and road/trail OHV opportunities would be severely reduced under this alternative. This reduced use would adversely impact OHV users, including rockhounds and hunters. Conversely, elimination of most OHV use and closing/reclaiming most existing roads and trails would beneficially impact non-motorized recreation opportunities for those users who come to the area to experience the natural scenic and/or historic setting of the area because of the reduction in adverse

impacts to the setting. Some adverse impacts could occur from unauthorized use, but educating the public and enforcing OHV areas would help reduce these impacts. Adverse impacts from unauthorized OHV use would also decrease through *Leave No Trace* and *Tread Lightly!* programs and other public education efforts, increased BLM and volunteer presence, and issuance of citations for violations.

Requiring permits for mechanized travel on the Applegate-Lassen Trail would limit trail-related recreation opportunities. However, it would help to better manage use and limit adverse impacts to the setting of the trail, beneficially impacting the experience of those who wish to relive this part of history.

Designating camping areas and making them available only by permit would adversely impact visitors by limiting their freedom to camp where they choose and having to pay and be inconvenienced in obtaining a permit. However, it would help protect areas such as hot springs, thereby beneficially impacting the visitor experience.

Under Alternative 2, travel within the plan area would be limited, because (with the exception of key access roads) no roads between the playa and plan area boundary would be considered for inclusion in the BLM transportation system.

Impacts from closing intact traces of the Applegate-Lassen Trail, possible designation of an OHV area outside the plan area, establishing a primitive campground at Flowing Wells, developing and installing fee collection, and establishing trail and day trip opportunities would be the same as under Alternative 1 (Proposed Action), except that trailheads would not be established in WSAs.

Impacts on Public Outreach

Impacts to recreation users and opportunities would be the same as under Alternative 1 (Proposed Action).

Impacts on Other Recreational Values

Managing most of the plan area to VRM Class I restrictions on utility facilities and communication sites, and acquisition of private lands within the plan area would help to maintain the natural scenic and historic trail setting of the area, beneficially impacting the experience of users who value the area for these qualities. The proposed mineral withdrawal and no geothermal, oil, or gas leasing, would also beneficially impact these visitor opportunities. Hot springs-related recreation and historic trail touring in particular would be protected. Some short-term, adverse impacts could occur from mining on existing claims, but there would be no long-term impacts since these would be mitigated to VRM Class I.

Allowing access to traditional cultural properties and allowing sacred sites to remain open to Native Americans, but limiting access to other users, would not likely cause additional impacts since most of the plan area would be closed to OHV use anyway under Alternative 2.

Impacts from the Limits of Acceptable Change or similar study and other visitor use data collection would be the same as under Alternative 1 (Proposed Action).

CUMULATIVE IMPACTS ON RECREATION

Under the No Action Alternative, dispersed recreation use of all types as well as the size, number and type of permitted events are expected to continue to increase. This would result in increasing competition for space between users, as well as reduced opportunities for choice of space. As a consequence, both dispersed use recreationists and special recreation events may seek and use areas outside the plan area that meet their particular needs. Some special recreation permitted events also may not occur due to competition for space and/or lack of personnel to process and monitor permits. Unlimited OHV use, geothermal leasing, mineral exploration/development, lack of restrictions on locations of permitted events and inadequate public education efforts would increasingly adversely impact recreation opportunities, visitor safety, and the quality of visitor experience for those who come to the plan area to experience the setting of the historic trails and/or the naturalness and serenity of the plan area. This may result in this type of visitor seeking such opportunities outside the plan area.

Under Alternative 1 (Proposed Action), dispersed recreation use and permitted events are also expected to continue to increase. However, focusing special recreation permits and cross-country OHV use to the southern playa area should reduce the loss of choice of recreation space and competition for space between some types of dispersed users and between dispersed recreation users and special recreation permitted events. There would still be competition for space between special recreation permitted events, which would reduce the choice of space by special recreation permits. As a consequence, some of these events may not occur or may move to locations outside the plan area. VRM II restrictions on mining and other developments, the proposed mineral withdrawal, restrictions on geothermal leasing, OHV limits, zoning of special recreation permits and OHV use, reclamation of some roads, and increased public education efforts would maintain and enhance recreation opportunities for those who come to the plan area to experience the setting of the historic trails and/or the naturalness and serenity of the plan area. Safety hazards for all users would also be reduced. However, OHV users who have previously come to the plan area to enjoy cross-country recreation experiences would have most of these opportunities eliminated within the plan area and may seek recreation opportunities in areas surrounding the plan area that offer similar challenge. Collecting fees and fee demonstration monies and limiting relocation of recurring events would allow more time and money to be spent on public education, visitor services, and monitoring, which would improve the quality of the visitor experience.

Under Alternative 2, dispersed recreation use and permitted events would likely decrease due to limits on the type, duration, and size of events, elimination of non-playa cross-country OHV use, closure of most roads in non-playa areas, and requiring permits for camping and traveling on the Applegate-Lassen Trail. Competition between special recreation permitted events would likely increase, and some events may seek locations in similar environments outside the plan area. There would be much greater opportunities for solitude, and recreation opportunities would be greatly enhanced for those who come to the plan area to experience the historic setting of the trails and/or the naturalness of the plan area due to the restrictions on special recreation permitted events and OHV use, the VRM I restrictions on mining and other developments, the proposed mineral withdrawal, restrictions on geothermal leasing, road reclamations, and public education. Although the anticipated reduced use of the area may result in an overall reduction in competition for space, permit requirements for camping and Applegate-Lassen Trail travel would increase competition among these users. Camping and historic permit requirements, road closures in much of the plan area, and elimination of non-playa cross-country travel would severely limit all types of OHV opportunities. These users may seek similar recreation opportunities in other areas outside of the plan area. Opportunities for hikers in non-playa areas, including the dunes in the northern playa area, would be enhanced. The OHV areas and intensive public education efforts would reduce public safety hazards.

Visual Resource Management

AFFECTED ENVIRONMENT

The BLM initiated visual resource management (VRM) during the planning process to manage the quality of the landscape by minimizing potential impacts to visual resources resulting from development activities. In determining VRM class designations, the inventory process considers the scenic value of the landscape, viewer sensitivity to the scenery, and the distance of the viewer to the subject landscape. These management classes identify various permissible levels of landscape alteration, while protecting the overall visual quality of the region. Management classes are divided into four levels (Classes I to IV), with Class I designated as most protective of the visual resources (see Table 2-1). The objectives of these classes vary from very limited management activity to activity that allows major landscape modifications.

Visual resources within the plan area are currently managed based on inventories completed in the late 1970s (see Map 5), and whether or not they are located within a Wilderness Study Area. Roughly half of the planning area is classified as VRM Class II, including High Rock Lake, the playa, and portions of the Black Rock Range and Calico Mountains. The north half of the Calico Mountains, Soldier Meadow, and Rabbithole Springs are VRM Class IV. A small area near Gerlach is managed as VRM Class III. All Wilderness Study Areas within the plan boundary are currently managed as Class I (see Map 7).

The plan area is located in the northern Basin and Range physiographic province. Basin and Range landscapes in northern Nevada are characterized by elongated, generally north-trending mountain ranges separated by broad, open basins. This type of landscape allows for long viewing distances. In the Black Rock Desert, the viewing distance is extended by the combined presence of a northeasterly elongated basin that forms the southern playa area and the north-trending basin forming the west arm of the Black Rock Desert. The playa, formed by the intersection of these two basins, is unique in the world.

Surrounding the playa are mountain slopes, variously colored and shaped depending on rock types, degree of hydrothermal alteration, types and amounts of vegetation, time of day, and season of the year. Older rocks in southern locations tend to exhibit angular landscapes sparsely covered with vegetation. In the northern part of the plan area, older rocks are covered by younger and relatively flat lying volcanic rocks, which mark the transition from the Basin and Range province to the volcanic highlands to the north.

The desert is a scene of contrasts. Viewed close up, the Black Rock (the oldest rock in the desert) stands out in bold contrast to the glaring whiteness of the surrounding playa. From a distance looking northeast, the Black Rock blends into the landscape and from further away it disappears completely into the shimmering distance. On a clear, sunny, bright day the flatness of the playa is punctuated by the surrounding mountain ranges, rising abruptly out of the playa in the distance, slicing through the blue sky. The sunlight of dusk and dawn accentuates the vivid colors of the plan area, especially the southern Calico Mountains. The brightest times of the day and year hide these colors that are so vividly displayed during dusk and dawn.

One of the most dominant landscape features of the plan area is the playa, which viewed from its midst extends in an expansive, boundless manner in all directions (see Appendix D, Figure 1). Although the playa receives many visitors each year, the opportunities for solitude and serenity on the playa seem

endless. The white mud-cracked surface of the playa is like a freshly prepared canvas, inspiring creativity. On a hot clear day, features in the distance viewed from the playa are distorted by the shimmering effect created by the interaction of heat, distance, and the whiteness of the playa. Mountain ranges float on a sea of shimmering heat waves. In another direction, the edge of the earth seems only a mile away. The playa dominates the landscape even when viewed from a distance and from higher elevations. Very few human-made features intrude into the landscape. It is this pristine vastness that appeals to recreational users.

The plan area is viewed differently from the Applegate-Lassen Emigrant Trail than from the playa and other locations (see Appendix D, Figure 2). Not only are the visual perspectives different, so are the purposes and perspectives of the many visitors who visit the trail. Recreationists traveling along segments of the trail, especially during emigration re-enactments, are able to relate to the emigrant experience, largely due to the relatively untouched scenic vistas. From Rabbithole Springs to Black Rock Hot Springs, the Black Rock is a dominant landscape feature because it marked the destination for the next spring. At the campsite located at the hot springs flowing from the base of the Black Rock, and at Double Hot Springs, a visitor may experience the importance of the immediate survival needs of the wagon trains associated with water and meadows. From these locations, the immense Black Rock contrasts sharply with the whiteness of the playa, which spreads to the south and west. To the south, the sparsely vegetated starkness of Razorback Mountain is ever present. Across the desert to the west, the brightly colored, ever-changing variegated hues of the southern Calico Mountains have been well documented in journals. Along the trail, further north, the dramatic colorful geologic formations in the Black Rock Range near Clapper Creek and Pahute Peak remain nearly as wild and untouched as when the emigrants passed through years ago.

The view north from the dam at Mud Meadow reservoir reveals the Soldier Meadow basin with hot springs, meadows, irrigated fields, and Soldier Meadow Ranch; these features are almost completely enclosed by gently dipping volcanic highlands. Human-made features on the mountain slopes surrounding the basin are limited to a few access roads with intermittent visibility. The dominant landscape features from this location are the volcanic tablelands, Mud Meadow Reservoir, and the Soldier Meadow Ranch

In contrast to the view north, which is into an enclosed basin, the view south from this same location opens up into the full expanse of the west arm of the Black Rock Desert. The Black Rock in the southern distance again dominates the landscape.

Throughout the entire plan area, the beach terraces of Lake Lahontan are present as linear gravel deposits superimposed on bedrock terrain. This situation is well exhibited in the southern Calico Mountain where angular, multi-colored volcanic rocks are covered with a contrasting veneer of single colored, linear gravel deposits. This contrast between lines, colors, and angles is also well exhibited in locations at the southern Black Rock Range.

Some important landscape features in the plan area are currently being degraded by OHV use. Unauthorized trails have been established on Black Rock and Steamboat Rock, two important landmarks (see Appendix D, Figures 16, 17 and 18). Similarly, mound springs and mound/dune areas (see Map 4B) have been adversely affected by cross-country travel by ATVs and dirt bikes.

The most visible human-made features in the plan area are the railroad track and power line along the southern plan area; all the major access roads, and many roads and ways; the Applegate-Lassen Emigrant Trail; Jackson, Wheeler, and Soldier Meadow ranches; the opal mines; a few private

residences to the north; and fences. The town of Gerlach lies outside of the plan boundary, yet it is visible from within the plan boundary. Many of the human-made features are located in and/or are visible from the southern plan area. By contrast, the central and northern portions of the plan area have fewer human intrusions.

Along the High Road from Sulphur to Gerlach, the railroad track and power lines are continuously visible, because the tracks and the lines are situated between the road and the vistas to the north (see Map 1). Viewed from the playa and other parts of the plan, however, these developments are hardly visible and insignificant. Trains are visible from many locations, though many times it is the rumble of the engines in the distance that causes a visitor to notice their presence.

The Applegate-Lassen Emigrant Trail (see Map 2A), likely the most important human-made feature in the plan area, is most visible to people traveling on trail portions that have become established as access roads (see Appendix D, Figure 2). The trail tends to lie in relatively flat terrain and, therefore, is not considered a dominant visual feature.

The ranch landscapes typically include small dwellings, outbuildings, barns, fences, trees, corrals and fields. They are all situated on private lands, and only the larger features (such as trees) are visible from a distance. Newer buildings painted with light colors contrast with background landscapes. The ranches have been there for many years, and the structures tend to be weathered, blending in with the surroundings. Soldier Meadow Ranch is the largest, containing the most human-made features. Although parts of the Soldier Meadow Ranch are visible from the Applegate-Lassen Trail, none of the ranch is visible from the playa.

The two opal mines in the area (see Map 9) are slightly visible from various locations within the plan boundary. The opal mine at Willow Creek is visible from various locations at the north end of the plan area, especially from along the county road. The small open pit and access road leading to the pit are the most visible features of the mine. The main diggings at the opal mine located north of Donnelly Creek are hidden from view behind a low hill. An access road is the most visible feature of this operation and is most noticeable when traveling north on the county road in the vicinity of Donnelly Creek.

Private residences on patented lands north of Donnelly Creek are visible from a distance when traveling north along the county road in the vicinity of the creek. Color contrasts between the private structures and the surrounding landscapes account for the visibility.

The town of Gerlach, although not situated within the plan boundary, can be seen from places within the plan area. From a distance, the dominant visual features associated with Gerlach are trees, buildings, and power lines. The southern end of the Granite Range near Gerlach has several gravel pits, a city park, a refuse transfer station, and an asphalt mixing plant operated by Washoe County.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON VISUAL RESOURCES

The increasing numbers, types, and durations of permitted events and users would adversely impact the visual resources. Continuing to authorize an increasing number of large-scale events in all locations on the playa would adversely affect the scenic quality and dispersed users, interfering with their recreation experience. Equipment and structures associated with all organized and permitted events located at various places throughout the playa would adversely impact visual resources. The field of view and the pristine vastness of the playa would be interrupted during times of permitted uses, as well as the times prior to and after the event when event participants are setting up and taking down event facilities and conducting clean-up operations. Foreground and middle-ground scenic quality would be adversely affected. Visitors who wish to experience solitude and serenity of the setting would have their field of view interrupted during the permit use times by these events and related activities.

Adverse impacts to scenic vistas and natural settings, especially foreground scenes, would continue to increase throughout the plan area from trash and burn scars, pit depressions, temporary location of facilities, ruts from vehicles, inadequate clean-up efforts, and other disturbances resulting from special permit events.

Unlimited OHV use under the No Action Alternative would continue to increase, resulting in continued degradation of natural and scenic landscapes. These activities would adversely impact scenic values in the background, middle-ground, and foreground of the viewer. The numbers of new roads would increase, and locations that are currently pristine and untouched could eventually be crisscrossed with OHV tracks. Mounds and dunes would continue to be degraded, adversely impacting the visual quality of foreground landscapes. Existing roads and trails with no destinations, especially those becoming established on scenic landscape features, would continue to grow in size and number and become permanent landscape scars, contrasting with form, color, and line of existing background landscapes. The portions of historic trail viewsheds and scenic values currently protected from OHV use by WSA status would not be protected if the WSAs are not designated Wilderness. Degradation around springs and favorite camping spots due to OHV use would continue, resulting in adverse impacts to scenic quality of those landscapes.

Development of mineral and energy resources would continue to be mitigated to minimize adverse impacts to the scenic quality and historic viewshed, according to the type of proposed activity and locations within each VRM Class. Long-term adverse impacts may result to the viewshed in areas where projects would be managed to VRM Class III. Background and middle-ground landscapes viewed by many visitors would be most affected by these developments.

Potential adverse impacts to visual resources from long-term developments and facilities, such as power lines and communication sites, would be mitigated on a case-by-case basis to minimize impacts to visual resources. These sites could adversely affect the visual resources of middle-ground and background landscapes.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON VISUAL RESOURCES

Permitting increasing numbers of large-scale events in the southern playa would adversely affect foreground and middle-ground scenic quality for dispersed users using that portion of the plan area. Concentrating equipment and structures associated with all organized and permitted events in the southern playa would adversely impact the visual resources there. The field of view and the vastness of the playa would be interrupted during the permitting season by these events. Mitigating temporary impacts from special permit events in non-playa areas on a case-by-case basis would reduce cumulative effects of many events. Restricting special permit events to the southern playa area under this alternative would have a beneficial impact to the remainder of the playa and plan area where the visual resources would not be as affected.

Adverse impacts to visual resources could continue to increase in association with special recreation permits. These impacts would range from trash and burn scars, pit depressions, facilities, vehicle ruts, and to inadequate clean-up. The permitting of **new** events in the southern playa area would concentrate adverse impacts to visual resources at that location. This would result in a beneficial impact to visual quality and scenic vistas of the remainder of the playa and plan area. Increased compliance of special recreation permits due to increased BLM presence funded by fee collections would decrease the adverse impacts of permitted events to visual resources.

Under Alternative 1, impacts to visual resources from OHV use in **limited** areas would be significantly reduced. Impacts to dunes and mounds in highly visible foreground settings, such as where the playa and non-playa meet and at playa approaches, would decline and visual scars would eventually heal. Reclaiming existing roads and trails that have no purpose in relation to the plan objectives would beneficially impact background landscapes, especially prominent scenic landmarks, and historic trail viewsheds. Limiting OHV use to dry washes and designated existing roads and trails would beneficially impact all landscape settings and scenic values, because new trails would not be developed and cumulative impacts due to OHV use would be eliminated. Adverse impacts to foreground landscapes in areas around springs and favorite camping spots would be nearly eliminated to the point that these settings could return to near-pristine conditions as cross-country OHV tracks are reduced or eliminated. Impacts to visual resources from camping activities would be limited to areas within 100 feet of designated roads.

Increased public education would benefit visual resources by emphasizing minimum impact when camping and using OHVs.

Using VRM II as a management tool would minimize potential impacts to visual resources from development of mineral and energy resource, thereby protecting the pristine scenic quality of the plan area from adverse impacts by those developments. The mineral withdrawal and no-leasing provision along the Applegate Lassen Trail corridor would further serve to minimize adverse impacts to visual resources, providing a long-term beneficial impact to visual resources.

Evaluating all temporary developments on a case-by-case basis would reduce the impact to visual resources. Managing and/or mitigating all developments, facilities, and powerlines to VRM Class II standards would minimize long-term and short-term adverse impacts to the landscape. Mitigation measures would beneficially impact all landscapes and serve to protect the expansive scenic vistas.

CONSEQUENCES OF ALTERNATIVE 2 ON VISUAL RESOURCES

The consequences of Alternative 2 on visual resources would be similar to those of Alternative 1, except that limiting the size, duration, and type of permits would further reduce adverse impacts to visual resources. Permitting **new**, large-scale permit events in the southern playa area would reduce adverse impacts to visual resources in the remainder of the plan area, thereby beneficially impacting the other areas. Mitigation of temporary impacts in non-playa areas would reduce cumulative effects of many special recreation permit events.

Adverse impacts to visual resources would include trash and burn scars, pit depressions, facilities, ruts from vehicles, inadequate clean-up effort, and other visual disturbances. These types of impacts would continue to increase in the southern playa area. Increased compliance of special recreation permits due to increased BLM presence funded by fee collections would decrease residual adverse impacts of permitted events on visual resources.

Limiting OHV use would significantly reduce impacts to visual resources. Visual scars on dunes and mounds in highly visible foreground settings, such as where the playa and non-playa area meet and at main playa entrances, would decline and eventually heal. Designating existing roads and trails that have no purpose in relation to the plan objectives as *Closed* would reclaim those areas. The landscape would be beneficially impacted by limiting cross-country travel. Foreground, middle-ground, and background impacts to landscapes would be minimized. Cumulative impacts to VRM would be reduced by limiting OHV-related activity around springs.

Further limiting OHV use, as provided in Alternative 2, would increase beneficial impacts to visual resources. In foreground settings, impacts to dunes and mounds would be eliminated and visual scars would eventually heal. Reclaiming existing roads and trails that have no purpose in relation to the plan objectives would beneficially impact background landscapes, especially prominent scenic landmarks and historic trail viewsheds. **Limiting** OHV use to existing designated roads and trails would beneficially impact all landscape settings and scenic values, because new trails would not be developed and cumulative impacts due to OHV use would be eliminated. Adverse impacts to foreground landscapes in areas around springs and camping spots would be nearly eliminated, and these settings may return to near pristine conditions as cross-country OHV tracks are eliminated. Allowing camping by permit only would beneficially affect all foreground settings in camping areas.

Increased public education would benefit visual resources by emphasizing minimum impact camping and OHV use.

Using VRM I as a management tool would increase opportunities to minimize adverse impacts to visual resources that may occur due to development of mineral and energy resources. The proposed mineral withdrawal and "no leasing" provision would significantly minimize adverse impacts to visual resources.

Managing and mitigating all developments (such as recreation facilities, power lines, buried lines, and communication sites) to VRM Class I would minimize long-term and short-term adverse impacts to the background, middle-ground, and foreground landscapes. Reducing these impacts would benefit the visual resources and the historic trail.

Evaluating temporary developments on a case-by-case basis would reduce the temporary adverse impacts to visual resources.

CUMULATIVE IMPACTS ON VISUAL RESOURCES

Under the No Action Alternative, continuing to authorize the increasing numbers of large scale events, especially those with associated high visibility equipment and structures, in all locations on the playa would have a cumulative adverse impact to the scenic quality in the long term. Adverse impacts to scenic vistas and natural settings would accumulate throughout the plan area from trash and burn scars, pit depressions, facilities, ruts from vehicles, inadequate clean-up efforts, and other disturbances resulting from such events. Continued unlimited OHV use within the plan area would result in more roads and trails being developed and increased OHV use on dunes and mounds resulting in cumulative adverse impacts to visual resources.

Management under Alternative 1 (Proposed Action) would minimize cumulative adverse impacts to visual resources in most areas of the plan area, except for the southern playa. Permitting and focusing special recreation permits and OHV use in the southern playa would increase adverse cumulative impacts to that area, while significantly decreasing cumulative impacts to the remainder of the plan area. Limiting OHV use to designated roads and washes would significantly reduce adverse cumulative impacts to areas that have been receiving accelerated OHV use. Using VRM Class II as a management tool for all operations and developments would minimize potential adverse cumulative impacts to visual resources. Implementing a mineral withdrawal along the Applegate Lassen Trail corridor, and also not permitting oil and gas and geothermal leasing along the trail, would help protect the scenic values, integrity of setting, and natural settings so that they remain relatively unaltered in those locations.

Cumulative impacts to visual resources under Alternative 2 would be very similar to Alternative 1. Proposed management guidance of Alternative 2 (limiting large-scale events, limiting OHV use, allowing camping by permit only, establishing VRM Class I management standards, no leasing, and a locatable mineral withdrawal) would result in cumulative beneficial impact to visual resources throughout the plan area. Adverse cumulative impacts to visual resources would be significantly reduced, except in the southern playa area where most large-scale events would be concentrated.

Wilderness Values

AFFECTED ENVIRONMENT

Portions of seven Wilderness Study Areas (WSAs) are within the planning area (see Table 3-7). Detailed descriptions of these wilderness areas are in Volumes III and VII, Nevada BLM Statewide Wilderness Report (USDI 1991). WSAs are public land blocks larger than 5,000 acres, natural in character, that have outstanding opportunities for solitude and/or primitive and unconfined recreation. No action can be taken that would impair the suitability of any of these areas for designation as Wilderness within the National Wilderness Preservation System. Congress will make the final determination as to whether any of these areas will become wilderness.

The Black Rock Desert WSA is adjacent to the plan area, sharing boundaries, and a small portion (93 acres) of the Selenite Mountains WSA is within the plan area. The small portion of East Fork High Rock Canyon WSA that is also within the plan area is managed by the Cedarville Field Office.

The Wilderness study process considered wilderness versus non-wilderness values in the Winnemucca Wilderness Recommendation EIS (USDI 1987). The BLM recommendations included on Table 3-7 were made using a public input process. Until Congress acts on these recommendations, the BLM is required to maintain wilderness characteristics on all land it manages within WSA boundaries.

All WSAs are now VRM Class I, which is the same as for designated Wilderness. The BLM Manual Handbook 8410-1, Visual Resource Inventory, provides guidance. All activities within WSAs must meet the Interim Management Policy non-impairment standard for Wilderness. In general, activities that protect natural values and do not impair Wilderness suitability are permitted. Activities judged impairing to Wilderness values must be modified to meet the standard, or are not allowed. Increased public use of the lands in and around WSAs increases the risk of adverse impacts to Wilderness resources.

Table 3-7. Wilderness Study Areas Within the Plan Area

WSA Name and Number	Recommendation	Approximate Acreage of WSA within Plan Area
Calico Mountain NV-020-019	0 acres - wilderness 67,647 acres - uses other than wilderness	30,720
High Rock Lake NV-020-007	14,480 acres - wilderness 47,902 acres - uses other than wilderness The recommended portion is north of Box Canyon (includes Fly Canyon, the Potholes, and rugged, colorful rim rock cliffs). These areas were recommended because of their distinct geology and scenic quality.	51,042
Pahute Peak NV-020-621	0 acres - wilderness 57,529 acres - uses other than wilderness	26,910
North Black Rock Range NV-020-622	0 acres - wilderness 30,191 acres - uses other than wilderness	1,260
East Fork High Rock Canyon CA-020-914	29,102 acres - wilderness 23,537 acres - uses other than wilderness Recommendation would provide wilderness designation to the East Fork of High Rock Canyon and surrounding uplands. This portion of the WSA contains regionally significant scenic, wildlife, cultural and historic values.	3,240
Little High Rock Canyon CA-020-913	17,183 acres - wilderness 33,768 acres - uses other than wilderness Wilderness recommendation acreage includes Little High Rock and McConnell canyons and the adjacent uplands and benches. Canyons have outstanding scenic, wildlife, and cultural/historic values.)	160
Selenite Mountains NV-020-200	0 acres - wilderness 32,041 acres - uses other than wilderness A very small portion (the western most corner along State Road 447) is within the proposed management area.	93
Total Area of all WSAs Within Plan Area		113,425

CONSEQUENCES OF NO ACTION ALTERNATIVE ON WILDERNESS VALUES

Managing for VRM Class I would not significantly affect WSAs under current management policies. The increasing recreational use of the entire plan area, particularly in view of the recent trends in dispersed use and some special permit events and unlimited OHV use, could increase encroachment and trespass into WSAs, leading to a loss of Wilderness values and characteristics.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON WILDERNESS VALUES

Increased BLM presence within the plan area should discourage some unauthorized OHV use, which would help protect Wilderness values.

CONSEQUENCES OF ALTERNATIVE 2 ON WILDERNESS VALUES

Measures proposed in Alternative 2 (limiting access, reviewing permitted events with greater consideration for resource protection, and increasing oversight) would provide more protection for WSA values than Alternatives 1 and the No Action.

CUMULATIVE IMPACTS ON WILDERNESS VALUES

Direct and/or indirect adverse impacts to WSA resources would continue to occur under each alternative. Cross-country vehicle limitations proposed under Alternatives 1 and 2 would reduce impacts. Illegal intrusion and vandalism may increase under No Action due to continued and increasing cross-country vehicle travel and reduced oversight. Impacts to WSAs, which are a non-renewable resource, could result in irreversible impacts.

Cultural Resources and Native American Values

AFFECTED ENVIRONMENT

Background

The following information is summarized primarily from three documents (Smith et al. 1983, McGuckian Jones 1980, and Lohse 1981). These documents should be consulted for more comprehensive information.

Numerous prehistoric archaeological sites with widely varying degrees of complexity, size, location, and densities have been identified within the plan area. These include rock shelters, occupation sites (with probable buried deposits), temporary camps, petroglyphs, hunting blinds, quarry sites, lithic scatters, and

pebble mounds. The **latter** site type may be associated with prehistoric water harvesting, native plant manipulation, or water fowl procurement.

The Black Rock Desert contains evidence of some of the oldest prehistoric occupation in the area, dating to as early as 10,000 to 12,000 years ago. Artifact assemblages found in the Black Rock Desert have led to speculation that big game hunting sites may exist in the area. Pleistocene megafauna (such as woolly mammoth and bison) sites in proximity to artifacts that may be associated with early occupation of the area have also been found in the vicinity of the plan area. These finds have generated considerable scientific interest in the area.

Historic events within the plan area have helped to mold and change the course of American history on a national scale. Captain John C. Fremont and Kit Carson, on their 1843-44 exploring expedition, traveled south through the plan area passing through High Rock Canyon, Fly Canyon, Soldier Meadow and the Black Rock Desert. Using maps and information from the Fremont Expedition, the Applegate brothers blazed the Applegate Trail from Oregon through the area in 1846. Peter Lassen, in turn, incorporated the Applegate Trail into his 1848 Applegate-Lassen cutoff from the California Trail (see Appendix D, Figure 2). This route followed the Applegate Trail north through the Black Rock Desert to Goose Lake and then branched off to the California goldfields. The route was erroneously advertised as a shortcut, luring nearly half of the 1849 gold seekers (as many as 20,000 people), along this desolate route. Hardships experienced by emigrants along the Applegate-Lassen Cutoff earned it the name of "The Death Route."

In addition to the Fremont and Applegate-Lassen routes, two cutoffs from the Applegate-Lassen Trail also traversed the Black Rock Desert. These were the 1852 and 1856 Nobles Routes. These routes reduced the length of the journey to California and provided additional water sources for travelers. Portions of the Applegate-Lassen Trail and 1856 Nobles Route were later used as freight routes. No physical traces of the Fremont expedition remain, but the route is well documented. Most of the Applegate-Lassen Trail in the management area has been superseded by 4-wheel drive vehicle trails and, in some places, graded roads. A few relatively unaltered trail remnants are still visible as are emigrant writings in Fly Canyon. The 1852 and 1856 Nobles Routes in the plan area have been superseded by modern vehicular routes in most places. The portions of these historic routes that traverse the playa have been obliterated.

Campsites along the Applegate-Lassen Trail within the plan area include Rabbithole Springs, Black Rock Hot Springs, Double Hot Springs (private land), and Mud Meadows. The Fly Canyon Wagon Slide, where the emigrants lowered their wagons down a steep precipice, is also an important feature of this trail. Noteworthy sites along the Fremont Route within the Black Rock Desert plan area include Mud Meadows, Black Rock Springs, and Razorback (Trego) Mountain. Notable sites along the 1852 Nobles Route in the plan area include Rabbithole Springs, and Black Rock Springs. Stops along the 1856 Nobles Route include Rabbithole Springs and Trego Springs. Great Boiling Springs (near Gerlach) and Granite Creek (north of Gerlach) were also stops along the 1852 and 1856 Nobles Route. Both of these sites are on private land just outside of the management plan boundary. Great Boiling Springs also served as a campsite for the Fremont Expedition.

Between 1859 and 1860, the (1856) Nobles Route was developed by F.W. Landers as part of the Honey Lake Wagon Road development project. Landers and his crew mapped the route and developed the road. They also dug out and expanded several springs, including Rabbithole Springs and Trego Springs. At Rabbithole Springs, the water supply was tapped and a split-stone culvert was set in cement to carry the water to a reservoir of solid masonry that held 80,000 gallons. At Trego Hot Springs, a large reservoir

was built and water in the springs was diverted to cool in the process of flowing to the tank. The Honey Lake Wagon Road superseded the old California and Oregon Trails during the 1860s.

Portions of the Nobles/Landers route were also incorporated into the 1862 Idaho Wagon Route, which went from Chico, California to Ruby City Idaho. This route followed the Nobles Route to Granite Creek and then went north through Soldier Meadow enroute to Idaho. The Nobles/Landers route received heavy use during the mining boom in Idaho in the 1860s. In addition to freight wagons, a weekly saddle-train carrying mail and passengers traveled this route. Also along the route were connections leading to the Humboldt Range boomtowns during the period of greatest mining activity (1860s and 1870s). During the 1860s, Granite Creek functioned as a stage station for these routes. Completion of the Central Pacific Railroad as far east as the "Big Bend" of the Humboldt River in 1867 caused use of the Black Rock wagon routes to drop off dramatically.

Following the Civil War, the United States created many military outposts in the West to absorb the standing army and protect mail and freight routes in an expanding country. An outpost of Camp McGarry at present day Soldier Meadow Ranch and Camp McKee at Granite Springs (both located on private land) were two such military establishments. Several of the buildings from the old outpost at Soldier Meadow are still standing and have been incorporated into the present-day Soldier Meadow Ranch. Camp McKee was basically a tent city, but two major stone foundations still remain at the Camp McKee/Granite Creek Station site.

By the 1870s, huge numbers of cattle, and later sheep, were driven throughout the region. These were followed by homesteaders. Some tried to farm low lands, and others were agents for large ranching operations. Their traces remain as wood and stone houses, foundations, irrigation systems and fences scattered throughout the plan area. Some of these are still in use by current ranching operations.

Historic mining features are another type of cultural resource in the plan area. The earliest known prospecting by non-natives in the plan area occurred in 1849 when James Hardin, a member of a wagon train passing along the Applegate Lassen Trail, collected ore samples that he believed to be lead, from the nearby Black Rock Range. Years later he had the ore assayed and found it to be very high in silver content. In 1858, he and a party of men tried unsuccessfully to relocate the lost silver source. A mill at Hardin City was built in the area in 1866 when it appeared that a silver ledge had been located, but nothing really ever came of this venture. Foundations of the small settlement of Hardin City still remain. Also near Paiute Peak in the Black Rock Range is the site where Peter Lassen and a companion, Edward Clapper, were murdered in 1859 while searching for the lost Hardin silver ledge.

Since these early mining attempts, prospecting for silver, gold, and opals has taken place in the plan area (see Affected Environment–Energy and Minerals). The remnants of these endeavors are prospects, shafts, adits, mining equipment, mining claim markers, small structures and foundations. Some of these mining ventures remain active to this day.

Between 1907 and 1909, the Western Pacific Railroad built a transcontinental line that passes east along the southern boundary of the management area. Gerlach and Sulphur were depots along this route. Gerlach was established in 1906 and named after Louis Gerlach, founder of the Gerlach Land and Cattle Company, which owned nearby ranches (Carlson 1974).

Empire, just south of the plan area, was settled in 1922. The town was built by the Pacific Portland Cement Company for employees who worked in the nearby gypsum mine. An aerial tramway

transported ore from the Selenite Range to the gypsum plant for processing. Remnants of this tramway are still visible.

During the World War II era, the Black Rock Desert served as a gunnery range for the military; old military bullet shells can still be found.

Existing Management

Management of cultural resources is mandated by numerous laws, including the Antiquities Act of 1906, the National Historic Protection Act, the Archaeological Resources Protection Act, and the National Environmental Protection Act. Procedures under these laws and regulation are Standard Operating Procedures.

A tri-state/district agreement between the Susanville, Lakeview, and Winnemucca Field Offices facilitates communication and cooperative efforts to manage and protect cultural resources in these three adjacent districts.

In 1992, Congress designated the California Trail as a National Historic Trail. Two emigrant trails in the plan area (Applegate-Lassen Trail and the Nobles route) are cutoffs from the California Trail and are included in this congressional designation. The National Park Service has prepared a Comprehensive Management and Use Plan/Final Environmental Impact Statement for the Oregon, California, Mormon Pioneer and Pony Express National Historic Trails (USDI/NPS 1999). This plan includes management recommendations for the Applegate-Lassen Trail and Nobles Route.

The portion of the Applegate-Lassen Trail that passes through the Black Rock Desert is the longest existing segment of emigrant trail which the public can travel surrounded by virtually the same vistas witnessed by the gold seekers in 1849. In recent years, two wagon trains have traveled along the trail, reenacting the historic journey. It is anticipated that this use would continue in the future. Numerous other groups and individuals have hiked, ridden, and/or driven portions of the trail. The BLM has made available to the public maps of the trail route and other historical information on the trail. A marker has been erected at the Lassen-Clapper Murder site where Peter Lassen, founder of the cutoff, and his companion, Edward Clapper, were murdered in 1859. In addition, Trails West and the Oregon California Trails Association (OCTA) have marked important points along the Fremont, Applegate-Lassen, and Nobles Routes.

A one-mile corridor along the Applegate-Lassen Trail was listed on the National Register of Historic Places on December 18, 1978. The outpost of Fort McGarry at Soldier Meadow and the Lassen/Clapper murder site are also on the National Register of Historic Places.

The integrity of setting along the trail route was a critical element of the National Register listing. Although the National Register listing requires BLM to take into account effects of federally authorized and/or funded actions on the National Register values of the trail (including the integrity of setting), this listing does not guarantee complete protection. Because of the unique qualities of the setting along the Applegate-Lassen Trail, interest groups have advocated preservation of the viewshed of the trail. Land use plan decisions for lands actions (see Lands and Realty--Affected Environment) provide some protection for the viewshed of the Applegate-Lassen Trail. A corridor along the trail is also protected from geothermal leasing (see Energy and Minerals--Affected Environment). However, there is no such protection from other minerals development. The trail, as well as its setting, is particularly vulnerable to

notice-level (less than 5 acres) exploration activities. The BLM does not authorize these activities and, therefore, no environmental analysis is undertaken. Even in the case of authorized actions, after the effects on the National Register values of the trail are taken into account, an adverse affect on these values could be accepted and the Proposed Action could be permitted.

Illegal collection and excavation of archaeological resources have long been a problem in the Black Rock Desert. The lack of law enforcement capabilities and cultural resource staff seriously restricts the ability of BLM to protect cultural resources from theft, vandalism, and inadvertent destruction. The increasing popularity of the Black Rock Desert as a recreation destination for both individuals and organized events, some with large numbers of participants, escalates the possibility of cultural resource damage.

Direct and indirect loss of significant portions of the resource base through erosion, looting and vandalism is occurring at an unknown, but possibly significant rate. There is considerable physical evidence from off-highway vehicle (dirt bikes and all-terrain vehicles) in formerly untouched areas along the Applegate-Lassen Trail. Terrain surrounding each of several springs along the trail shows concentrated impact. Off-Highway vehicle use also threatens prehistoric sites. The Applegate-Lassen Trail, as well as hot springs and landmarks along the trail (such as the Black Rock itself), have numerous OHV tracks on and around them. The same is true of Trego Hot Spring and Coyote Spring, which are located along the 1856 Nobles Route (see Appendix D, Figures 2, 5 and 13).

Hot springs in the plan area are the focus of recreational use, by casual users and participants of large events alike. In addition to the OHV activities noted above, uses include bathing and camping. Since hot springs in the planning area are important historic, prehistoric and Native American sites, recreation use potentially threatens these values. Black Rock Hot Spring has been subjected to unauthorized siphoning and piping of the water. Trenching in the area may have destroyed cultural resources. Mud has been removed from Trego Hot Springs for sculptures. Recreational rock-hounding in the Black Rock Range also threatens prehistoric sites, since rock hounders sometimes fail to differentiate between natural specimens and cultural artifacts.

Soldier Meadow is also being adversely impacted by heavy recreational use involving artifact collecting and modern camping on cultural resources. In this area, several locations of hot spring flow channels have been dammed up for bathing. The Soldier Meadow Activity Plan (SMAP) includes recommendations for managing prehistoric, historic and Native American resources in the Soldier Meadow area, as well as recommendations for public education and interpretation of cultural resources.

Most of the plan area has not been surveyed for cultural resources. Estimates of the significance of known sites and districts have been made from less than 10 percent of the area that has been inventoried.

Ethnography

The Black Rock Desert is within the area traditionally used by the Northern Paiute or Paviotso. Ethnographer O.C. Stewart (1939, 1941) identified 21 Northern Paiute bands. The territories used by these groups were generally named after major food sources or other dominant physical characteristics of each specific area. Boundaries between these districts were usually delineated by mountain range crests and hilltops. However, the boundaries were somewhat vague and mutable, and there appears to have been free band movement between territories (Stewart 1939, p. 127, and Fowler 1989, p.2 and 1992, p.7-8). The northern portion of the management area falls within the area Stewart identified as being used by the Agaipaninadokado (fish lake eaters) and/or Moadokado (wild onion eaters) of Summit Lake. The

southern portion lies within the area traditionally used by the Kamodokado (jack rabbit eaters) of Gerlach, Nevada. The Kamodokado area reportedly included the territory that others did not claim. The area of the Sawadokado (sagebrush mountain dwellers) of Winnemucca also extended into the southwest portion of the area. Paiutes from other areas likely passed through the plan area on their way to fish at Summit Lake or to hunt (Stewart 1939, pp.135-137).

The Northern Paiute were hunting-gathering bands that generally traveled seasonal rounds in small family groups subsisting on a variety of plant foods, insects, small game, and fish. Game animals available to Native Americans in the plan area included antelope, rabbits, bighorn sheep, mule deer, and a variety of small mammals, reptiles and birds. Lahontan Cutthroat trout was procured at nearby Summit Lake. Lahontan Cutthroat trout, as well as cui ui, were also available at Pyramid Lake south of the Black Rock Desert plan area. Antelope and rabbits were often hunted communally. Seeds and roots were the primary plant foods gathered. Plant and animal products were also used for clothing, shelter, and other functional and ceremonial articles. Medicinal plants were used for healing purposes. Lithic sources provided materials for tool manufacture. Some minerals were also used medicinally and/or ceremonially. A more complete summary of the plants and animals used by the Northern Paiute that occur in and near the management area, as well as other ethnographic information, is provided in Lohse (1981).

Interactions of Native Americans and Non-natives

Events occurring in and near the plan area during the mid-1800s dramatically affected the lives and culture of Native Americans who had traditionally inhabited this territory. Emigrant trains passing through the planning area brought the first impacts to the traditional lifeways of the Northern Paiute. Emigrant trains utilized water sources and associated vegetation and wildlife that were critical resources for the Northern Paiute. The Paiutes retreated to more secluded areas, occasionally appropriating a horse or other stock from the passing emigrants for consumption purposes. As surrounding areas were developed, the resources on which the Indians depended were increasingly adversely impacted, making it more difficult for them to pursue their traditional lifestyle. Some Indians supplemented their hunting and gathering lifestyle by selling firewood, pine nuts, pelts, baskets, and other items, while others found employment at local ranches. Some Indians acquired horses and, forming mounted bands, continued their hunting and gathering lifestyle. Reportedly, some Indians also supplemented their supplies by rustling livestock and raiding settlements and passing freight wagons.

One group of Native Americans actually was among the gold seekers who traveled the Applegate-Lassen Trail to the California goldfields. Seeking to improve their fortunes, a number of Cherokees departed in wagons from Oklahoma in 1849. In fact, the Applegate-Lassen Trail was referred to by some as the "Cherokee Cutoff." A waybill entitled "the Cherokee Guide" apparently originated with the Cherokees. The pamphlet provided directions and distances to various points along the trail and was referred to by some of the emigrant diarists. The Cherokees were respected by the other emigrants for their survival skills and ability to interact peaceably with the Native Americans occupying the lands the wagon trains passed through (Fletcher 1995; Bruff 1949; Don Buck, personal communication).

The murder of Peter Lassen and Edward Clapper occurred near Paiute Peak on the west side of the Black Rock Range in 1859. Although the assailants were unknown, historical accounts and a monument at Lassen's grave in Susanville, California attributed the murder to Indians. The marker at the murder site and an interpretive kiosk at the Lassen Clapper gravesite in Susanville now reflect the unsolved murder mystery. Historically, however, this incident was one of several occurrences that attributed to Native

Americans and led to growing hostility between White settlers and Indians. Hostilities eventually escalated into the Pyramid Lake War, which occurred south of the proposed plan area in 1860.

During the early 1860s, raids on freight wagons and stations on the Nobles Route were attributed to mounted bands of Paiutes labeled by some as "Bannock" Indians. The Black Rock Desert was the domain of one such mounted band led by a Paiute named Black Rock Tom. Black Rock Tom was distinguished by the distinctive white horse that he rode (Wheeler 1979).

In 1865 and 1866, native and non-native hostilities intensified in and near the plan area. Early in 1865, the murders of two white men on the Nobles Route in the Smoke Creek Desert were blamed on Indians. The cavalry led by Captain Wells responded by attacking an encampment of Paiutes at the south end of Winnemucca Lake. These were members of Old "Chief" Winnemucca's band (Wheeler 1978). This band frequented the Smoke Creek Desert (Stewart 1939) and apparently were blamed for these murders and other misdeeds. Chief Winnemucca was off with a hunting party at the time of the attack and only women, children and elderly members of the band were present in the encampment. According to Sarah Winnemucca, daughter of Old Winnemucca, her mother and baby brother were among the 29 Paiutes massacred by the Calvary (Canfield 1983, Winnemucca Hopkins 1883).

In 1865, a furious battle ensued between Black Rock Tom's band and the cavalry in the Black Rock Range, probably in Paiute Canyon at the northeast end of the range. Although Black Rock Tom's band initially ward off the Calvary, in a second attempt the cavalry captured and killed most of the band. Black Tom himself escaped but subsequently was killed at Big Meadows (present day Lovelock). Another Paiute, Captain Sou of Unionville, actually assisted the cavalry in the Paiute Canyon battle with the hope that his cooperation would help end the hostilities between Indians and whites (Wheeler 1979).

The Fish Creek Valley Battle occurred on the east side of the Black Rock Range, probably in present day Battle Creek, in 1866. The battle, fought in a dense freezing fog, was the last major conflict in the Black Rock Desert. In 1911, minor hostilities flared up near the plan area when a group of Indians led by Shoshone Mike Dagget was accused of killing a group of stockmen in Little High Rock Canyon. The band was tracked across northwestern Nevada by a posse, where they were all killed or captured near Kelley Creek, north of Golconda.

Reservations and Colonies

Many contemporary Paiutes live on reservations, colonies, or rancharias outside of the management plan area boundaries. The closest reservation to the plan area is the Summit Lake Paiute Reservation, located at Summit Lake, approximately 6 miles north of the northern boundary of the management plan area. The reservation was established in 1913 and consists of approximately 11,000 acres, including the historical site of Fort McGarry. Pyramid Lake Reservation, established in 1874, is approximately 20 miles south of the management plan area.

Native American Coordination

Concerns from the Summit Lake Paiute Tribe, Pyramid Lake Paiute Tribe, and the Lovelock Paiute Tribe were sought through scoping letters and public meetings regarding the plan. Also, several Paiute Tribes were invited on a field trip of the planning area. Those invited included the Susanville Rancharia, Nevada Indian Environmental Coalition, Pyramid Lake Paiute Tribe, Cedarville Rancharia, Fort Bidwell Reservation, Fort McDermitt Reservation, Lovelock Paiute Colony, Summit Lake Reservation, and

Winnemucca Colony. The field trip, held on November 17, 1997, was attended by representatives of the following tribes: Pyramid Lake Paiute Tribe, Summit Lake Paiute Tribe, Lovelock Paiute Tribe, and Walker Lake Paiute Tribe. The BLM subsequently sent letters of invitation to a meeting at the Winnemucca BLM Field office on April 21, 1998. The invitation letters were sent to the same tribes as the November field meeting, as well as Walker Lake Paiute Tribe. Present at this meeting were a representative from the Summit Lake Tribe and two elders from the McDermitt Tribe. The purpose of this meeting was to discuss the Proposed Action and alternatives and to learn of any concerns. A meeting for the same purpose was held with the Pyramid Lake Tribal Council on May 1, 1998.

Native Americans consulted stated that all water was considered sacred. Hot springs in particular were identified as sacred areas where Native Americans bathe and pray for sickness to be taken away. One Native American stated that when obsidian was found in association with springs, the place was considered to be particularly sacred. The mud from hot springs was also considered to have curative values. One of the representatives from the Lovelock Colony said that she believed Trego Hot Springs was the hot springs her grandmother described stopping at to bathe and pray prior to hunting antelope. Lovelock Paiutes also indicated that their ancestors told them stories of traveling from Lovelock to Summit Lake to fish. Undoubtedly, they would have passed through the management area enroute to their destination.

During tours of the plan area, Native Americans noted medicinal plants growing at some of the springs. They expressed dismay at the amount of trash at some springs and concern that there were no toilets. One tour participant suggested that camping at the springs could be controlled through a permit system with only a limited number of permits issued. One participant recommended that Tribal police might be able to assist with law enforcement needs.

Native Americans indicated that public education was needed. Video and brochures were recommended mediums for public education. It was emphasize that public education information should take into account that the land emigrants traveled through was the home of Native Americans whose lives were impacted by this event.

Concern was expressed that access to sacred sites, including hot springs, might be closed by OHV closures. Summit Lake Tribe expressed concerns about archeological sites in the management area. They considered prehistoric sites to be remnants of their ancestry and were concerned about site vandalism and other impacts. Summit Lake Tribe expressed interest in cooperative management of the cultural resources in the area.

Following release of the Draft Sonoma-Gerlach and Paradise-Denio Management Framework Plan Amendment and Draft Environmental Impact Statement (USDI 1998c) during the public comment period, the BLM met with the Summit Lake Paiute Tribal Council at their request to discuss the document. The Fort McDermitt Tribe, Cedarville Rancheria, Susanville Rancheria, Lovelock Tribe, Fort Bidwell, and Pyramid Lake Tribes were also called (on January 11 and 12, 1999) during the public comment period. The Tribes were asked if they had comments or would like the BLM to make a presentation. The Tribes were also offered an additional 30 days (until February 15, 1999) to review the document, if necessary. None of the Tribes, except Summit Lake, had comments on the document or requested a meeting, although one Tribe identified a sacred area outside the plan area.

In the meeting with Summit Lake, concerns were expressed about the Burning Man Event. The Tribe was also concerned about hunters leaving carcasses and refuse behind in their camps, as well as shooting

firearms in camp and endangering the public. They felt that the area warranted more rangers and that the area should be included in a minerals withdrawal to protect cultural resources sites, particularly with the lack of cultural inventory data. They were particularly concerned about hot springs protection. A suggestion was offered that SeaBees from Fallon may be able to complete some plan implementation work.

The Summit Lake Tribe was also the only Tribe to comment by letter on the draft document. The Tribe generally supported Alternative 2 (Resource Protection) of the September 1998 Draft EIS, with some modifications, including restrictions on all recreation use around hot springs, restrictions on special recreation event size, temporary-only visitor services, cultural resources managed for conservation use, defining the ratio of BLM law enforcement to special event use, consideration of the effect of geothermal development on ground water, and more aggressive control of noxious weeds. The Tribe also strongly felt a need for more Nation-to-Nation consultation between the BLM and the Summit Lake Tribe. The BLM tried to respond to this request, offering to meet with the Tribal Council, but the meeting has not yet taken place due to the Council's full agenda. All tribes will again be offered the opportunity to meet individually with the BLM during the public comment period for this revised draft EIS.

Several individual Tribal members wrote letters during the comment period. Comments were similar to those of the Summit Lake Tribe, generally supporting Alternative 2 (Resource Protection) of the September 1998 Draft EIS. They supported cooperative management of cultural resources with the Tribe, cultural resource inventory, closing of hot springs except to non-vehicular permitted use, more Native American consultation; they opposed OHV activity because of its potential to damage sacred sites. In general, Native American comments reflected a value for the natural and cultural resources in the plan area and the need to protect them.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON CULTURAL RESOURCES

Note: In the following discussion of consequences, Cultural Resources and Native American Values are considered separately.

Under the No Action Alternative, cultural resources would continue to be at risk for degradation and damage by unlimited OHV use and the lack of inventory data. Short and long-term adverse impacts to cultural resources would continue to occur from unlimited OHV use and unauthorized excavation, collection, and notice-level mining activity. Short and long term adverse impacts to the integrity of setting of the Applegate-Lassen Trail would occur from OHV use, mining, and recreation activities.

Allowing special recreation events to be permitted throughout the plan area would increase the probability of adverse impacts to cultural resource sites and temporary impacts to the integrity of setting of the Applegate-Lassen Trail. Permitting recurring events in different locations would increase the BLM workload related to NEPA and NHPA Section 106 and allow less emphasis on proactive management of cultural resources in the plan area. Fees from special recreation permits may be used to implement proactive management objectives beneficially impacting cultural resources. Evaluating special recreation permit proposals to remove natural resources on a case-by-case basis would result in protection of cultural resources from inadvertent destruction. BLM law enforcement presence at permitted events would help to enforce protective permit stipulations and to protect cultural resources in the surrounding vicinity.

Unlimited OHV use would continue to adversely impact the viewshed of the Applegate-Lassen Trail as well as other cultural resource sites. Lack of limitations on travel on intact trail segments of the Applegate-Lassen and Nobles Route could result in inadvertent damage to these traces. Allowing mechanized travel on the currently well traveled portions of these historic trails would enable the public to continue to relive this important episode of history.

Conducting monitoring and having BLM staff and law enforcement presence during times of heavy use (holiday weekends and large events) would help protect cultural sites from recreation use and also prevent unauthorized collection/excavation of cultural resources. The lack of inventory data would continue to inhibit BLM's ability to focus monitoring efforts on National Register eligible sites. Also, limited funding for monitoring, patrol, and enforcement would restrict BLM's capability to protect cultural resources. Limited public outreach efforts would continue to help educate the public and help to prevent damage to cultural resource sites in the plan area. Not establishing a primitive campground could cause campsites around hot springs to be used more intensely, resulting in possible adverse impacts to cultural sites in these areas from inadvertent disturbance and unauthorized collection.

Lack of a comprehensive research design and inventory would limit BLM's ability to manage cultural resources in the plan area. Inventories would be piecemeal, related to project-specific compliance, and would not adequately reflect the diversity of resources and those in need of protection and other management. Some assistance in implementation may be provided by volunteers and individual researchers, as well as by project-specific funding.

Although the four VRM classifications (I, II, III, and IV) would be used to analyze VRM, they would not be used to manage the setting of the Applegate-Lassen Trail. Since impacts to National Register values, including the setting of the Applegate-Lassen Trail, would be considered for all discretionary actions, decisions would be made on a case-by-case base. Although it is likely that adverse impacts to cultural resources in proposed project areas would be avoided or mitigated through the Section 106 process, if avoidance or mitigation were not feasible, adverse impacts to cultural resources could occur.

Acquisition of private lands would beneficially impact cultural resources, since adverse impacts to cultural resource sites and the viewshed of the trail would be avoided. Disposal of public lands within the viewshed could adversely impact the viewshed of the trail unless conservation easements or other protective covenants were provided. Land use plan decisions restricting rights-of-way north of the railroad tracks would continue to protect the integrity of setting of the Applegate-Lassen Trail.

The no-surface occupancy stipulations for geothermal leasing in the current land use plan would continue to protect a corridor along the Applegate-Lassen Trail from geothermal development. However, geothermal development could still occur within the viewshed of the trail outside the corridor, thereby adversely impacting the integrity of setting of the trail. Geothermal drilling could also still occur at Trego Hot Springs, possibly adversely impacting this Nobles Route campsite. The effects of drilling outside the "no surface occupancy" areas on hot springs are unknown.

Mining activities disturbing less than five acres would continue to occur without an environmental analysis or mining plan of operations, potentially adversely impacting the viewshed of the trail and other cultural resources. Locatable and salable minerals development could adversely impact the viewshed of the Applegate-Lassen Trail. If the proposed project could not be relocated to avoid conflicts, historic sites such as Hardin City as well as prehistoric sites, could also be adversely impacted by minerals

development. Some adverse impacts could be mitigated through reclamation, data recovery, or other treatment measures.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON CULTURAL RESOURCES

In general, cultural resources would be identified, managed and protected. Interpretation of historic and prehistoric resources for the public would be emphasized and scientific research would be encouraged. Although the proposed action would help to protect cultural resource sites, short and long-term adverse impacts could continue to occur in instances of unauthorized OHV use and illegal collection/excavation activities. In the long term, Alternative 1 (Proposed Action) would help preserve the integrity of setting of the Applegate-Lassen Trail and other historic sites. There could be short-term adverse impacts from mining. Also, any unauthorized OHV use could adversely impact the integrity of setting in both the long and short term.

Authorizing recurring recreation events in the same areas as in the past, and generally authorizing new events in the southern playa area, would minimize adverse impacts to the integrity of setting of the Applegate-Lassen Trail. This use restriction would also reduce the potential for illegal collection of cultural resources and surface disturbance to cultural sites in the vicinity of special recreation events. In addition, the cultural workload pertinent to NEPA and Section 106 NHPA would be reduced, allowing more focus on proactive management of cultural resources in the plan area. Fees from special recreation permits could be used to implement proactive management objectives, beneficially affecting cultural resources. Prohibiting removal of natural resources as a condition of special recreation permits would prevent inadvertent adverse impacts to cultural resources. The BLM law enforcement presence at permitted events would help to enforce protective permit stipulations and protect cultural resources in the surrounding vicinity.

Limiting OHV activity would help protect the viewshed of the Applegate-Lassen Trail, as well as other cultural resource sites threatened by OHV activity. Closing and rehabilitating casual-use trails would return the landscape in these areas to its natural condition, thereby enhancing the integrity of setting of the historic trails. Closing intact historic trail traces of the Applegate-Lassen and Nobles Route to OHV use would help preserve these important remnants. Allowing mechanized travel on the currently well-traveled portions of these historic trails would enable the public to continue to relive this important episode of history.

Most sand mounds/dunes in the southern playa area where OHV travel may be allowed are outside the viewshed of the Applegate-Lassen Trail. Some mounds/dunes are within the southern extent of the trail viewshed. Although these mounds/dunes would be adversely impacted by OHV activity, allowing OHV use in this area is anticipated to reduce the amount of unauthorized OHV use in portions of the viewshed closer to the trail. Since the mounds/dunes would be inventoried for cultural resources, and National Register eligible cultural resource sites would be avoided or mitigated, no adverse impacts to such sites are anticipated.

Limiting vehicle-related camping would help protect cultural sites from inadvertent damage. Establishing a primitive campground in the vicinity of Flowing Wells would reduce the likelihood for camping near cultural sites.

Monitoring and patrol of cultural resource sites and public education efforts would reduce the likelihood for unauthorized collection, excavation, and vandalism, thereby reducing adverse impacts to cultural resource sites. Lack of funding for monitoring, patrol and enforcement, however, would continue to limit BLM's ability to protect cultural resources. Public education efforts would also enhance public understanding and appreciation of these resources. *Tread Lightly!* and other public education outreach, as well as volunteer efforts, would help reduce adverse impacts to the viewshed of the Applegate-Lassen Trail and other cultural values. The visitor contact station would provide general information on cultural resources; a visitor center would provide more comprehensive and dynamic interpretive experiences for the visitor. The visitor center would provide opportunities for displays on the emigrant trails, prehistoric resources, and the paleoenvironment. This would allow for a more meaningful and enjoyable visitor experience and encourage respectful treatment of cultural and natural resources in the plan area.

Managing most of the Applegate-Lassen Trail viewshed to VRM Class II and limiting adverse impacts to other aspects of the environment would help preserve the setting of the Applegate-Lassen Trail. Managing trails and other sites for public use and interpreting them using non-intrusive methods that meet VRM Class II standards would enhance the visitor experience while preserving the setting of the Applegate-Lassen Trail. Allowing cross-country access for research projects in closed and limited areas by permit only would allow opportunities for scientific research while protecting cultural sites and the setting of the Applegate-Lassen Trail from damage associated with access.

The National Desert Trail would provide opportunities for the public to experience cultural and natural resources in the plan area. If the trail is designed to avoid significant cultural sites and protective information about cultural resources is included in trail brochures, adverse impacts to cultural resources should be minimal.

Posting of protective signs at Hardin City and interpreting the site would help protect the site. Implementation of the treatment plan would retrieve the information potential of this site.

Development and implementation of a historic context, research design, and sampling strategy would compile known cultural information in the plan area. These activities would also provide a framework for evaluating the significance and management needs of various classes of sites, as well as a strategy for sampling a full spectrum of environmental contexts. Site recordation and evaluation of sites would document important site information and enable the BLM to focus protection efforts on those National Register eligible sites having threats to their integrity.

Seeking partnerships with universities, researchers, Native Americans, and others; encouraging volunteer participation; seeking challenge cost-share monies and grants; and utilizing fees collected from special recreation events would help to fund and implement these efforts. However, with current staffing and funding levels, implementation would be phased and would take place gradually over a number of years.

Managing some sites for conservation use would preserve representative samples of sites. Encouraging scientific use would augment knowledge of the area's cultural history. Information gathered could be incorporated into interpretive efforts, thereby benefitting the public.

Any future acquisitions of private lands within the viewshed of the Applegate-Lassen trail would provide the BLM with management authority for these areas, helping to preserve the integrity of setting of the trail. Acquisition of lands that include other significant cultural resources would beneficially impact cultural resources because of increased potential for expanding scientific knowledge and/or interpretive

possibilities. However, such acquisitions would also increase management responsibilities and associated workloads. Disposal of public lands within the viewshed would not adversely impact cultural resources if impacts to cultural sites and to the Applegate-Lassen Trail viewshed were avoided and/or mitigated through data recovery, conservation easements, or other means. Restrictions on utility facilities and communication sites would preserve the integrity of setting of the Applegate-Lassen Trail. Impacts from commercial and noncommercial activities would not adversely impact cultural resources because such activities would generally be temporary in nature, resulting in little or no disturbance and/or would be mitigated to VRM II.

Proposed reclamation, no leasing, "no surface occupancy," compliance with VRM II standards, and other mitigation measures for locatable, salable, and leasable minerals in the plan area would help protect the Applegate-Lassen Trail, Trego Hot Springs, Rabbithole Springs and the viewshed of the Applegate-Lassen Trail. These management guidelines would also protect other cultural resources in these areas. Significant cultural resources would be protected from geothermal, oil, and gas leasing within the Soldier Meadow ACEC boundary. Effects of geothermal drilling outside of the no leasing/"no surface occupancy" areas on hot springs are unknown.

Pursuing the minerals withdrawal for a 1-mile corridor along the Applegate-Lassen Trail (0.5 mile both sides) would protect the trail and the portion of the trail setting along that corridor from mineral exploration and/or development. Prehistoric and other historic sites within this area would also be protected from mining-related development. The 3,500-acre proposed mineral withdrawal in Soldier Meadow would also protect important cultural sites.

In areas not withdrawn from mineral entry, mining operations within the viewshed of the trail that comply with VRM II standards during operation would have no adverse impact on the viewshed of the trail. Since mining operations would be required to mitigate to VRM II during reclamation, there would also be no adverse impacts to the setting of the trail following completion of reclamation efforts. If mining operations within the viewshed of the trail cannot comply with VRM standards during operation, then the operation would have an adverse effect on the trail setting. Consultation with the Nevada SHPO would be required and mitigation measures would be considered. Since large portions of the Cassidy Mine and Southern Calico Mountains ADIs are within the viewshed of the Applegate-Lassen Trail, adverse impacts to the integrity of setting of the trail could occur during the operation phase. However, these impacts would be mitigated to VRM II during the reclamation phase.

Since proposed plans of operations would be inventoried for cultural resources, and adverse impacts to significant cultural sites other than the emigrant trails would generally be avoided or mitigated, adverse impacts to cultural resources other than the emigrant trails are not anticipated. However, if the impacts cannot be mitigated, adverse impacts would occur and consultation with SHPO would be required.

In areas not withdrawn from mineral entry, if a mining notice operator is notified within 15 days that significant cultural resources are present, the operator could not impact these resources until they were mitigated. Because most of the plan area has not been inventoried for cultural resources, and cultural inventories are not required for notice-level activities, unknown cultural sites could be disturbed or destroyed. Although notice-level activity operators would be encouraged to conform to Class II VRM during operation, the operators could not be required to meet this standard. Consequently, the setting of the Applegate-Lassen Trail could be adversely impacted during the operation phase. However, these impacts would be mitigated to VRM II during the reclamation phase, resulting in no adverse impact.

Mining-related surface use and occupancy would be managed to VRM II, and therefore would not adversely impact the viewshed of the Applegate-Lassen Trail.

CONSEQUENCES OF ALTERNATIVE 2 ON CULTURAL RESOURCES

Alternative 2 would place emphasis on preservation and conservation of cultural resources. There would be a beneficial impact on cultural resource sites and the setting of the Applegate-Lassen Trail in both the short and long term. However, some short-term and long-term adverse impacts could continue to occur from illegal OHV use and illegal collection and excavation.

Authorizing yearly recreation events in the same areas as authorized in the past, and generally authorizing new events in the southern playa area, would minimize adverse impacts to the integrity of setting of the Applegate-Lassen Trail and reduce indirect adverse impacts (such as illegal collection and surface disturbance) to cultural sites near special recreation events. Authorizing recurrent recreation events in the same areas would also reduce NEPA and Section 106 NHPA-related work and allow more emphasis to be focused on proactive management of cultural resources in the plan area. Fees from special recreation permits may be used to implement proactive management objectives benefitting cultural resources. Fee collection methods proposed under this alternative would yield more funds for this purpose. Prohibiting removal of natural resources under special recreation permits would prevent inadvertent adverse impacts to cultural resources from removal of natural resources such as soil and water. BLM law enforcement presence at permitted events would help to enforce protective permit stipulations and would help to protect cultural resources in the surrounding area.

Establishing designated camp areas to be made available by permit only would limit adverse impacts to cultural resources. Closing the plan area to OHV use would beneficially impact the Applegate-Lassen Trail because it would return the viewshed of the trail to a more natural state and protect intact historic trail traces. It would also beneficially impact other cultural resource sites in the plan area because they would be protected from inadvertent destruction by OHV use. Allowing mechanized travel on the currently well traveled portions of these historic trails would enable the public to relive the emigrant experience while limiting the adverse impacts to the historic trail and historic campsites.

Posting of protective signs at Hardin City and interpreting the site would help protect the site. Implementation of the treatment plan would retrieve the information potential of this site.

Development and implementation of a historic context, research design and sampling strategy for the plan area would compile known cultural information. It would also provide a framework for evaluating the significance and management needs of various classes of sites and a strategy for sampling a full spectrum of environmental contexts. Site recordation and evaluation of sites would document important site information and enable the BLM to focus protection efforts on threatened National Register eligible sites.

Seeking partnerships with universities, researchers, Native Americans, and others, encouraging volunteer participation, and seeking challenge cost share monies and grants as well as utilizing fees collected from special recreation events would help to fund and implement these efforts. However, with current manpower and funding levels, implementation would necessarily be phased and would take place gradually over a number of years.

Monitor and patrol of cultural resource sites and public education efforts would reduce adverse impacts to cultural resource sites from unauthorized collection, excavation, and vandalism. Public education efforts would also enhance the public's understanding and appreciation of these resources. However, lack of funding for monitor, patrol and enforcement would continue to limit the BLM's ability to protect cultural resources. *Tread Lightly!* and other public education efforts, as well as volunteer efforts, would help reduce adverse impacts to the viewshed and other cultural resources. The visitor contact station would provide general information on cultural resources and protection, whereas a visitor center would provide more comprehensive and dynamic interpretive experiences for the visitor. The visitor center would provide opportunities for displays on the emigrant trails, the prehistoric resources, and the paleoenvironment. This would allow for a more meaningful and enjoyable visitor experience and encourage respectful treatment of cultural and natural resources in the plan area. Establishing a primitive campground in the vicinity of Flowing Wells would take the pressure off of campsites in the vicinity of cultural sites.

Restricting adverse impacts to the viewshed to VRM Class I would help preserve the integrity of setting of the Applegate-Lassen Trail.

Beneficial impacts could occur from acquisition of private lands included in the viewshed or which include cultural resource sites.

Cultural resource sites and the viewshed of the Applegate-Lassen Trail would be protected from adverse impacts from locatable minerals exploration and development because of the locatable minerals withdrawal. Mining could still occur on existing claims. Although some adverse impacts could occur to the viewshed of the Applegate Lassen Trail in existing claim areas during the operation of the mine, there would be no adverse impacts following reclamation, since this would be to Class I VRM. Adverse impacts to other cultural sites would be avoided or mitigated. Adverse impacts to cultural resources could occur from notice-level operations on existing claims. Adverse impacts to the setting of the Applegate-Lassen Trail would be mitigated during the reclamation phase. No adverse impacts would occur from salable minerals, because salable materials would be allowed only from Blue Pit. The Blue Pit is an existing pit that is not visible from the Applegate-Lassen Trail and, therefore, does not impact the integrity of setting of the trail. Maintaining the visual setting at VRM Class I standards would avoid adverse impacts to trail setting.

Prohibiting geothermal, oil, and gas leasing would protect the viewshed of Applegate-Lassen Trail, as well as hot springs associated with historic campsites along Applegate-Lassen Trail and at Trego Hot Springs, a historic site on the Nobles Route.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON NATIVE AMERICAN VALUES

Management activities of the No Action Alternative (such as considering Tribal recommendations in land use planning, Native American consultation, involving tribes in cooperative management of traditional cultural properties, and sharing data on a case-by-case basis) would help protect resources valued by Native Americans.

Tribal resources would benefit from BLM coordination specific to noxious weed control through the BLM Nevada Weed Management Strategy. Control of noxious weeds on public lands within the plan area would inhibit the spread of weeds onto Summit Lake Reservation.

The unlimited OHV use and the limited public education, monitoring and patrol efforts of the No Action Alternative could result in some adverse impacts to sacred sites. Beneficial impacts would occur if private lands having sacred sites were acquired by the BLM. If lands having sacred sites were disposed of by the BLM, adverse impacts could occur. However, these impacts could be avoided by removing lands with sacred sites from land disposals or through imposing conservation easements.

The no-surface occupancy stipulations for geothermal leasing along the Applegate-Lassen Trail would protect hot springs along the Applegate-Lassen Trail from development. However, geothermal drilling could still occur at Trego Hot Springs. This type of drilling in and around the area could reduce or eliminate the flow of hot spring water, resulting in adverse impact to the hot springs which are valued by Native Americans. Adverse impacts to sacred sites could also occur from locatable mineral exploration and development activities. Although leasable and salable minerals exploration and development is discretionary, adverse impacts could occur if sacred sites are not avoided. If avoidance is not feasible, mitigation of impacts to sacred sites is often not possible. However, inclusion of plants used by Native Americans (particularly medicinal plants) in reclamation seed mixes would result in revegetation of these valued resources.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON NATIVE AMERICAN VALUES

Guidelines of Alternative 1 (Proposed Action)(such as involving Tribes in cooperative management of traditional cultural properties, Native American consultation, considering Tribal recommendations in land-use planning, developing a cultural resource data-sharing agreement with Tribes, considering revegetation with Native Plants in reclamation efforts and managing traditional cultural properties to VRM II) would help to protect areas of Native American concern.

Tribal resources would benefit from BLM coordination specific to noxious weed control through the BLM Nevada Weed Management Strategy. Control of noxious weeds on public lands within the plan area would inhibit the spread of weeds onto Summit Lake Reservation.

The inventory, monitoring, and patrol of cultural resource sites would help identify and protect cultural resources. Since no additional funding for this purpose is available, beneficial impacts would depend on the number of grants, partnerships, and other forms of assistance that can be obtained.

Identifying, monitoring, and conducting patrol of Native American sites and public education efforts would afford these sites protection from destructive activities. Incorporating Native American perspectives and information into public educational materials would broaden the public's understanding and appreciation of Native American history in the plan area and help to protect natural and cultural resources valued by the Indian people. The Phase 1 Visitor Contact Center could provide limited general information on Native American history. The Phase 2 Visitor Center could include a more comprehensive and dynamic presentation of pertinent information. The aforementioned public outreach efforts would generally benefit Native Americans by increasing public appreciation of Native American culture and the respectful treatment of valued sites and resources. However, Tribes who favor only temporary visitor facilities may

perceive the Phase 2 Visitor Center as an adverse impact. Providing opportunities for Native Americans to staff the Visitor Center could help to mitigate these impacts.

Limiting OHV use in the vicinity of springs would help protect these sites, which are considered sacred by Native Americans. Prohibiting removal of natural resources through permit stipulations would help protect resources valued by Native Americans, such as water and mud from hot springs. Reclamation to the proposed VRM classes would beneficially impact the setting of springs. Maintaining access to hot springs would ensure that Native Americans would be able to visit these sites. Access to traditional cultural properties identified in the future would be decided on a case-by-case basis. Permitting most special recreation events in the southern playa area would focus use away from important resource values important to Native Americans. Law enforcement presence would also help to protect these resources.

Beneficial impacts would occur if private lands having sacred sites were acquired by the BLM. If public lands having sacred sites were disposed of by the BLM, adverse impacts could occur. However, these impacts could be avoided by removing areas having sacred sites from land disposals, or by imposing conservation easements. Proposed avoidance, reclamation and other mitigation measures for locatable, salable, and leasable minerals as well as no leasing/"no surface occupancy" stipulations for leasable minerals would help protect sacred sites. Effects of geothermal drilling outside the no leasing/"no surface occupancy" areas are unknown. The minerals withdrawal along the Applegate Lassen Trail would help to protect hot springs and cultural resources in this area.

CONSEQUENCES OF ALTERNATIVE 2 ON NATIVE AMERICAN VALUES

Management activities of Alternative 2 (including Tribal involvement in cooperative management of traditional cultural properties, performing Native American consultation, following Tribal recommendations in land-use planning to the maximum extent possible, developing cultural resource data-sharing agreements with Tribes, considering revegetation with native plants in reclamation efforts, and managing traditional cultural properties to VRM I) would help protect areas valued by Native Americans.

Controlling noxious weeds by implementing the BLM Nevada Weed Management Strategy and coordinating with the Summit Lake Tribe would beneficially impact Tribal resources by helping to curb the spread of weeds through the plan area and onto Summit Lake Reservation. The requirement for weed-free feed for all domestic range animals and cleaning of OHV vehicles before entering the plan area would also help with weed control efforts.

The inventory, monitoring, and patrol of cultural resource sites would help identify and protect cultural resources. Since no additional funding for this purpose is available, the beneficial impacts would depend on the number of grants, partnerships, and other forms of assistance that can be obtained.

Identification, monitoring and conducting patrol of Native American sites and public education efforts would afford these sites protection from destructive activities. Incorporating Native American perspectives and information into public education materials would broaden the public's understanding and appreciation of Native American history in the plan area and help to protect natural and cultural resources valued by the Native Americans. The Phase 1 Visitor Contact Center could provide limited general information on Native American history. The Phase 2 Visitor Center could include a more

comprehensive and dynamic presentation of pertinent information. The aforementioned public outreach efforts would generally benefit Native Americans by increasing public appreciation of Native American culture and respectful treatment of valued sites and resources. However, Tribes that favor only temporary visitor facilities may perceive the Phase 2 Visitor Center as an adverse impact. Providing opportunities for Native Americans to staff the Visitor Center could help to mitigate these impacts.

Closing the non-playa areas to OHV use would help protect hot springs and other sites considered sacred by Native Americans. Designating camping areas at Trego, Black Rock, and Soldier Meadow Hot Springs would keep adverse impacts from camping away from hot springs considered sacred by Native Americans. Requiring permits for camping at Trego, Black Rock, Hardin City, Double Hot, and Soldier Meadow Hot Springs would prevent adverse impacts from casual use and allow for control of the use of these valued resources. Prohibiting removal of natural resources through permit stipulations would help protect resources valued by Native Americans such as water and mud from hot springs. Reclamation to VRM I would beneficially impact the setting of springs. Maintaining access to hot springs would insure that Native Americans would be able to visit these sites. Allowing only Native Americans access to traditional cultural properties would preserve these sites for Native Americans. Permitting most special recreation events in the southern playa area would focus use away from valued resources, and law enforcement presence would help to protect these resources.

Beneficial impacts would occur if private lands that had sacred sites were acquired by the BLM. The provision that no public lands would be disposed of and no new rights-of way would be issued under Alternative 2 would provide some protection to sacred sites. Also, the no leasing stipulations, mineral withdrawal, and restrictions on salable minerals provided in Alternative 2 would help protect sacred sites from adverse impacts from leasable, salable and locatable minerals exploration and development.

Beneficial impacts to cultural resources would be both short term and long term. Despite the protective measures provided in this alternative, some short and long term adverse impacts to Native American sites could occur if illegal OHV use and vandalism occurred.

CUMULATIVE IMPACTS ON CULTURAL RESOURCES AND NATIVE AMERICAN VALUES

Direct and indirect adverse impacts to cultural resources would continue to occur under all alternatives. Under Alternative 2, impacts should be minimized. Under the No Action Alternative, collection and vandalism of cultural resources may increase due to increases in the number of visitors, off-highway vehicle use, and other surface-disturbing activities that would slowly, but cumulatively and adversely impact known and potential sites.

Direct and indirect adverse impacts to the viewshed of the Applegate-Lassen Trail would continue under all alternatives. Adverse impacts from OHV use and mineral/geothermal exploration and development pose the most threats. The most potential for cumulative adverse impacts would be with the No Action Alternative. Under Alternative 1, the proposed mineral withdrawal, VRM Class I management standards, and OHV closures would minimize impacts to the viewshed of the Applegate-Lassen Trail. Public education proposals would inhibit adverse impacts under all alternatives to varying degrees, depending on the quality and quantity of the education efforts proposed.

Paleontology

AFFECTED ENVIRONMENT

No systematic field survey has been conducted for paleontological resources in the plan area. However, numerous paleontological localities have been identified by independent researchers in and near the plan area. To prepare for a Unit Resource Analysis, the BLM contracted paleontologist David Lawler (Lawler 1978, Lawler and Roney 1978) to review the literature, summarize previously known paleontological resources, and analyze the potential for unknown resources.

Until recently, the earliest paleontological resources documented in the proposed management area were mammalian fossils found in the High Rock area. These were recovered from a late Miocene rock unit termed the High Rock sequence (Bonham 1969). This sequence contains mammalian and plant remains of Barstovian (late Miocene) age. Among the mammalian genera represented are: *Tephrocyon* and *Aelvrodon* (dog family), *Merychippus isonesus* (low-crowned, browsing horse), *Aphelops* (?) (camel), *Moropus* (?) (chalicothere), *Mastodon*, *Blastomeryx* and *Merycodus nevadensis* (early antelopes). The horse material is important, because it is useful in correlation and dating of rock units (Lawler 1978).

Willden (1964) states that the Black Rock correlates with the type section of the Happy Creek Group, 40 miles northeast in the Jackson Mountains. This correlation of Brachiopod genera (*Leptodus*, *Muirwoodia*, *Anidanthus* and several other brachiopods) indicates a mid-Permian age for the Black Rock section (Howe 1975, p.1).

Howe (1975, p.17) describes a possible correlation of the Black Rock fauna to the Standard North American Reference Section for the Permian in the Glass Mountains, Texas. Howe (1975, pp.23-25) also compares certain brachiopods occurring at Black Rock to well-documented sections in the Park City Formation, Utah. Eleven genera occur in both the Black Rock and in the Park City Formation. Only 3 of these 11 genera (*Muirwoodia*, *Anidanthus*, and *Kochiproductus*) could be used in the correlation; the others have ranges too large for this purpose. These three Black Rock genera occur in the Rex Chert Member of the Park City Formation, which correlates with the Coyote Butte Formation in Oregon. The fauna in the Coyote Butte Formation has been correlated to the Road Canyon Formation in the standard section at Glass Mountain, Texas. This connection makes the fossil fauna of the Black Rock section stratigraphically significant for the Great Basin. None of these occurrences are registered as a U.S. Geological Survey Locality.

Also occurring in the northern portion of the plan area are widespread occurrences of petrified wood. Some of the most impressive, which have been identified as *Sequoia*, are in the George W. Lund Petrified Forest (just outside the plan area's west boundary).

More recently, Miocene flora *Monocotyledonae* (reeds) and *Dicotyledonae* (seeds and twig) and fauna have been documented in the south portion of the management area also. *Gastropods* (fresh water snails), *Osteichthyles* (fish), *Clemyes* (turtle), cf. *Volpes* (dog family), *Dipoides* and cf. *Eucastor* (beaver), coprolites, *Lagamorpha* (rabbit), *Camelidae* (camel), *Hipparian* (horse), and *Gomphotheriidae* (elephant) were documented near the southern boundary (Hilton 1991).

Invertebrate paleontology includes some of the most recent and oldest specimens. Quaternary ostracods (a micro-invertebrate) occur in the relict lakebed of Lake Lahontan, of which the Black Rock Playa is a

part (Lawler 1978). Ostracods from a near-surface locality outside the Black Rock Plan Area have been radiometrically dated at 19,700 +/- 650 years by Brocker and Kulp (1957) reported in Lawler (1978). The age of ostracods from the Black Rock Playa are suggested to be similar, assuming they lay in the same strata. Microscopic diatoms are also known to occur in the lake-beds.

Tertiary sedimentary rocks occur in the north end of the Calico Range, south of High Rock Lake. The remainder of the Calico Mountains is mapped as Tertiary-undivided (Willden 1964, plate 1). Most of the range consists of volcanic rocks; other sedimentary rocks likely occur within the range in areas not mapped in detail. A similar situation exists in the Black Rock Range. Tertiary sedimentary rocks occurring in the northern end of the range just east of the proposed management plan boundary contain Miocene fossil leaves (Bunn, 1998).

Field reconnaissance of sedimentary units in both ranges could reveal other localities of mid-Miocene to Pliocene freshwater invertebrate, megafauna, and plant remains as have been documented at Lost Creek near Washoe County Highway 34 (plant remains), in Hays Canyon east of Duck Flat (plant remains), Big Basin on the east side of Long Valley (megafauna) (Bonham 1969), and the north end of Seven Troughs Range (plant remains; Johnson 1977, p. 36). These sites surround the Black Rock Plan Area and are in the Tertiary sedimentary units which also occur in the Calico Mountains and Black Rock Range. There is potential for similar material to be found in the plan boundary.

Also found in the plan area are two occurrences of Permian volcanic rocks, containing interbedded sedimentary material identified as the Happy Creek group (Willden 1964: 34-36). In the Jackson Mountains, east of the Black Rock plan area, documented Permian fusulinids occur at the lower portion of a unit directly overlying the Happy Creek Group.

The Happy Creek metavolcanic rocks form two low hills at the margin of the Black Rock Playa at the southern end of the Calico Mountains (Johnson 1977, plate 1). No survey for interbedded sedimentary material in these metavolcanics is known. The metavolcanics also form Black Rock, adjacent to the south end of the Black Rock Range (Gianella and Larson 1960, Willden 1964, Bonham 1969, Howe 1975). Black Rock is an isolated structural block of metavolcanics in contrast to fossil-bearing sediments that occur as roof pendants in Tertiary intrusions in the area (Howe 1975: 7). There are two fossiliferous limestone units in the vertical-to-very steeply dipping mid-Permian section of andesitic tuffs and breccias of Black Rock (Gianella and Larson 1960, Howe 1975:1). Howe (1975) states that there are "at least two genera of trilobites, several forms of spiriferid brachiopods, productid brachiopods, bivalve, fenestrate and ramose bryozoans, sponges and corals" (p.1).

Known specimens occurring in the Black Rock section are casts and molds with little or no detail of internal diagnostic features (Howe 1975, p. 3).

Important occurrences of documented Miocene/Pliocene and Quaternary age (see glossary and geologic time table at front of Chapter 2) paleontological sites are around and near the boundary of the plan area. These sites represent plant and animal communities living in the Black Rock area prior to and during the existence of Lake Lahontan. A portion of the relict lakebed of Lake Lahontan now forms the Black Rock playa. However, the potential for the occurrence of preserved megafauna fossils in the portion of the Black Rock playa within the plan area is quite low. If such fossils are present, they are likely to be buried very deep.

The plan area also includes several sources of paleoenvironmental information. These include fossil pollen localities, ancient woodrat middens, quaternary sedimentary records and shoreline features/deposits related to pluvial Lake Lahontan history. Areas that have been continuously wet through time (such as springs and meadows) or, conversely, areas that have been continuously dry (such as dry caves or woodrat middens) are most likely to preserve fossil pollen records. Woodrat middens are found in dry caves and on cliff faces. Volcanic ashes are also important stratigraphic and chronological markers. Trego Hot Springs and Double Hot Springs contain two such important volcanic ash layers. Another volcanic ash (Wono) found east of Black Rock Springs dates to 28,000 years ago. Streams also have the potential to yield valuable information on changing stream flow and erosion through time. Information on fluctuations of Pleistocene Lake Lahontan is provided in wave-cut terraces, gravel bars, beaches, and tufa deposits (Wigand 1998).

The aforementioned sources of information can assist scientists in reconstructing past environments and understanding dynamic relationships among climatic, biotic, hydrologic, and cultural systems. The valuable information about paleoenvironmental resources may be useful in managing resources now and in the future.

No paleontological resources in the proposed management area qualify for special designations such as registry with the U.S. Geological Survey, National Historical Landmarks, or National Park Service National Natural Landmarks.

Environmental Consequences

A paleontological resource would be determined to be significant and therefore sensitive to planned or unplanned disturbance if one or all the following three factors exist (Firby 1995).

- The kind of fossil material (such as all vertebrate fossils) is significant
- Uniqueness of the resource (such as the type area of a particular species).
- An assemblage of fossils that have particular value due to their joint presence.

Paleontological resources could incur direct adverse impacts from surface-disturbing activities in the immediate vicinity, including hobbyist collecting or unauthorized commercial collecting. There could be indirect impacts to paleontological resources from increased accessibility to fossil localities associated with increasing numbers of visitors and off-highway vehicle use.

Paleoenvironmental resources can be adversely impacted by OHVs, churning of deposits by people and livestock, erosion, and dessication of permanent water sources and meadows that have been continuously wet through time. Surface-disturbing permitted activities also have the potential to adversely impact paleoenvironmental resources. Woodrat middens are also sometimes destroyed by target shooting.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON PALEONTOLOGY

Impacts to reported and potential fossil localities would continue the same as at present. Unlimited OHV. use of the plan area would result in adverse impacts to paleontological and paleoenvironmental resources. Ever increasing visitation, unlimited access, limited public education outreach efforts and limited monitor/patrol activities may result in adverse impacts to vertebrate localities through increases in

unauthorized collection/excavation. "No surface occupancy" for oil, gas, and geothermal along the Applegate-Lassen Trail would protect paleontological and paleoenvironmental resources in this corridor from destruction. Lack of consideration of paleoenvironmental resources prior to authorizing permitted activities may result in adverse impacts to paleoenvironmental resources.

Vertebrate paleontology collection would be carried out under a current and valid permit the same as at present. Invertebrate fossils, leaf impressions, and petrified wood collection would continue as at present under current existing laws.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON PALEONTOLOGY

Under this alternative, adverse impacts to paleontological and paleoenvironmental resources would decrease through limits on OHV use, the proposed mineral withdrawal (in Soldier Meadow and along the Applegate Trail corridor), and the "no leasing" stipulations for oil, gas, and geothermal. Adverse impacts would also decrease through inventorying paleontological resources in sensitive areas and evaluating impacts to paleoenvironmental resources prior to authorizing surface-disturbing actions and by avoiding or mitigating adverse impacts. Encouraging paleoenvironmental researchers to work in the plan area and developing cooperative agreements with professional and amateur groups would help identify these resources for management purposes, as well as increase scientific knowledge of the area. Although increasing visitor use could result in increases in resource collection and/or destruction, increased public education, monitor/patrol, and limits on OHV use should help reduce these impacts.

Vertebrate paleontology collection would be carried out under a current and valid permit the same as at present. Invertebrate fossils, leaf impressions, and petrified wood collection would continue as at present under current existing laws.

CONSEQUENCES OF ALTERNATIVE 2 ON PALEONTOLOGY

Paleontological resources would be protected more under Alternative 2 than the No Action and Alternative 1, due to limited access to the plan area and review of permitted activities for resource protection.

Under Alternative 2, paleontological and paleoenvironmental resources would be protected through limiting OHV use, limiting access to identified resources, and limiting collection permits. The proposed mineral withdrawal and no leasing stipulations for the plan area would also provide protection for these resources. Inventorying, avoiding, and/or mitigating adverse impacts to paleontological and paleoenvironmental resources prior to authorizing permitted actions would also help protect these resources. Seeking grants and cooperative agreements and working with professional and amateur groups would help to identify these resources for management purposes, as well as increase scientific knowledge of the area. Public education and increased monitoring and patrol would help to protect these resources.

CUMULATIVE IMPACTS ON PALEONTOLOGY

Direct or indirect adverse impacts to paleontological and paleoenvironmental resources would continue to occur under any alternative, but impacts should be minimized with Alternative 2. Under Alternative 1 (Proposed Action), adverse impacts would decrease due to limits on cross-country travel. Under the No Action Alternative, collection and vandalism would likely increase due to increases in the number of visitors, cross-country vehicle use, and other surface-disturbing activities that would slowly but cumulatively and adversely impact known and potential sites.

Monitoring and Mitigation Measures

Limited monitoring of paleontological resources is recommended. Although strata containing fossils is usually buried, the known surface outcrops represent the existence of the resource. The specimens from these sites are not "world class," but their protection is still a priority to protect the remaining resource base. Any new specimens discovered would be evaluated for significance, and appropriate mitigation measures would be developed.

Energy and Mineral Resources

AFFECTED ENVIRONMENT

The proposed management boundary encompasses known occurrences of geothermal resources; precious opal; sand and gravel; areas of high, moderate and low potential for occurrence of certain metallic minerals; and moderate-to-low potential for the occurrence of industrial mineral resources.

Locatable Minerals

Locatable minerals currently being mined in the plan area are precious opals. Potential exists for several metallic minerals (including gold, silver, mercury, uranium, and tungsten) and nonmetallic minerals (including gypsum and diatomite; see Table 3-10).

Mining Claims: All public land within the plan boundary is open to location of mining claims under the authority of the 1872 Mining Law. As of February 2000, there are 139 active mining claims in the plan area for a total of 2,780 acres claimed. These claims are concentrated in the following areas: precious opal mining area in the central Calico Mountains; in an area of previous gold exploration in the Southern Calico Mountains Area of Developmental Interest (ADI); in the Cassidy ADI, near the Pahsupp Mountain ADI; the central and southern Black Rock Range; and along the southern and southeastern edges of the plan boundary near Rabbit-hole Springs, which is the greatest concentration of active claims. Mining claim information compiled in 1997 indicated that during the history of the area there had been a total of 1,198 mining claims staked, and 235 claims were active. Map 9 was compiled based on the total mining claims as of 1997.

Significant portions of the Black Rock Range and the Calico Mountains are located within WSAs that were established in the early 1980s (see Map 7). Location of mining claims has been open in the WSAs, but development of claims has been subject to Valid Existing Rights that existed prior to establishment of

WSAs. There are currently no known Valid Existing Rights (VER) in the WSAs. The WSA designation effectively limited exploration and development in this area during the 1980s and 1990s when mineral exploration and development increased in northern and northwestern Nevada, due in part to the higher prices of gold and the increased efficiency of mining and extraction methods.

Casual Use, Mining Notices, and Plans of Operations: Casual use, mining notices and plans of operations are administered under the 43 CFR 3809 Surface Management Regulations.

Casual use operations involve activities resulting in only negligible disturbance of the federal lands. No notification to or approval by the authorized officer is required for casual use operations. Disturbances must be reclaimed.

Mining notices involve operations disturbing five acres or less. They are reviewed by resource specialists. However, they are not an approved action and therefore do not require NEPA analysis. Most, but not all, mining notices are associated with exploration activities. Since 1981, seven mining notices have been filed within the plan boundary and three of those are currently active. Two active opal mines in the Calico Mountains are conducted under mining notices (see Map 9).

Plans of operations are mining actions that disturb greater than five acres. They require a reclamation plan, a reclamation cost estimate, NEPA analysis prior to approval, and a reclamation bond must be posted, and can be either exploration plans or mining plans. There are currently no open plans of operations within the plan boundary.

Plans of Operations Within Wilderness Areas: Any surface-disturbing activities beyond casual use proposed in WSAs are administered under the 43 CFR 3802 Regulations for Exploration and Mining, Wilderness Review Program and the BLM Manual Handbook 8550-1, Interim Management Policy and Guidelines for Lands under Wilderness Review. Exploration and development in WSAs are subject to Valid Existing Rights. In previous years, three plans of operations were filed in the Southern Calico Mountains, and they have been closed. Of the two that were located in the Black Rock Range, one remains open, yet inactive; the other is closed.

Use and Occupancies: Use and occupancy of mining claims must be reasonably incident to mining and are regulated under 43CFR 3715 regulations. Two occupancies have been filed and are pending authorization in the central Calico Mountains. They are both related to precious opal mining activities within the Black Rock Opal ADI (see Map 9).

Locatable Mineral Potential (Metallic Minerals): The U. S. Geological Survey (USGS) and the U. S. Bureau of Mines (USBM) have both conducted studies and/or mineral assessments of the Winnemucca BLM District (Peters et al. 1996) and more specifically the plan area (Koski 1998, Miller 1993).

The USGS has developed the following three-part method for assessing mineral resources:

1. Mineral potential tract maps delineate areas mineral deposits may occur based on known geology and the mineral deposits associated with that geology
2. Estimates are made of the number of deposits within each delineated tract
3. Estimates are made of the amount of metal present by means of the applicable grade tonnage models available for each of the various types of deposits.

Readers are directed to Peters (1996) for a detailed discussion of the mineral assessment methodology and the type of mineral deposits likely to occur in this region.

The 1998 assessment includes a quantitative assessment (see Table 3-8), and mineral potential tract maps outlining no potential (non-permissive), low potential (permissive), medium potential (favorable), and high potential (prospective) areas for hot spring mercury, hot spring gold-silver, and low sulfide gold-quartz deposits in the plan area (see Map 10A). A favorable area was drawn for polymetallic vein deposits, but no quantitative assessment was made for that deposit type.

Other deposit types (such as porphyry copper, porphyry molybdenum, base metal skarns, tungsten skarns, and volcanogenic uranium) were judged by the USGS to have very low expectation that an undiscovered deposit exists in the plan area and were not discussed any further. However, mineral potential tract maps for those deposits are available from the Peters (1996) assessment and are included in this section (see Maps 10A and 10B). From the mineral potential maps, digital GIS data was utilized to calculate the acreages (see Table 3-9).

The estimate of the amount of mercury occurring within the plan area is approximately 9.2 metric tons (about 270 flasks). Estimates for the amount of metal occurring in the hot spring gold-silver deposits is approximately 20 metric tons (about 630,000 troy ounces) of gold and about 76 metric tons (about 2.4 million troy ounces) of silver. The metal content of the low sulfide quartz-gold deposits is estimated to be about 0.01 metric tons (about 310 troy ounces) of gold and about 0.002 metric tons (about 50 troy ounces) of silver (Koski 1998).

Table 3-8. Mineral Resource Assessment Probability for the Black Rock Desert Plan Area.

Probabilities	Estimated Number of Deposits		
	Hot Spring Mercury	Hot Spring Gold-Silver	Low sulfide gold-quartz vein
90%	0	0	0
50%	0	0	1
10%	0	1	2
5%	1	2	2
1%	2	3	2

Source: Koski 1998

Table 3-9. Metallic Mineral Potential in the Black Rock Desert Plan Area.

Deposit Type	Potential in Acres			
	High	Moderate	Low	No
Placer gold	6,074	37,132	271,567	151,036
Hot spring (Au,Ag,Hg)	32,484	215,956	68,851	148,064
Massive sulfide	0	0	245,871	219,941
Polymetallic veins	0	68,795	210,698	186,323
Sediment hosted	0	0	4,260	461,095
Skarn	0	14,333	159,305	292,180
Uranium	0	198,205	75,154	2,263
Tungsten	0	73,776	99,835	292,207
Porphyry	0	2,090	171,551	292,179
Low sulfide gold	0	13,591	247,957	204,266

Source: Digital GIS files (Peters et al. 1996 and Koski 1998).

Based on these estimates, and for purposes of analysis, it is assumed that one mineral deposit with approximately 3 million troy ounces of gold and silver could occur within the planning area.

Areas of Development Interest (ADI): A study conducted by U.S. Bureau of Mines identified 10 Areas of Development Interest (ADIs) for locatable minerals within the plan boundary (Miller 1993). These 10 ADIs are located in areas that have historical workings or recorded production, current operations, recent exploration activities, where samples taken indicate mineral anomalies, and/or there exists current or past mining claim activity (see Map 9). All 10 ADIs are within areas identified by USGS as having potential for occurrence of metallic minerals. Nine of these ADIs are described individually below; the Black Rock Opal ADI is discussed in a following section.

Copper Canyon: The Copper Canyon area is located near the base of Pahute Peak, along the western flank of the Black Rock Range (see Map 9). The presence of altered Mesozoic granitic and metamorphic rocks in the Copper Canyon area, combined with anomalous metal values indicate a potential in the area for porphyry, skarn, and base and precious metal replacement deposits, particularly of zinc (Noble et al. 1987). Zinc-bearing skarns at Pahute Peak may fit models in which distant magma bodies were the source of mineralization (summarized in Miller 1993). Fluorite occurs approximately 2.5 miles south of Copper Canyon in a vein 2 to 4 feet wide and 300 feet long. A pervasive zone of hydrothermal alteration and anomalous metal concentrations appears to be localized along a Cenozoic age range from fault approximately 2 miles south of Copper Canyon, indicating potential for gold and silver hot spring deposits (Noble et al. 1987). The area is assessed as having a medium potential for the occurrence both of tungsten and hot spring deposits (Peters et al. 1996).

Donnelly: The area is identified by U.S. Geological Survey as having high potential for occurrence of hot-spring deposits and moderate potential for the occurrence of polymetallic vein and tungsten deposits (see Map 9; Peters 1996, Koski 1998). The Donnelly area was active in the early 1900s and reportedly produced about \$90,000 in gold between 1907 and 1938 (summarized in Miller 1993). An abundance of quartz veins, silicified breccias, and stockworks occur in a diverse range of sizes and include high-grade and disseminated precious-metal mineralization. Coarse-grained granitic intrusives, slate, quartzite, and volcanic rocks occur all are mineralized locally.

Southern Calico Mountains: The USGS indicates this as an area of high potential for hot spring deposits and medium potential for polymetallic vein deposits. Colorful, intense, and widespread brecciation, silicification, argillation, and iron-enrichment of volcanic rocks are evident in the southern Calico Mountains. Geology and geochemistry support classification of this area as one of hot-spring, sub-hot-spring, or porphyry types of mineralization (Miller 1993). Current mining claims are concentrated in an area where an exploration drilling program was conducted in the mid-1980s (see Map 9).

Cassidy: A medium tract for occurrence of low sulfide gold-quartz veins is outlined near the area of the old Cassidy Mine, worked by the Cassetty Brothers during the early 1900s. A high potential tract for placer gold is centered on the Cassidy Mine. Interest in the Cassidy mine area will continue for high-grade and disseminated gold, and possibly polymetallic, porphyry gold, and epithermal deposits (Miller 1993).

Soldier Meadow: Extensive chalcidonic silicification, argillization, and limonitic alteration occurs widely in the Miocene age volcanic rocks of this region at the north end of the plan area. Rock sample analyses, done by the U.S. Bureau of Mines, from this area indicates possible hot-spring mineralization (Miller 1993). A high potential tract for hot spring deposits is outlined at the very north end of Soldier Meadow basin, and the remainder of Soldier Meadow basin is within an area indicated to be moderate potential for the occurrence of hot spring deposits (Peters et al. 1996, Koski 1998).

Double Hot Springs: The Double Hot and Black Rock Hot Springs are aligned along the north-trending Black Rock Fault on the southwest flank of the Black Rock Range. Hydrothermal alteration along this range front fault indicates the potential for hot spring deposits, and possibly sub-hot-spring and porphyry deposits. This area has been assessed as having medium potential for the occurrence of hot spring related deposits (Koski 1998, Peters et al. 1996). Indications are that types of mineralization in the Double Hot Springs area are similar to those in the Copper Canyon area (Miller 1993).

Trego Hot Springs: Trego Hot Springs, located along the southern plan boundary, is included in an area having moderate potential for occurrence of hot spring and tungsten deposits (Peters et al. 1996, Koski 1998). Hot-spring gold mineralization along range-front and related faults are indicated by anomalous mercury (more than 50 parts per million) in a U.S. Bureau of Mine rock sample from the sinter at the spring. Tungsten skarns and anomalous tungsten also occur in the Trego Hot Springs area (Miller 1993).

Pahsupp Mountain: Pahsupp Mountain, which is immediately south of the plan area and a few miles east of Trego Hot Springs, is within an area outlined as having high potential for hot spring deposits and medium potential for tungsten deposits (see Maps 10A and 10B; Koski 1998, Peters et

al. 1996). Numerous mine workings and ruins of mining-related buildings occur at the north tip of Pahsupp Mountain. Small production has probably occurred, based on piles of crushed-quartz tailings. Mineralization occurs in quartz veins (Miller 1993). Current mining claims (see Map 9) located in the area include those that extend into the southern portion of the plan area where a thin veneer of alluvium and Lake Lahontan beach terraces cover the bedrock.

Rabbithole/Barrel Springs: Gold placers, especially the Rosebud placers (outside of the plan area), occur here in extensive, thick alluvium along the wide valleys and in tertiary gravels. Small amounts of titanium are also contained in area alluvium (Miller 1993). Although there are no current operations located near Rabbithole Spring, the area has been assessed medium to high potential for occurrence of placer gold. Based on proximity to the Rosebud and Hycroft mines located immediately east and northeast of Rabbithole, this area is included in a medium-to-high potential tract for the occurrence of hot spring metallic deposits (Peters et al. 1996, Koski 1998).

Table 3-10. Industrial and non-metallic mineral potential in the Black Rock Desert Plan Area. (Note: Acreage calculations are based either on the Mineral Potential Maps or on the geologic units the mineral or commodity is associated.)

Mineral/ Commodity	Potential in Acres					
	High	Geologic Unit or Mineral Potential Map	Moderate	Geologic Unit or Mineral Potential Map	Low	Geologic Unit or Mineral Potential Map
High quality locatable clays	32484	High potential hot spring map	215956	Moderate potential hot spring map	68851	Low potential hot spring map
Diatomite	0	N/A	10049	Tts	1531	Ts3
Evaporites and brines	0	N/A	0	N/A	147760	Qp
Fluorite	0	N/A	73776	High potential tungsten map	173638	Moderate and low potential porphyry map
Lithium	0		157809	Qp,Tts	131067	Ta1,Ta2,Tb,Tba Tob,Tr2,Tr3,Tt2 Ts3,Tt2,Tt3
Perlite and Pumice	0	N/A	0	N/A	84163	Ts3,Tts
Sulfur	0	N/A	0	N/A	36097	High potential Hot spring gold-silver
Zeolite	0	N/A	10049	Tts	1531	Ts3
Precious opal	13987	*	29472	Tb	111644	Ta1,Ta2,Tba, Tob,Tr2,Tr3, Ts3,Tt2,Tt3,Tts
Common opal, geodes, agates, jasper, chert	80761	Tb,Tr2,Tt2 Tr3,Tt3	85843	Ta1,Ta2,Tba, Tob,Ts3,Tts	0	N/A
Petrified wood	36897	Ta1,Ta2	18321	Tba,Ts3,Tts	39293	Tt2,Tt3

Note: See Map 8 for a description of geologic units.

Source High potential for precious opal occurrences was digitized based on Miller (1993) ADI. Other information compiled from digital GIS data from USGS (Peters et al. 1996, Koski 1998) and the Geologic Map of Nevada (Stewart and Carlson 1978).

Locatable Mineral Potential (Industrial Minerals, Gems, Semi-Precious Stones, and Petrified Wood): An assessment of the potential for occurrences of these minerals in the plan area was developed by minerals specialists in the Winnemucca BLM Field Office. The geologic setting of previously documented and

published occurrences and investigations in the region was noted, and potential tracts were developed based on associations with geologic units. The acreages were calculated based on GIS digital data obtained from the U. S. Geological Survey geologic map of Nevada (Stewart and Carlson 1978; see Map 8). Table 3-10 indicates the potential in acres for occurrence of the various commodities. Those showing the highest potential for occurrence or that actually occur within the plan area are discussed briefly below.

High-Quality Locatable Clays: High-quality clays include montmorillinite, bentonite, and fullers earth deposits, which commonly occur in hydrothermally altered Miocene and Pliocene volcanic rocks (Papke 1970). Such a deposit has been documented at Rosebud Canyon, which is immediately southeast of the plan boundary. Therefore, it seemed reasonable to utilize the hot spring potential maps as potential areas for the occurrence of the clays.

Fluorite: An occurrence of fluorite has been documented in the Black Rock Range south of Copper Canyon (Miller 1993). Potential for the plan area is based on the U.S. Geological Survey (Peters et al. 1996) tracts maps for tungsten and copper-molybdenum.

Lithium: Based on the anomalous occurrences of lithium noted in the east arm of the Black Rock Desert, and north of Gerlach on the playa (Nash 1996), it is felt that the playa of the west arm has medium potential. Volcanic rocks and related sediments near calderas, ring fractures, and moat sediments are also of medium potential; other volcanic rocks are considered low potential. These types of rocks occur primarily in the northern Black Rock Ranges and Calico Mountains.

Precious Opal, Gems and Semi-precious Stones, and Petrified Wood: The Black Rock Opal ADI was outlined by Neumann and Close (1985) and by Noble and others (1988). Precious opal, present as small percentages of common opal, occurs as fillings in amygdaloidal basalts of Miocene age in a north-trending zone for 8 miles along the eastern flank of the Calico Mountains between Donnelly Creek and Willow Creek. Much of this zone is located within WSAs (see Maps 7 and 8). Currently, two mines located outside of the WSAs are actively mining opal. The opal is extracted by hand using hammers, chisels, and pry bars to carefully break apart the basalts and remove the opal. The opal is mined by the owners, rockhounds, recreationists, mineral collectors, and jewelry makers.

Common opal, petrified wood, agate, jasper, chert, chalcedony, and geodes also occur abundantly, primarily in the Calico Mountains and Black Rock Range where rock-hounding and collection of these semi-precious rocks is a popular recreational activity. A geode mine is in production on the east flank of the Black Rock Range, immediately outside of the plan area.

Diatomite: There are no known occurrences of diatomite within the plan area. Occurrences of diatomite are documented approximately 15 to 20 miles west of the plan area boundary, in a series of tuffaceous fluviolacustrine deposits of the upper Miocene and Pliocene age High Rock Sequence (Bonham 1969). Moderate and low potential of diatomite in the plan area is based on the presence of the same geologic units correlative with the known occurrence. The correlative ash-flow tuffs and tuffaceous sedimentary rocks occur in the north end of the plan area, concentrated in the northern Calico Mountains.

Zeolite: Zeolite occurs in similar geologic settings as diatomite. An occurrence of the zeolite clinoptilolite has been noted near Donnelly Creek, in a sedimentary rock that is finely bedded,

tuffaceous, and volcanoclastic (Noble et al. 1987). Its potential in the plan area is based on occurrences of tuffaceous sedimentary and volcanoclastic rock units within the plan boundary.

Leasable Minerals

Leasable minerals with potential of occurring in the plan area include geothermal, oil and gas, and sodium and potassium. There are areas of high and moderate potential for geothermal resources. Oil, gas, sodium, and potassium all have low potential (see Table 3-11). Leasing of these minerals is a discretionary action for BLM.

Table 3-11. Leasable Mineral Potential in the Black Rock Desert Planning Area			
Commodity	Potential in Acres		
	High	Moderate	Low
Geothermal	201,384	264,435	0
Oil and gas	0	0	190,780
Sodium and potassium	0	0	147,760

Note: In the discussion that follows, geothermal, oil and gas, and sodium and potassium are considered individually.

Geothermal: Under existing management, geothermal leasing and development is conducted under the authority of the 1970 Geothermal Steam Act and regulations (43 CFR 3200). No new leases may be issued in WSAs or lands designated Wilderness.

The current land use plan allows geothermal (and oil and gas) leasing within the entire plan area with restrictions of “no surface occupancy” applied to a one-mile corridor either side of the Applegate Lassen Trail north from the Union Pacific railroad tracks to Black Rock. From Black Rock north to the mouth of High Rock Canyon, the restriction applies 1 mile to the west of the Trail and to the crest of the Black Rock Range to the east. The viewshed looking east from the mouth of High Rock Canyon also has the “no surface occupancy” restriction. The Desert Dace ACEC in Soldier Meadow also has the “no surface occupancy” restriction (see Maps 11 and 15 and Appendix C).

Known Geothermal Resource Areas and Geothermal Leases: There are currently no geothermal leases within the plan boundary. Beginning in the late 1970s and continuing into the 1990s, approximately 32,000 acres of public land were leased within the plan boundary under a total of 21 leases. The leases were primarily located near Double Hot Springs, Black Rock Hot Springs, Trego Hot Springs, and Great Boiling Springs (located on private land but having some geothermal field on public land). Seven Known Geothermal Resource Areas (KGRA) were previously classified and leased competitively in the region: Soldier Meadow, Trego, Double Hot, Fly Ranch, Fly Ranch Northeast, Gerlach, and Gerlach Northeast. Except for the Fly Ranch KGRA, all of these KGRA are entirely or partially within the plan boundary. Of the original seven, only the Gerlach KGRA maintains the classification. The Gerlach KGRA encompasses 9,600 acres, of which 4,160 acres is within the plan area (see Map 11).

Geothermal Potential: The plan area is located at the western edge of the Battle Mountain heat-flow high, a region of higher than average heat flow centered on Battle Mountain in the northern Great Basin. Four major hot spring (geothermal) systems are within the plan area (see Table 3-12).

Geothermal Area	Surface Temperature¹	Estimated Reservoir Temperature²	Volume (Km³)²	Energy Content (X10¹⁸ Joules)²
Soldier Meadow	19-56 °C (66-134 °F)	115 °C. (239 °F)	12.0	3.00
Double Hot Springs	81 °C (178 °F)	127 °C (261 °F)	12.2	3.70
Black Rock Hot Springs	56 °C (133 °F)	129 °C (264 °F)	3.3	1.02
Trego Hot Springs	86 °C (187 °F)	115 °C (239 °F)	3.3	.90
Great Boiling Springs (on private land) ³	27-96 °C (80-204 °F)	178 °C (352 °F)	3.3	1.46

¹ Temperatures compiled in USDI 1980
² Miller 1993; compiled from White and Williams 1975 and Muffler 1978
³ Some of the geothermal field for this privately owned hot springs is on BLM-administered public land.

Hot and thermal springs within the plan boundary range in temperature from 66° F to 204° F (see Table 3-12). In Great Boiling Springs, located immediately north of Gerlach on private lands in the Gerlach Known Geothermal Resource Area, temperatures have been recorded from 69 vents. The springs are located on an intersection of northwest and northeast-trending faults and flow from unconsolidated dune and lake sediments. Trego Hot Springs is located along the southern edge of the boundary on a series of northeast-trending faults. The Black Rock Hot Springs and Double Hot Springs form a semi-continuous system approximately 7 miles in length along a north-trending fault zone on the west edge of the southern Black Rock Range. Approximately 440 acres of private land are along this trend. Some of the private land is adjacent to Double Hot Springs.

One of the hottest springs within the plan area is an unnamed spring located approximately one mile south of Black Rock Hot Springs. Hot water with a temperature of 202° F flows from a series of small vents on a grassy spongy mound. Hardin City Hot Springs, located north of Double Hot Springs, may be a northern surface expression of the Double Hot Springs reservoir. Soldier Meadow Hot Springs lies at the north end of the plan area and is situated at the intersection of two regional lineaments. The northeast-trending Soldier Meadow-Denio Lineament intersects with a north-northwest trending fault zone along the west side of the Black Rock Range from Black Rock Hot Springs to Soldier Meadow. This intersection has created a somewhat circular basin underlain by fractured bedrock of presumed high permeability. The springs occur in a cluster arrangement as a result. Several hot springs in Soldier Meadow are located on private land.

In addition to the major hot springs in the region, there are also several thermal wells. Artesian warm wells ranging in temperatures from 68° to 103° F are located in the basin along the east side of the Calico Mountains and are currently being used for flood irrigation on private. Another group of thermal artesian wells with a similar temperature range occurs on private land along the southern boundary of the plan area, at the old Garrett Ranch (also called Frog Farm) a few miles west of Old Razorback (Trego Mountain).

All of these geothermal systems are located on major range front faults, regional faults, regional lineament systems, or intersections of any of these. It has been concluded that the geothermal systems are probably the result of deep circulation of groundwater in the basins, passing through rocks and sediments that contain stored heat due to a regional high heat flow (Welch and Preissler 1990). The geothermal solutions then rise through permeable conduits within fault zones and discharge at the surface as hot springs.

Detailed geochemical studies of the geothermal systems in the western arm of the Black Rock Desert indicate the source of recharge to the geothermal systems is local meteoric water. The chemical, isotopic, and thermal characteristics of the various geothermal systems studied indicate each of the systems is distinct, and do not represent upflow from a single geothermal system. There seems to be a general southward flow of groundwater in the region. However, hydraulic connections between the various geothermal systems has not been demonstrated (Welch and Preissler 1990)

The total energy outflow from the western arm of the Black Rock Desert is estimated to be approximately 30 megawatts (MW) (Mase and Sass 1980). This calculation excludes the Soldier Meadow geothermal system and is based on heat flow data from temperature gradient holes. Additional assessment provided by Brook et al. (1978) indicates potential for the Great Boiling Springs system to produce 32 megawatts of energy for 30 years. GeothermEx, Inc. (1992) an independent consultant, prepared an assessment for San Emidio Resources, Inc., a lessee in the Gerlach KGRA at Great Boiling Springs. Their conclusion was that "the most likely reserves lie in the range of 15 to 35 MW, and a reserves level of up to 90 MW is possible." A summary of geothermal energy resources in and near the plan boundary has been compiled by Miller (1993).

Areas previously classified as Prospectively Valuable for geothermal resources by the BLM (Hoops 1991) are considered high potential for geothermal resources and are shown on Map 11. Approximately 201,400 acres are in the high potential category. Those areas are located along major faults where hot springs issue at the surface, where in the past there was either competitive or non-competitive leasing interest, and where formerly there was a KGRA classification or where one exists now. All other areas within the plan (approximately 264,400 acres) are considered to have moderate potential.

The earlier assessments, such as those by Brook et al.(1978) were completed prior to introduction of binary (heat exchange) technology. This binary technology uses fluids, such as isobutane or isopentane, which boil at lower temperatures than geothermal solutions. Through a heat exchanger similar to an automobile radiator, the geothermal solutions heat the isopentane, making it flash and turn the turbines. Introduction of such new technologies increases the opportunity to develop lower temperature resources, especially for electrical power generation. Distance to markets and availability and economics of other energy resources also affect the likelihood of developing geothermal resources within the plan area. Great Boiling Springs and Trego Hot Springs are located close to utility corridors. The Double Hot Springs-Black Rock Springs are in a very remote location.

Several large energy companies conducted exploration activities in the region during the mid-1970s. Since 1975, approximately 17 projects have been permitted for shallow temperature gradient holes within or adjacent to the plan area. A total of 157 holes were drilled, ranging in depth from 250 to 3,000 feet. Most of these were located in or near the Gerlach Known Geothermal Resource Area. Others were concentrated in the Sulphur and Hualapai Flat areas, and several were spread out over the entire west arm of the Black Rock Desert. In Soldier Meadow, 28 shallow temperature holes were drilled, ranging in depth from 15 to 100 feet.

In addition, 17 geophysical or other exploration projects have been permitted in the region, mostly in the Gerlach area. Those studies conducted included seismic, magnetotelluric, gravity, resistivity, geologic, hydrologic, and geochemical. One deep well was drilled by Sundeco in the Gerlach area at Mud Springs in 1979. The well was drilled to approximately 5,800 feet and encountered a maximum temperature of approximately 200° F at 3,450 feet near the top of the granodiorite. In 1993 and 1994, San Emidio Resources, Inc. drilled two 3,000-foot observation wells in the Gerlach Known Geothermal Resource Area.

The geothermal resources of the region were also the subject of intensive study by the U. S. Geological Survey and other non-industry investigators during the 1970s and 1980s. Schaefer et al. (1983) and Welch and Preissler (1990) have summarized the geologic, geochemical, and geophysical studies that were conducted.

Oil and Gas: Oil and gas leasing is a discretionary action. See the above section on geothermal energy for a discussion of the decisions in the land use plans.

Oil and Gas Leases: There are currently no oil and gas leases in the plan area. There have been five oil and gas leases totaling approximately 21,000 acres within the plan boundary. These leases were located east and southeast of the south end of the Black Rock Range and approximately 10 miles south of Soldier Meadow. All previously existing leases have been terminated or canceled.

Oil and Gas Potential: Approximately 190,800 acres, situated generally in the basin below 3,950 feet elevation within the plan area, are permissive for small-to-medium oil and gas discoveries (Barker 1996). Although no gas has been discovered, to date, within the plan boundary, Barker has reported an oil seep in the vicinity of Wagon Tire Spring, 12 miles west of High Rock Lake, west of the plan boundary. Two shallow and one deep exploration holes have been drilled in the east arm of the Black Rock Desert in the vicinity of Sulphur, east of the plan boundary. A hole drilled in 1909 slightly northeast of Sulphur to a depth of 970 feet had a possible, but unconfirmed, oil show at 845 to 875 feet. The other shallow hole, drilled in 1921 approximately 3 miles northeast of Sulphur to a depth of 800 feet, had no reported shows (Miller 1993, Murphy 1993). The deep exploration hole was drilled approximately 15 miles north of Sulphur in the east arm of the Black Rock Desert; this hole went down about 8,000 feet and had oil shows in core from about 6,880 to 7,050 and gas at 6,894 to 6,930 feet.

Sodium and Potassium: Sodium and potassium leasing and development is conducted under the authority of the Mineral Leasing Act of 1920, as amended, and the regulations contained at 43 CFR 3500. Under the current land use plans, sodium and potassium leasing would not be allowed on the playa of the Black Rock Desert. There are currently no sodium or potassium leases within the plan boundary.

Sodium and Potassium Potential: Most lands in the Black Rock Desert basin are classified as valuable prospectively for sodium and potassium (Wayland et al. 1980; see Table 3-13). There are no known occurrences and no exploration activities known to date.

Table 3-13. Leasable Mineral Potential in the Black Rock Desert Plan Area			
Potential in Acres			
Commodity	High	Moderate	Low
Geothermal	201,384	264,435	0
Oil and gas	0	0	190,780
Sodium and potassium	0	0	147,760

Salable Minerals (Mineral Materials)

Disposal of salable materials is a discretionary action. Mineral material disposals are conducted under the authority of the Materials Act of July 31, 1947, as amended, and regulations at 43 CFR 3600. Material site rights-of-way are granted to Nevada Department of Transportation under Title 23, Section 317 USC. Mineral material disposals are not permitted in WSAs or Wilderness areas.

Permits and Rights-of-Way: Three free-use permits for sand and gravel are currently authorized within the plan area, and eight other free-use permits are pending authorization (see Map 12). One 40-acre material site right-of-way lies within the plan boundary along the south end. Occasional sales to private individuals occur out of the Blue Pit south of Hualapai Flat. There are currently no rock sales within the plan boundary.

Several types of salable minerals are found within the plan area (see Map 12). Table 3-14 summarizes the mineral material potential in the planning area. The most common are sand, gravel, and borrow pit material occurring between 3,900 and 4,200 feet elevation as shoreline features of ancient Lake Lahontan. Alluvial deposits are also common. The entire playa has high potential for the occurrence of common clay. Other products with the potential of occurring include decomposed granite, granitic decorative boulders, volcanic flat rock, other decorative rock, and common clay.

Production of salable materials from the plan area is generally focused along the High Road, the Soldier Meadow Road, and Washoe County Road 34. Sand, gravel, and borrow pit material are utilized for road construction and maintenance. Just north and west of Gerlach outside the plan area is a deposit of decomposed granite utilized by Washoe County for maintenance of local roads and highways.

Table 3-14. Mineral Material Potential in the Black Rock Desert Plan Area.			
Acres of Potential (rounded to nearest ten)			
Commodity	High	Moderate	Low
Sand/gravel/borrow pit material	82,050	75,090	168,820
Rock-landscape/decorative	0	138,660	0
Clay, low quality	170,030	0	0
Source of acreage calculations: Maps 10a and 10b.			

Reasonable Foreseeable Mineral Development Scenarios

The following projections of future minerals activities were developed to identify and analyze impacts associated with mineral development in the proposed plan area.

Locatable Minerals: Future interest is expected in all the ADIs discussed earlier. It is expected that the Southern Calico Mountains, Copper Canyon, Pahsupp Mountain, Rabbithole/Barrel Springs, Black Rock Opal, Soldier Meadow (northern-most area) and Donnelly ADIs will continue to be primary areas of developmental interest. Exploration for precious opal will continue within the Black Rock Opal ADI, and it is very likely more deposits will be discovered. The Southern Calico Mountains ADI would be the most likely location for a future gold or silver mine. The Cassidy Mine, Double Hot Springs, Trego Hot Springs, and Soldier Meadow (central and southern areas) ADIs will be of secondary developmental interest. Initial exploration activities would probably be concentrated in the mountains. Possibly, attention would be directed to valley bottom locations where buried deposits may occur.

If the WSAs are released from wilderness consideration, there would be initial accelerated activity in the areas of medium-to-high potential, especially in the Southern Calico Mountains and the Black Rock Opal ADIs, but the activity would taper off over time. Over the long term, small exploration or mining projects conducted under mining notices would likely increase to an average of two operations per year. Surface disturbance would affect an average of 5 acres per project, totaling 10 acres per year being disturbed. Disturbance would consist primarily of access roads, drill pads, trenches, small prospects, and open pits.

Three small opal mines would likely be developed within the Black Rock Opal ADI. Each of these mines would develop one to two access roads (up to 2 acres each) and one to two small open pits taking in less than 1 acre each. Mining would be expected to continue for up to 30 years. Each mine would likely have 1 to 2 small structures and associated storage facilities onsite for 6 to 12 months of the year. There may also be full-time occupancies onsite of approximately one acre each. Visibility of the proposed disturbances and associated facilities would depend on locations of the precious opal.

For other locatable minerals, it is expected that two exploration plans of operations would be conducted averaging 50 acres of disturbance each. This could equal up to 20 miles of access roads and associated drill pads and trenches per project. The projects would most likely be conducted in the mountains, and the access roads and trenches would be visible as linear features. There may be future exploration in the valley bottoms, in which case disturbances would not be as visible. After final reclamation, it would take 5 to 10 years for vegetation to become established.

The USGS (Koski 1998) has predicted a 10 percent probability for a hot spring gold-silver deposit in the plan area consisting of approximately 630,000 troy ounces of gold, and 2.4 million troy ounces of silver. For analytic purposes, it is expected that one gold-silver mine of approximately 3 million total troy ounces would be developed, presumably in one of the areas outlined as having high potential for occurrence of hot spring deposits, either the southern Calico Mountain or the Rabbit-hole Springs area. It is assumed this mine would be developed in the mountains surrounding the plan area; disturb approximately 400 to 500 acres; and consist of an open pit heap leach operation with associated waste dumps, access roads, milling or processing facilities, and associated ancillary facilities. Reclamation would be concurrent with operations and upon final reclamation would take 5 to 10 years to establish vegetation.

No future developments are expected for industrial minerals.

Rock-hounding, especially in the Calico Mountains and the Black Rock Range, is expected to continue and to increase correspondingly with visitor use.

Leasable Minerals: Geothermal exploration may occur in the plan area in the valley bottoms or near the foothills. Approximately 20 temperature gradient holes 300 to 500 feet deep would be drilled with an associated minimal surface disturbance of 1 acre total. It is expected that a two-dimensional, possibly a three-dimensional, seismic study would be conducted. Surface disturbance associated with the exploration projects would be minimal, typified by crushed vegetation and soil compaction.

For analytical purposes, it was estimated that two 20-megawatt power plants would be developed with a projected life-span of 20 to 30 years each. One plant would possibly be constructed in the Gerlach area. The other plant may be developed near the Double Hot Springs-Black Rock Hot Springs trend, along the Black Rock Fault, or in the vicinity of Trego Hot Spring. The well-field facilities would consist of five production wells and three injection wells, totaling 2 acres disturbance each. Approximately 2 to 3 miles of pipelines would disturb about 3 acres of surface. Access roads would include a main road into the site of approximately 5 to 10 acres and roads (consisting of 5 acres) along the pipelines to all the wells. The power-generating facilities would consist of a structure (measuring 30-feet in height, by 500 feet in length, by 30 feet wide) with the generators on the ground and the cooling fans on the top. The sites would also have a control building/office, a shop, and an emergency water tower. Approximately 5 to 10 acres would be disturbed. Total disturbance associated with each project would be approximately 35 to 50 acres for a total of 70 to 100 acres total.

No oil and gas development is expected to occur in the plan area, unless favorable market conditions existed. In that case, exploration for oil and gas would most likely occur in the valley bottom. One or two geophysical studies, probably two dimensional seismic lines, would be conducted. Disturbances associated with this would be minimal and include some soil disturbance soils and crushing of vegetation. One exploration well would be drilled. Associated with this would be 2 acres of disturbance for the drill pad and 1 to 5 acres with the access road, depending on its location.

Exploration or development of sodium and potassium is not expected in the future.

No other leasable mineral or energy resources are expected to be developed.

Salable Minerals: In the future, the sand, gravel, and borrow pit deposits located along the main roads through the plan area (such as the High Road and Soldier Meadow Road) would continue to be used by the county and BLM for road maintenance within the plan area. Three more pits would likely be opened

for these purposes. A total of 12 pits would exist, disturbing approximately 5 acres each. Free-use permits and sales from the Blue Pit would continue to be issued to counties, BLM, the state of Nevada, and private individuals. Five sales a year are expected out of the Blue Pit. A major road construction project through the Gerlach area is expected in the near future, and the Blue Pit may provide some of the product for this project. Another Nevada Department of Transportation site, located at the very south end of the plan area, may also be considered. It is highly unlikely that sand and gravel products produced from within the plan boundary would be used in larger distant markets. Interest in landscape or decorative rocks is growing in the region, and it is expected that three sales of 25 to 50 tons each would be made within the plan area. The rock sales would disturb less than 5 acres each and likely use existing roads.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON ENERGY AND MINERAL RESOURCES

Public education efforts would increase public awareness and understanding of the geologic, mineral and energy resources of the region.

All minerals actions would continue to be required to reclaim the disturbances to existing VRM Class standards to minimize or eliminate potential adverse impacts to the viewshed and scenic qualities of the plan area. The level of mitigation required throughout the plan area would vary according to location of the proposed project and current VRM classification at that location (see Map 5). Although a proposed mineral activity would be required to mitigate to the appropriate VRM Class for reclamation, it would not necessarily be required to maintain that class during the entire period of operations. Concurrent reclamation would be incorporated into the operating plan, but the operations would not have to meet that standard during operations.

In general, managing the plan area to various VRM Class standards would continue to impact the various mineral and energy resources differently, depending on commodity and locations. The adverse impacts would be largely economic and be felt mostly by the operators and permittees required or encouraged to design, construct, operate, and reclaim facilities to meet the various VRM standards. The extent that operations would be affected in terms of economics depends on several factors, including the resource, its setting and location, methods of extraction and utilization, and the VRM Class in effect at a given location. For example, a low-grade, high-tonnage, open pit ore body could be more expensive to mitigate for visual resources, because there would be more ore and waste to process and, therefore, more heap leach pads and waste dumps to recontour. Locating such an operation in a VRM Class IV management area would be less costly to mitigate than locating it in a VRM Class II. A high-grade, underground deposit may be less costly to mitigate for visual resources. The BLM would work closely with the operators to ensure that construction activities include contouring, shaping, grading, and coloring to blend with existing landscapes to mitigate impacts to visual resources and achieve appropriate VRM Class standards.

Current active operations within the plan area consist of two mining notices within the Black Rock Opal ADI. This area is currently managed as VRM Class IV outside of the WSAs and VRM Class I within the WSAs. None of the operations are within the WSAs. If the WSAs are not designated as wilderness, the existing opal mines and the entire area of high potential for the occurrence of precious opal would be managed to VRM Class IV standards.

Casual use locatable operations are affected by VRM management when activity areas are reclaimed. Mining notice operators must reclaim to the VRM class in the area of their activity. Generally, mining notices can be effectively reclaimed to blend into the adjacent landscapes, without additional expenditures. Occasionally, however, steep terrain, color contrasts, and other physical conditions make blending more difficult. Because mining notices are not subject to approval, the operators must coordinate very closely with BLM to manage the notices during operations to ensure meeting the appropriate VRM standard. Mining notice operators could anticipate routing access roads, siting and coloring structures, and other similar actions to blend into the landscapes and avoid creating visual intrusions. If a mining notice operator cannot mitigate to the appropriate VRM class, the operation could be deemed unnecessary or undue degradation and require enforcement action.

Use and occupancies of mining claims regulated pursuant to 43 CFR 3715 are subject to BLM approval and would have to meet the appropriate VRM Class standard applicable to the associated mining operation throughout the term of the use, occupancy, and mining. If a use or occupancy is authorized in conjunction with a mining notice, BLM would work closely with the operator through the NEPA process to mitigate the adverse impacts of the use or occupancy to visual resources. If a use or occupancy is associated with a plan of operations, it would meet the same VRM standards as the plan of operations.

Development of oil and gas and geothermal resources would continue to be subject to VRM Class II and IV standards throughout the plan area. The areas of high potential for development of geothermal resources along the playa edges and at the bases of the mountains, especially along the Black Rock Springs-Double Hot Springs trend and the Gerlach area, are located where current management is VRM Class II (see Maps 5, 10A and 10B). The requirement for a geothermal power plant or utilization facility to meet VRM Class II standards during operations could adversely impact the potential to develop geothermal resources in this region, especially along the Applegate-Lassen Emigrant Trail corridor (see Map 2B) where geothermal and oil and gas leasing is currently permitted with special stipulations for "no surface occupancy." Therefore, potential development of geothermal resources along the Black Rock-Double Hot Springs trend would have to be located on leases that could be occupied west of the one-mile buffer along the trail.

Seismic work, temperature gradient holes, and exploration drilling could very likely result in negligible, short-term surface disturbances exceeding VRM Class II standards. However, long-term development and utilization facilities (such as power plants, cooling towers, and associated well fields and pipelines or other utilization plant and associated facilities) located west of the no-surface occupancy area would require very careful designing techniques to maintain a VRM Class II standard. Incorporating those into the overall design of the facility could cause the project to become cost prohibitive, making it highly improbable that a power plant could exist there. On the other hand, it is highly likely that a geothermal power plant or a direct utilization plant proposed in the Gerlach KGRA area could be adequately mitigated to VRM Class II standards without incurring additional costs, because there are already many disturbances and structures surrounding Gerlach. Any geothermal resources developed in the Gerlach area would most likely occur outside, and west, of the plan boundary where the most recent drilling and exploration has occurred. East of Gerlach within the plan boundary, the playa is wet and boggy most of the time. There is also the possibility of geothermal development occurring on private land in the Gerlach area.

Under current management direction, VRM would continue to be considered for permitting of mineral materials. Permitted gravel pits or mineral material sources are located in VRM Class II and IV areas, along main travel routes. In recent years, management of the gravel pits has considered the VRM

classifications more closely. Permittees may be slightly affected by management within the VRM Class II areas.

Including native plants in reclamation seed mixes for all mineral resource activities would not affect the minerals program. Native seeds are commonly utilized in reclamation seed mixes.

For proposals in Wilderness Study Areas, grandfathered rights and Valid Existing Rights would continue to be evaluated if the need arises. There are currently no known Valid Existing Rights in any of the WSAs, and it appears as if no claimants or leaseholders would be affected.

The proposed 3,500-acre mineral withdrawal in the Soldier Meadow ACEC would require Congressional approval. There are no known claimants with Valid Existing Rights located within the proposed withdrawal. This proposed mineral withdrawal lies within the Soldier Meadow ADI, but there are no high potential zones indicated for the locatable minerals. Keeping the remainder of the plan area open to location under the 1872 mining law would ensure future development of mineral resources.

Not allowing geothermal and oil and gas leasing in the proposed Soldier Meadow ACEC expansion would remove from potential development approximately 35,000 acres of high potential for geothermal resources. Although these resources are very remote and do not appear to be hot enough to produce electricity using current technology, they could be used for certain agricultural applications. Development of special mitigation measures for all approved and permitted minerals actions would emphasize protecting the important values and resources of the ACEC especially the desert dace and the cultural resources. For all proposed actions these mitigation measures may somewhat constrain and limit the scope of operations

Under current management direction, it is very probable that development of locatable and leasable mineral and energy resources could be adversely affected economically by the VRM standards that companies would have to meet to get power or utilities to or from their operations. Additionally, utilities needed for large scale mineral and energy resources developments such as mines and geothermal projects would be limited to the existing and proposed corridors, or on-site generation.

Within the proposed Soldier Meadow ACEC (except for the proposed mineral withdrawal), operations of 5 acres or less that would normally be conducted under a mining notice pursuant to 43 CFR 3809 regulations would require a plan of operations, reclamation plan, and reclamation cost estimate. An environmental assessment would be required, and a reclamation bond would need to be posted prior to approval. These procedures could adversely impact operators by increasing the amount of time and money to process approval of their operation. There are currently no claims or known interest in this area.

The following discussion does not pertain to the Soldier Meadow area, which has a Conservation Easement in place that effectively prohibits development of the geothermal resources on private lands.

With continued management under the No Action Alternative, a consequence to energy resources would be the effect to the oil and gas and geothermal resources and the potential development of those resources. The "no surface occupancy" restrictions applied to leases within the 97,288 acres along the Applegate-Lassen Emigrant Trail corridor has effectively removed from leasing interest and subsequent development of public land containing high potential geothermal resources. This restriction makes it impossible for a lessee to develop a fluid leasable resource from directly above the resource. The range-

bounding fault causes the Black Rock-Double Hot Springs trend is situated right along the Applegate-Lassen Emigrant Trail (see Map 11). Assuming the best location for the development of geothermal resources in that area would be near, and/or paralleling, the linear fault zone, the nearest surface a lessee could develop the resource from would be one mile to the west of the trail. With this assumption, the physical logistics of developing the resource this distance from the surface expression of the geothermal resource and on the playa would likely increase the initial capital expenditure. Wet weather on the playa would make the surface unstable for heavy equipment (turbines or drill rigs) or access roads.

This leads to another consequence of permitting leasing with "no surface occupancy" restrictions on the leases: the impacts to the federal geothermal resources from development on private lands should this occur. Approximately 440 acres of private land are located on high potential geothermal resources along the fault between Black Rock Hot Springs and Double Hot Springs and adjacent to Double Hot Springs (see Map 11). According to 43 CFR 3210.22 and 3210.23, it is the lessee who assumes responsibility for preventing "drainage" from their lease and paying the federal government the royalties if their lease is "drained" and the lessee takes no action to prevent it. On lands where leasing is allowed with "no surface occupancy," the lessee could have a lease next to the private land, but they could not occupy the surface of the lease. Assuming development from the private lands would be more economical, and development occurs, the lessee on adjacent public lands therefore becomes responsible for any "drainage" that occurs from the lease. This could become an economic liability that a potential lessee may not wish to assume. The consequences of "no surface occupancy" restrictions, combined with the possible increased expenditures to mitigate for visual resources (in an earlier discussion), could result in a reluctance on the part of developers to lease these lands. Therefore, in areas where leasing is managed with "no surface occupancy" restrictions on public lands, and the private landowner chooses to develop the resource on private lands, the federal resources could potentially be depleted without payment of royalties.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON ENERGY AND MINERALS

The proposed Flowing Wells primitive campground would be located immediately south of the Southern Calico Mountains ADI. If a mine were developed in the southern Calico Mountains (once released from WSA status) it would in all likelihood be visible from the proposed campground. The VRM management of this area for the proposed action calls for plans of operations to be mitigated to VRM Class III during operations and VRM Class II for final reclamation. VRM management of any plan of operation would need to be considered very carefully from the perspective of the campground.

Prior to planning and construction of a visitor center, BLM would coordinate with leaseholders and claimants in the proposed construction area to be sure there would be no conflicts with mineral resource development.

Within areas classified as **closed**, a plan of operations would have to be filed pursuant to 43 CFR 3809.1-4(b)(5) for operations other than casual use. This includes operations that would normally be conducted under a notice. These areas would also require a reclamation plan, a reclamation cost estimate, an environmental assessment, and posting of a reclamation bond. These requirements could make a proposed operation uneconomical, because it would cost more money to process the proposal. Activities such as claim staking, prospecting, and rockhounding, which are sometimes conducted using vehicles to

drive cross country, would have to be conducted from existing roads and trails. The restriction on driving cross country would likely inconvenience people participating in these activities.

In areas classified as **limited**, activities such as prospecting and staking of mining claims, and rock-hounding would have to be conducted according to that restriction. Motorized travel would be restricted to existing roads, trails and dry washes. Claimants, prospectors, and rock-hounders would be somewhat inconvenienced by the **limited** restriction. Rock-hounders in the area located along the crest of the southern Black Rock Range, east of Hardin City, and Double Hot Springs would be affected by this restriction.

Public education efforts would increase public awareness and understanding of the geologic, mineral and energy resources of the region.

Managing the entire plan area to a VRM Class II standard would impact the various mineral and energy resources differently. The adverse impacts would primarily be economic and would be felt mostly by the operators and permittees who would be required or encouraged to design, construct, operate and reclaim facilities to meet VRM Class II standards. The extent to which an operation would be affected economically depends on several factors, including the resource, its setting and location, methods of extraction, and utilization. For example, a low-grade, high-tonnage ore body could be more expensive to mitigate for visual resources, because there would be more ore and waste to process and, likewise, more heap leach pads and waste dumps to recontour. The BLM would work closely with operators to ensure that construction activities include contouring, shaping, grading, and coloring to blend with existing landscapes to mitigate the adverse impacts to visual resources and achieve the appropriate VRM Class standards

Casual use operations for locatable minerals will not be affected by the VRM Class II standard. Exploration operations are usually temporary and considered short term and would not be required to maintain VRM Class II throughout the period of operations. Any staging or mobile facilities would be required to be removed at the termination of each phase of the project. This applies to both mining notices and plans of operations. Mining notice operators may be affected economically by the requirement to reclaim to VRM Class II. An exception would be operators in the Southern Calico Mountains and Cassidy ADIs who may operate to VRM Class III. Generally, mining notices can be effectively reclaimed to blend into adjacent landscapes. Occasionally, steep terrain, color contrasts and other physical conditions make blending more difficult. Because mining notices are not subject to approval, the operators would have to coordinate very closely with BLM to manage the notices during operations to ensure they are managed to meet the appropriate VRM standard. Mining notice operators could anticipate routing access roads, siting and coloring structures, and other similar actions to blend into the landscapes and avoid creating visual intrusions.

If a mining notice operator cannot mitigate to the appropriate VRM class, the operation could be deemed unnecessary or undue degradation and may require enforcement action. Mining notices in existence as of the effective date of this plan amendment would be allowed to operate as they are presently, except that new amendments or proposals to these mining notices must adhere to the VRM management guidelines of the selected alternative. These two mining notices are operating opal mines. The BLM and the operator would coordinate closely to ensure that final reclamation of current mining notices would achieve VRM Class II standards.

Requiring mining plans of operations to reclaim to VRM Class II within the plan area would most likely increase the cost of designing, constructing and reclaiming the project site. This requirement would likely have adverse economical impacts on the operation. The degree of economic impact would depend on the location, commodity, ore grade, mining and extraction methods, and visibility of the site from various locations within the plan area.

Allowing locatable mining plans of operations and mining notices located in the Cassidy and Southern Calico Mountains ADIs to operate to VRM Class III standards during operations would most likely reduce the expense of designing a low visibility project, which would have a positive effect on the cost of mining.

Use and occupancies of mining claims regulated pursuant to 43 CFR 3715 are subject to BLM approval and would have to meet the appropriate VRM Class standard that applies to the associated mining operation throughout the term of the use, occupancy, and mining. If a use or occupancy is authorized in conjunction with a mining notice, BLM would work closely with the operator through the NEPA process to mitigate the adverse impacts of the use or occupancy to visual resources. If a use or occupancy is associated with a plan of operations it would meet the same VRM standards as the plan of operations would.

Development of oil and gas and geothermal resources would be subject to VRM Class II standards throughout the plan area. Exploration activities would be considered short term and could exceed VRM Class II for this period. Power plants, cooling towers, well fields and other associated long term facilities would be required to operate to VRM Class II throughout the period of operations. The requirement for a geothermal power plant or utilization facility to meet VRM Class II standards during operations could adversely impact the potential to develop geothermal resources in this region, especially considering the proposal to not allow geothermal or oil and gas leasing along the Applegate-Lassen Emigrant Trail corridor (see Map 11). Potential development of geothermal resources along the Black Rock-Double Hot Springs trend would have to be located on areas that could be leased west of the one-mile buffer along the trail. The Emigrant Trail follows the hot springs that are surface expressions of the geothermal resource rising to the surface along the Black Rock fault. The resource rising along the fault zone would not be available for development, because leasing would not be allowed over the fault zone. Leasing and development would have to proceed at least one mile to the west of the trail. It is very likely that seismic work, temperature gradient holes, and exploration drilling could result in negligible, short-term surface disturbances that would not exceed VRM Class II standards. A power plant or other utilization plant and associated facilities located west of the "no leasing" area would require very careful designing techniques to maintain a VRM Class II standard. Incorporating those into the overall design of the facility could cause projects to become cost prohibitive.

It is highly likely that a geothermal power plant or a direct utilization plant proposed in the Gerlach area could be adequately mitigated to VRM Class II standards without incurring additional costs, because there are already many disturbances and structures surrounding Gerlach. Any geothermal resources developed on public land in the Gerlach area would likely occur outside, and west of, the plan boundary where most of the recent drilling and exploration has occurred. Geothermal resource development is unlikely to occur east of Gerlach within the plan area, because the playa is wet and boggy most of the time.

Requiring all mineral material sales free-use permits to operate to VRM Class II standards may slightly affect permittees, due to extra costs associated with pushing down stockpiles and sloping the side banks between periods of operation. It is highly unlikely that the VRM Class II standard would preclude

development of mineral materials. The Blue Pit is tucked away in a location along the main access road between Gerlach and Hualapai Flat and is not visible from the playa. If permittees construct roads to access gravel pits or rock sale areas, they may incur extra expense to maintain the VRM Class II standard.

Including native plants in reclamation seed mixes for all mineral resource activities would not affect the minerals program. Native seeds are commonly utilized in reclamation seed mixes.

In areas classified as **limited** to protect paleontologic resources in the Rabbithole area, operators and claimants would be affected by the restriction for prospecting and claim staking activities.

For proposals in the Wilderness Study Areas, grandfathered rights and Valid Existing Rights would continue to be evaluated if the need arises. Since there are no known valid existing mineral rights in any of the WSAs, it appears that no claimants or leaseholders would be affected.

Keeping most of the plan area open to location under the 1872 mining law would ensure future development of mineral and energy resources. Proposed mineral withdrawals over 5,000 acres would require Congressional approval, as stated in Section 204 of FLPMA. The proposed mineral withdrawal in the Soldier Meadow Activity Plan is approximately 3,500 acres. The proposed mineral withdrawal along the Applegate-Lassen Emigrant Trail corridor is approximately 36,000 acres. Together, the proposed mineral withdrawals would equal approximately 39,500 acres, and both would require Congressional approval. If approached separately, the proposed mineral withdrawal in the Soldier Meadow Activity Plan could be completed without seeking Congressional approval.

Existing mining claims located in the proposed mineral withdrawal would be evaluated for Valid Existing Rights. The highest concentration of existing claims located along the proposed mineral withdrawal are located in the Rabbithole Springs area (see Map 9). This area has high potential for the occurrence of hot spring and placer gold deposits.

The objectives outlined in Alternative 1 (Proposed Action) would modify how BLM issues geothermal and oil and gas leases within the plan area and how those resources could be developed. Not allowing geothermal and oil and gas leasing in the proposed Soldier Meadow ACEC expansion would remove from potential development approximately 30,000 acres of area having high potential for geothermal resources. Although this resource is very remote and does not appear to be hot enough to produce electricity using current technology, it could be used for certain agricultural applications. Developing special mitigation measures for all approved and permitted minerals actions would emphasize protecting the important values and resources of the ACEC, especially the desert dace and the cultural resources. For all proposed mineral leasing activities, these mitigation measures may constrain and limit the scope of operations.

Alternative 1 (Proposed Action) would substantially modify management and potential development of geothermal, and to a lesser extent oil and gas resources that have low potential, along the Applegate-Lassen Emigrant Trail. Changing the status on approximately 97,000 acres from leasing with stipulations for "no surface occupancy," to "no leasing" has major consequences. It removes from future development all known geothermal resources east of the corridor and up to the crest of the Black Rock Range (see Map 11). Under current management, the resources can be leased and developed, but the surfaces of the lease cannot be occupied. The rationale was that the resource could be tapped by

directional drilling. In fact, allowing leasing with “no surface occupancy” restriction on such a large block of land effectively eliminates resource development within that entire area.

Another significant consequence of not permitting leasing on approximately 97,000 acres along the Applegate-Lassen Emigrant Trail would be the adverse impacts to the federal geothermal resources from development on private land should this occur. Approximately 440 acres of private land are located on high potential geothermal resources along the fault between Black Rock Hot Springs and Double Hot Springs and adjacent to Double Hot Springs (see Map 11). According to 43 CFR 3210.22 and 3210.23, the lessee assumes responsibility for preventing “drainage” from the lease and paying the federal government the royalties if the lease is “drained” and the lessee takes no action to prevent it. In areas where no leasing is proposed on public lands, and the private landowner chooses to develop the resource on private lands, the federal resources could then be depleted without payment of royalties.

The Proposed Action (Alternative 1) would also modify the potential for development at Trego Hot Springs and its associated geothermal system where approximately 1,280 acres of high potential geothermal resources would be removed from geothermal and oil and gas leasing. Trego Hot Springs is located along established utility corridors paralleling the railroad tracks near the southern edge of the plan area (see Maps 2 and 11); therefore, if geothermal resources could be utilized in the future for electrical generation, a utility corridor would be available. Any proposal to construct a new utility line or a geothermal utilization facility would be more likely to meet VRM Class II standards, because there are existing linear disturbances. A major consequence of the “no leasing” proposal in the Trego area is that a resource having potential to be developed, meet VRM Class II standards, and utilize an existing utility corridor would not be available for leasing.

No leasing of other leasable minerals would preclude development of those minerals. The approximately 147,760 acres having low potential for development of sodium and potassium would be removed from potential development. Since there are no known occurrences or current interest in sodium and potassium, there would be no adverse impacts. Other solid leasable minerals have no known potential in the plan area and would not be affected.

It is likely that development of locatable and leasable resources could be adversely affected economically by the VRM standards required of companies to get power to or from their operations. Additionally, utilities needed for large-scale mineral and energy resources developments, such as mines and geothermal projects, would be limited to the existing and proposed corridors, or on-site generation.

Within the proposed Soldier Meadow ACEC, except in that area where the 3,500-acre mineral withdrawal is proposed (see Maps 9 and 15), operations of five acres or less that would normally be conducted under a mining notice pursuant to 43 CFR 3809 regulations would require a plan of operations, reclamation plan, and reclamation cost estimate to be submitted. NEPA compliance would be required, and a reclamation bond would need to be posted prior to approval. These procedures could adversely affect operators by increasing the amount of time and money involved in having their operation approved. There are currently no claims or known interest in this area.

The “no leasing” stipulation within the proposed Soldier Meadow ACEC would remove from potential development approximately 35,000 acres of high potential geothermal resources, which would adversely affect the potential to develop this resource.

CONSEQUENCES OF ALTERNATIVE 2 ON ENERGY AND MINERALS

Prior to planning and construction of a visitor center BLM would coordinate with leaseholders and claimants with Valid Existing Rights in the proposed construction area to be sure there would be no conflicts with mineral and energy resource development.

After Valid Existing Rights have been evaluated, in areas classified as **closed** a plan of operations would have to be filed pursuant to 43 CFR 3809.1-4(b)(5) for proposed operations other than casual use. This would also require a reclamation plan, a reclamation cost estimate, an environmental assessment, and posting of a reclamation bond. This could potentially adversely affect the economics of a proposed operation. Operators could be affected economically by the additional costs to develop a proposal.

Public education efforts would enhance public awareness and understanding of the geologic and mineral and energy resources of the region.

Managing the plan area to a VRM Class I standard would impact the various mineral and energy resources differently. The adverse impacts would be largely economic and would be felt mostly by those operators and permittees required or encouraged to design, construct, operate and reclaim facilities to meet VRM Class I standards. It is impossible to say to what extent an operation would be affected in terms of economics. That depends on several factors. The resource, its setting and location, methods of extraction, and utilization. For example, a low-grade, high-tonnage ore body could be more expensive to mitigate for visual resources, because there would be more ore and waste to process and, likewise, more heap leach pads and waste dumps to recontour. The BLM would work closely with the operators to ensure that construction activities include contouring, shaping, grading, and coloring that blends with existing landscapes to mitigate adverse impacts to visual resources and to achieve VRM Class I standards during all phases of the operations.

Casual use operations for locatable minerals would be slightly affected by the VRM Class I standard. Any casual use disturbances would be reclaimed to VRM Class I. However, unless a claim with Valid Existing Rights was being worked on, the casual use operation would not be managed under 43 CFR 3809.

Mining notice operators may be slightly affected economically by the requirement to reclaim to VRM Class I. Generally, very minor additional costs are required for mining notices to effectively reclaim to blend with adjacent landscapes. Steep terrain, color contrasts and other physical conditions may occasionally make blending more difficult. Because mining notices are not subject to approval, the operators would have to coordinate very closely with BLM to manage the notices during operations to ensure they are managed to meet the appropriate VRM Class I standard. Mining notice operators could anticipate routing access roads, siting and coloring structures, and other similar actions to blend into the landscapes and avoid creating visual intrusions. If a mining notice operator cannot mitigate to the appropriate VRM Class I the operation could be deemed unnecessary or undue degradation and may require enforcement action. Mining notices that are in existence as of the date of the finalization of this plan amendment shall be allowed to operate as they are, except that new amendments or proposals to these mining notices will fall under VRM Class I management guidelines. At this time there are four active mining notices located within the Black Rock Opal ADI. Two are operating mines, and two are

prospects. The BLM and the operator would coordinate closely to ensure that final reclamation of current mining notices would achieve VRM Class I standards.

Requiring mining plans of operations to reclaim to VRM Class I within the plan area would most likely increase the cost of designing, constructing, and reclaiming the project site. This requirement would likely have adverse economical impacts on the operation. The degree of economic impact would depend on the location, commodity, ore grade, mining and extraction methods, and visibility of the site from various locations within the plan area.

Exploration operations are usually temporary and considered short term and would not be required to maintain VRM Class I throughout the period of operations. Any staging or mobile facilities would be required to be removed at the termination of each phase of the project. This applies to both mining notices and plans of operations

Use and occupancies of mining claims regulated pursuant to 43 CFR 3715 are subject to BLM approval and would have to meet VRM Class I standard that applies to the associated mining operation throughout the term of the use, occupancy, and mining. If a use or occupancy is authorized in conjunction with a mining notice, BLM would work closely with the operator through the NEPA process to mitigate the impacts of the use or occupancy to visual resources. If a use or occupancy is associated with a plan of operations it would meet the same VRM standards as the plan of operations would through the NEPA process associated with the authorization under 43CFR 3715.

Subject to Valid Existing Rights, development of oil and gas and geothermal resources would be subject to VRM Class I standards throughout the plan area. Exploration activities would be considered short term and could exceed VRM Class I for this period. Power plants, cooling towers, well fields and other associated long term facilities would be required to operate to VRM Class I throughout the period of operations. The requirement that a geothermal power plant or utilization facility would have to meet VRM Class I standards during operations could adversely impact the potential to develop geothermal resources in this region. It is very likely that activities such as seismic work, temperature gradient holes, and exploration drilling, could result in negligible, short term surface disturbances that would not exceed VRM Class I standards. A power plant, or other utilization plant and associated facilities would require very careful designing techniques to maintain a VRM Class I standard. Incorporating those into the overall design of the facility could cause the project to become cost prohibitive.

It is highly likely that a geothermal power plant or a direct utilization plant proposed in the Gerlach area could be adequately mitigated to VRM Class I standards with some additional costs, because there are already many disturbances and structures surrounding Gerlach. Any geothermal development on public lands in the Gerlach area would most likely occur outside, and west of, the plan boundary where the most recent drilling and exploration has occurred. Geothermal resource development is unlikely to occur east of Gerlach within the plan boundary, because the playa is wet and boggy most of the time. There is, however, a high probability that geothermal resources could be developed on private land in the Gerlach area.

Requiring all mineral material sales free-use permits to operate to VRM class I standards may slightly affect the permittees because of the extra cost of pushing down stockpiles and sloping the side banks between periods of operation. The VRM Class II standard is highly unlikely to preclude development of mineral materials. This VRM standard would not likely affect permittees utilizing the Blue Pit, because the pit is located off the main access road between Gerlach and Hualapai Flat and cannot be seen from

the playa. If roads were constructed to access gravel pits or rock sale areas, the permittees may have extra expense incurred to maintain the VRM Class II standard.

Including native plants in reclamation seed mixes for all mineral resource activities would not affect the minerals program, nor would it affect the operators. Native seeds are commonly utilized in reclamation seed mixes.

Management objectives in Alternative 2 would substantially change how locatable and leasable mineral and energy resources are managed. The major impact of Alternative 2 is its effect on future development of the indicated potential for occurrence of mineral and energy resources. Because the plan area would be withdrawn from mineral entry and withdrawn from leasing, Valid Existing Rights would have to be evaluated for all new proposals within the plan area. At this time within the plan boundary, there is one geothermal lease near Gerlach, several mining claims, but no oil and gas leases. Therefore, only a few operators or permittees would be affected by the restriction on mineral development, especially with regards to VRM management.

A mineral withdrawal in the plan area would mean that no new mining claims could be located for a period of 20 years, at which time the withdrawal would be reviewed to determine if it continues to meet the planning objectives for the area. This would adversely affect future prospecting and exploration efforts and potential development. The economic benefits of projects that would not be authorized would not be realized. Existing mining claims would be evaluated for Valid Existing Rights. The projected gold mine in the Southern Calico Mountains would not be developed, but until the WSA is released it could not be developed anyway. New exploration or mining projects would be authorized only if Valid Existing Rights existed.

A significant consequence of not permitting oil and gas and geothermal leasing within the plan boundary would be the potential adverse impacts to the federal geothermal resources from development on private lands should this occur. According to 43 CFR 3210.22 and 3210.23, the lessee assumes responsibility for preventing "drainage" from his lease and paying the federal government the royalties if his lease is "drained" and the lessee takes no action to prevent it. Therefore, in areas where no leasing is proposed on public lands and the private landowner chooses to develop the resource on private lands, the federal resources could then be depleted without payment of royalties.

Projected leasing, exploration, and development on 201,384 acres of high potential and 264,435 acres of moderate potential for of geothermal resources would not occur. The possible development of two geothermal power plants would not happen and the economic and energy benefits of those would not be realized. Potential leasing and exploration on 190,780 acres of low potential oil and gas and 147,760 sodium and potassium would not occur.

Mineral material sales and free-use permits would continue to be authorized out of the Blue Pit in order serve the needs of the local community. This would benefit the local communities of Gerlach and Hualapai Flat. Most of the mineral material pits developed within the plan area are used for maintaining roads within the plan area, rather than for public use, so eliminating those from the general public would not adversely affect the public needs. Possible sales of landscape or decorative rocks would be forgone. This may affect a market that is growing, but has not yet shown demand within the plan area.

CUMULATIVE IMPACTS TO MINERAL AND ENERGY RESOURCES

Under the No Action Alternative, the non-development of geothermal energy resources in Soldier Meadow ACEC would result in a cumulative adverse economic impact. A beneficial impact would result, however, from the resource not being depleted. Continued management of geothermal and oil and gas resources along the Applegate Lassen Trail as leasing with “no surface occupancy” could continue to preclude development of geothermal resources and reduce potential economic benefits. Developing geothermal resources from private lands could potentially drain federal resources, resulting in a cumulative adverse impact to the federal resources and revenues. Economic benefits to the private sector would be beneficially affected. If energy and mineral developments are proposed within a VRM Class II area, additional monetary expenditures to meet the visual resource requirements could result in cumulative adverse economic impacts to lessees and operators.

Alternative 1 (Proposed Action), which prescribes no geothermal leasing in areas having high resource potential where private lands are located, could have cumulative adverse impacts to the federal resources if the resources were developed from private lands. Federal geothermal resources could be depleted, without monetary compensation, while the private sector would receive the economic benefits. If development did not occur on private lands in a “no leasing” area, the resource would remain for future development, resulting in a cumulative beneficial impact. In areas where mineral withdrawals and “no leasing” are proposed, very limited or no geologic exploration would take place. Lack of investigations would result in limited knowledge of the geology of the region, especially the mineral and energy resources. Mitigating all mineral developments to VRM Class II standards would increase monetary expenditures over time. Permittees removing salable minerals would be slightly affected by the increased expenditures to maintain VRM Class II standards.

Alternative 2 impacts to energy and mineral resources would be similar to Alternative 1 (Proposed Action). Stipulating “no leasing” in the entire plan area would save for future development many of the geothermal and oil and gas resources. If development occurred on adjacent private lands, the depletion of the resources would be an adverse impact to federal resources, while being a beneficial impact to the private sector. Development of locatable minerals would be precluded by mineral withdrawal in the plan area. Development of Valid Existing Rights could be adversely affected by mitigation measures related to VRM Class I standards. Increased knowledge of the geologic and mineral resources of the entire plan area would be limited due to restrictions of “no leasing” and the proposed mineral withdrawal.

IRRETRIEVABLE AND IRREVERSIBLE IMPACTS

There would be no irretrievable or irreversible impacts to the mineral and energy resources. Under the management objectives and actions proposed in Alternative 2, mineral and energy resource development would be limited to Valid Existing Rights at the time of finalizing the land use plan amendment. Therefore, most mineral and energy resources would remain for future development. It may appear that withdrawal from mineral entry and the “no leasing” stipulation would forever into the future preclude mineral resource development. However, according to Section 204 of FLPMA after 20 years a mineral withdrawal must be reviewed. On the other hand, if the area has been closed to mineral entry and leasing, only a very limited amount of exploration or mineral potential assessment activities would be conducted within the 20-year time frame, and therefore a review would lack up-to-date information.

Lands and Realty

AFFECTED ENVIRONMENT

The plan area encompasses approximately 454,160 acres, of which about 443,540 acres are public lands administered by the BLM. The private lands, which total about 10,620 acres, consist primarily of small parcels. Some of the private land is used for agricultural production or is located near springs. Soldier Meadow Ranch is a large ranching operation that is primarily involved in the cattle industry, but also operates as a dude ranch and bed & breakfast business.

In 1993, BLM acquired 5,147 acres of private land formerly associated with the Soldier Meadow Ranch. Also, to protect the habitat of the Desert Dace (a federal threatened species), the BLM acquired a conservation easement on 5,145 acres of private lands still associated with the Soldier Meadow Ranch. The conservation easement also preserves the natural character of private portions of the Applegate-Lassen Emigrant Trail, as well as the historic character of the ranch headquarters.

Land Tenure (Acquisition)

As opportunities arise, the BLM considers acquisition of private lands interspersed with public lands. The BLM continues to focus on acquiring lands that hold high cultural and historical value, and on private inholdings that have high resource values including, but not limited to, habitat for threatened and endangered species. Land acquisitions are considered on a case-by-case basis through exchange, purchase, or donation.

Lands to be acquired must:

- Facilitate access to public land and resources.
- Provide resource protection.
- Facilitate implementation of the Management Framework Plans (MFPs).
- Provide for a more manageable land ownership pattern.
- Maintain or enhance public uses and values.
- Be reviewed for water rights and other encumbrances (easements, rights-of-way, and access).
- Be inventoried for noxious weeds.

The following list is not considered all-inclusive, but identifies some major factors that are evaluated when considering acquisition actions:

- Land acquisition actions that may adjust county and local tax base and grazing preference will be coordinated with the appropriate government entity and/or permittee.
- All water rights appurtenant to the lands identified for acquisition will be verified prior to any acquisition action. Any agreements among the BLM, private landowners, and persons holding water rights will be presented to the state of Nevada Engineer's office for review. The State Engineer will be notified of any change in ownership.
- Public resource values or concerns, including but not limited to: threatened, endangered, or BLM and/or state sensitive species habitat; riparian areas; floodplains and wetlands; fisheries; nesting/breeding habitat for game and non-game birds or animals; key big game seasonal habitat; wild horse and burro habitat; developed recreation and recreation access sites; municipal

watersheds; energy and mineral potential; visual resources; cultural resources; paleontology; Native American traditional cultural properties; cultural resource sites eligible for inclusion on the National Register of Historic Places; wilderness and areas being studied for wilderness; and other statutory-authorized designations.

- Accessibility of the land for public uses.
- Manageability (difficulty or cost of administration).
- Suitability and need for change in land ownership for management and use by other state and federal agencies.

Land Tenure (Disposal)

The lands within the planning area have been identified for retention in the Paradise-Denio and Sonoma-Gerlach MFPs Approved Lands Amendment (USDI 1999). However, upon inventory and application of the public benefits criteria, lands in this area identified as suitable for disposal could be classified for disposal, and the above plan would be amended in accordance with 43 CFR 1610.5-5.

The following list is not considered all-inclusive, but identifies some key factors to be evaluated when considering disposal actions:

- All lands considered for disposal must meet one or more of the criteria outlined in Section 203(a) of the Federal Land Policy and Management Act. These are lands that are difficult or uneconomical to manage; lands acquired for a specific purpose, but no longer required for that or another Federal purpose; or lands that will serve important public objectives, including, but not limited to, expansion of communities and economic development, and that outweigh other public objectives and values. Disposal lands may serve the purpose: 1) of community expansion and economic development; 2) of local governmental needs; or 3) to facilitate Federal land management, by blocking up land ownership patterns, thus reducing BLM administrative costs.
- Land disposal actions that adjust county and local tax base and grazing preference will be coordinated with the appropriate government entity and/or permittee.
- All water rights appurtenant to the lands identified for disposal will be verified prior to any disposal action. Any agreements among the BLM, private landowners, and persons holding water rights will be presented to the state of Nevada Engineer's office for review. The State Engineer will be notified of any change of ownership.
- Lands may be disposed through the Desert Land Act. In addition to the criteria cited below, the soils identified in a proposed Desert Land Act entry must have a Land Capability Class of I, II, or III, and must possess adequate water, as determined by the state of Nevada Water Engineer.
- The BLM will not dispose of public lands occupied by listed or proposed threatened or endangered species, or identified as crucial wildlife habitat, unless other public uses outweigh the value of a parcel identified as Federally-owned threatened or endangered species habitat. Disposal will be considered on a case-by-case basis. When disposal of public land that serves as habitat for threatened or endangered species is proposed, consultation with the U.S. Fish and

Wildlife Service under Section 7 of the Endangered Species Act is required. Exchange for other parcels of habitat will be encouraged. Other mitigation may also be required.

- Any impacts to cultural resources from proposed disposal actions will be mitigated by plans developed in consultation with the State Historic Preservation Officer, affected tribes, and interested publics.
- Public resource values or concerns, including but not limited to: sensitive species habitat; riparian areas; floodplains and wetlands; fisheries; nesting/breeding habitat for game and non-game birds or animals; key big game seasonal habitat; wild horse and burro herd management areas; developed recreation and recreation access sites; municipal watersheds; energy and mineral potential; visual resources; cultural resources; paleontology; Native American traditional cultural properties; cultural resource sites eligible for inclusion on the National Register of Historic Places; wilderness and areas being studied for wilderness; and other statutory-authorized designations.
- Accessibility of the land for public uses.
- Amount of public investments in facilities or improvements (such as range improvements and wildlife projects) and the potential for recovering those investments.
- Manageability (difficulty or cost of administration).
- Significance of the decision in stabilizing business, social and economic conditions, and/or lifestyles.
- Encumbrances or conflicts of record; such as water rights, consistency of the decision with cooperative agreements and plans or policies of other agencies.
- Suitability and need for change in land ownership or use for purposes including community development (state and local), but not limited to community expansion, or other purposes such as industrial, residential or agricultural (other than grazing) development.

Rights-of-Way

Above-ground facilities may be authorized south of the railroad tracks in the existing designated transportation corridor (see Map 2), subject to environmental analysis. The Sonoma-Gerlach Management Framework Plan (USDI 1982b, 4.1) designates the transportation corridor as follows: "In the vicinity of the Black Rock Desert Playa from Sulphur to Gerlach, transportation or utility facilities will be located within a designated corridor bounded one-quarter mile north and two and three-quarter miles south of the Western Pacific Railroad. Only underground utility facilities will be located north of the Western Pacific Railroad." The area located east of County Road 34 and Soldier Meadow Road, and north of the railroad tracks in the designated transportation corridor is restricted to underground facilities only. No utility facilities are allowed to cross the playa of the Black Rock Desert, other than in the corridor previously mentioned. All above-ground facilities are to be mitigated to meet VRM standards established for the specific area impacted.

Communication sites may be authorized provided they do not impact the visual integrity of the Applegate-Lassen Trail, and they are in compliance with the Interim Management Policy and Guidelines outlined for the Wilderness Study Areas.

Commercial and Non-Commercial Activities

Commercial and non-commercial activities including, but not limited to, photography and filming permits may be authorized within the plan area, subject to environmental analysis and evaluation of potential visual impacts to the Applegate-Lassen Trail.

CONSEQUENCES OF THE NO ACTION ALTERNATIVE ON LANDS AND REALTY

Under the No Action Alternative, management would continue under existing law, regulations, and the guidelines set forth in the existing MFPs, as amended, and as described in the affected environment above.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON LANDS AND REALTY

Impacts on Land Tenure (Acquisition)

The objectives outlined in Alternative 1 (Proposed Action) would not revise current management direction with regard to how BLM would acquire private inholdings and easements within the plan area. As opportunities arise, the BLM would seek to acquire private lands that hold high resource values. The BLM would also solicit acquisition of easements that provide access to public lands. Private land and easements would be acquired through donation, exchange, and purchase.

Impacts on Land Tenure (Disposal)

The objectives outlined in Alternative 1 (Proposed Action) would not revise current management direction with regard to how BLM would dispose of public land within the plan area. Public lands within the plan area would be identified for retention unless, through the land use planning process, it is determined that the selected parcel does not contribute to the plan's overall objective and/or where such land ownership adjustments would result in a net benefit to the public.

Impacts on Rights-of-Way

The objectives outlined in Alternative 1 (Proposed Action) would modify current management direction with regard to how BLM would issue rights-of-way within the plan area. Above-ground facilities could be authorized south of the railroad tracks in the existing designated transportation corridor (see Map 2A). The plan area located east of County Road 34 and Soldier Meadow Road would be restricted to underground facilities only. This would provide an unobstructed view of the playa area from these roads. No utility facilities would be allowed to cross the playa of the Black Rock Desert, unless they remain

within the corridor previously mentioned. Communication sites and above-ground facilities would be mitigated to VRM II standards. This includes all ancillary facilities associated with mining operations located outside of the Mining Plan of Operations. Operators and grantees would need to ensure that any construction activities were contoured, shaped, graded, and colored to blend with existing landscapes to achieve VRM Class II standards. All project applicants would be required to incorporate concurrent reclamation activities into their proposals.

If the High Rock Lake and Calico Mountains Wilderness Study Areas are released by Congress from Wilderness consideration, facilities (including communication sites) could be authorized west of County Road 34 and Soldier Meadow Road if the proposed facilities can be mitigated to meet VRM Class II standards. This would allow for overhead utility service to private land as long as those facilities and/or structures could be sited, constructed, and colored to minimize the contrast with the surrounding landscape. Siting any overhead facilities on the west side of County Road 34 and Soldier Meadows Road, and allowing only underground facilities east of these roads would provide an unobstructed view of the playa area. All project applicants would be required to incorporate concurrent reclamation activities into their proposals.

All types and categories of linear utilities would be impacted if they are required to be buried underground. The location of most private land within the proposed plan area that may request service is fairly remote. Because of their location, the costs associated with burying some types of facilities (such as large electrical transmission lines and smaller electrical distribution lines of significant length) may be so prohibitive as to block any service from being brought onto private lands. Generally, all costs associated with permit processing, construction, and maintenance are ultimately passed to the end consumer. All buried utilities require some type of vaulting above ground to access the cable for repairs and maintenance. If placed on public land, such vaulting would be required to meet VRM Class II standards.

Impacts on Commercial and Non-Commercial Activities

The objectives outlined in Alternative 1 (Proposed Action) would modify current management direction with regard to how BLM issues permits and leases within the plan area. Commercial and non-commercial activities including, but not limited to, photography and filming permits could be authorized subject to environmental analysis and evaluation of potential adverse visual impacts to the Applegate-Lassen Trail. Authorized activities would be minimal impact in nature and mitigated to VRM Class II standards.

This area is often used by the commercial filming and photography industry, because of the unique setting. Filming and photography conducted in the plan area (with the exception of the south playa) could decrease under Alternative 1, because all OHV travel would be limited to the playa surface and existing roads and trails. Large-scale projects that may cause significant short-term impacts may be limited to the south playa area (see Special Recreation Permits).

Lease proposals would have to consider consistency of their uses with plan objectives for Alternative 1. Any uses or structures associated with commercial and non-commercial activities would have to mimic the basic form, line, color and texture of existing landscapes to meet VRM Class II standards. All long-term proposals would be required to incorporate concurrent reclamation activities into their projects.

CONSEQUENCES OF ALTERNATIVE 2 ON LANDS AND REALTY

Impacts on Land Tenure (Acquisition)

The objectives outlined in Alternative 2 would not revise current management direction with regard to how BLM would acquire private inholdings and easements within the plan area. As opportunities arise, the BLM would seek to acquire private lands that contain high resource values. The BLM would also solicit acquisition of easements across private lands to provide access to public lands. Private land and easements would continue to be acquired through donation, exchange, and purchase.

Impacts on Land Tenure (Disposal)

Under Alternative 2, no public land within the plan area would be available for disposal through sale or exchange. This management direction could hinder efforts to block up private and public lands within the plan area. Exchanges would be limited to private lands located within the plan area and public lands located outside of the plan area boundary.

Impacts on Rights-of-Way

Under Alternative 2, no new rights-of-way would be authorized within the plan area, unless the proposed facilities could be mitigated to meet VRM Class I standards. All utilities within the plan area would likely be buried underground to meet VRM Class I standards, including those placed in the existing designated transportation corridor (see Map 2A). Because the location of most private land in the area is fairly remote, costs associated with burying some types of facilities, such as large electrical transmission lines and smaller electrical distribution lines of significant length, may be prohibitive enough to block any service from being brought into private lands. Costs associated with permit processing, construction, and maintenance for service are generally passed on to the end consumer. All buried utilities require some type of vaulting that is above ground to access the cable for repairs and maintenance. This vaulting, if placed on public lands would be required to meet VRM Class I standards.

Any proposed site rights-of-way, including communication sites, would not be considered unless they could be mitigated to meet the VRM Class I standards.

If the High Rock Lake and Calico Mountains Wilderness Study Areas are released, facilities (including communication sites) could be authorized if the proposed facilities could be mitigated to VRM Class I standards.

Impacts on Commercial and Non-Commercial Activities

Commercial and non-commercial activities including, but not limited to, photography and filming permits would continue to be authorized under Alternative 2, subject to environmental analysis and evaluation of potential adverse visual impacts to the Applegate-Lassen Trail. Authorized activities would result in no adverse impacts and would be mitigated to VRM Class I standards.

The plan area is used often by the commercial filming and photography industry because of its unique setting. These industries bring significant revenue into the communities of Gerlach and Empire in the form of motel rental, gasoline purchases, and food purchases. Large-scale projects with potential to cause

significant short-term adverse impacts to the area may not be authorized, resulting in lost revenue to the communities of Gerlach and Empire.

Under Alternative 2, lease proposals would only be considered if uses were consistent with the objectives of the plan, and uses or structures mimicked the basic form, line, color and texture of the existing landscapes, to blend with the existing landscape to meet VRM Class I standards. All long-term proposals would be required to incorporate concurrent reclamation activities into their projects.

Vegetation and Noxious Weeds

AFFECTED ENVIRONMENT

Much of the plan area is the playa, which is barren except for isolated occurrences of vegetation (see Map 13). Salt-tolerant shrubs such as greasewood grow in edge-area dunes, mounds, and sand sheets. The deep soils along lower slopes (3,800 to 4,200 feet) on the flats adjacent to the playa support sagebrush and black greasewood. Shadscale, bud sagebrush, and Bailey greasewood dominate the alluvial fans at elevations of 4,200 to 5,000 feet. Lahontan sagebrush dominates mountain sites up to about 6,500 feet elevation. Bitterbrush, mountain mahogany and aspen are found in higher elevations at 8,600 feet, and mountain big sagebrush and low sagebrush dominate higher elevations.

Riparian vegetation in the plan area includes several common species: willow, aspen, red osier dogwood, Nevada bluegrass, wiregrass, alkali bullrush, cattails, and various species of rushes and sedges.

Noxious Weeds: Noxious weeds are non-native invasive plants. When introduced to an area, noxious weeds can quickly dominate the landscape, especially when their populations are uncontrolled. Noxious weeds may proliferate to the point of crowding out other plants that benefit wildlife and domestic animals. Wildlife and grazing animals do not often eat noxious weeds, because their thorns, spines, and a chemical content make them unpalatable.

Noxious weeds are spread from infested areas by people, equipment, livestock/wildlife, and the wind. The potential for additional weed infestations grows along with increased weed populations and activities such as mining, oil and gas exploration, road maintenance, grazing, and recreational use, primarily through off-road vehicle use.

The Winnemucca Field Office conducts ongoing inventories of noxious weeds through contract and with office personnel. The purpose of inventory is to document locations of weed infestations so that control and eradication measures can be implemented. This inventory was started in 1997 and is ongoing.

To date, inventory efforts have identified four noxious weeds within the proposed plan area: perennial pepperweed (*Lepidium latifolium*), Russian knapweed (*Centaurea repens*), bull thistle (*Cirsium vulgare* [Savi] Tenore), and salt cedar (*Tamarix ramosissima*) (see Map 13). Treatments are currently done along the northern and eastern boundaries of the proposed plan area for perennial pepperweed and Russian knapweed. An anticipated increase in funding for noxious weeds will allow treatment of broader areas, as prioritized from the inventory. Priorities are set at the beginning of each field season by field office specialists, and treatments are conducted by contract or by field office personnel certified as pesticide applicators in conjunction with the Nevada Department of Agriculture.

CONSEQUENCES OF THE ALTERNATIVES ON VEGETATION AND NOXIOUS WEEDS

Under the No Action Alternative, the vegetation within the plan area could be damaged or destroyed by crushing, exposing roots, soil compaction, and introduction of toxic substances by continued recreational use on mounds/dunes, playa edge areas, uplands, springs, meadows, and streamside riparian areas. Off-road vehicle use, camping, and use of warm springs for bathing would continue to contribute to loss of vegetation and introduction of non-native, undesirable vegetation.

Alternative 1 would reduce adverse impacts to vegetation by limiting OHV use and camping and through public education. Alternative 2 would further reduce adverse impacts.

Under all alternatives, noxious weeds are expected to continue to spread. The degree to which noxious weeds spread would be directly correlated to human activities and control efforts in the area. Although natural elements, such as wind and wildlife, would contribute to weed proliferation under all alternatives, range animals (livestock and horses) and activities involving OHVs would contribute to much of the increased weed populations.

Alternative 1 would help control the spread of noxious weeds by limiting OHV travel. Alternative 2 would further help control the spread of noxious weeds by requiring all OHV vehicles to be cleaned immediately before entering the plan area, and requiring the use of weed-free feed for range animals and horses for two weeks prior to their transport into the area.

CUMULATIVE IMPACTS ON VEGETATION AND NOXIOUS WEEDS

Increased emphasis on interpretation, as stated in Alternative 1 (Proposed Action) and Alternative 2, would educate the public on vegetation and spread of noxious weeds. Limiting OHV use, camping, and mining in the plan area as proposed in Alternative 1 (Proposed Action) and Alternative 2 may lead to a decrease of adverse impacts on vegetation and a decrease in the spread of noxious weeds. However, indirectly, an increase of adverse impacts on vegetation and spread of noxious weeds could occur on public and private lands surrounding the plan area.

Under the No Action Alternative, which would allow unchecked OHV use and would not require the use of weed-free feed, there would be continued and accelerated spread of weeds in the plan area. Limiting OHV travel in Alternative 1 would inconvenience some recreationists, but would reduce the spread of noxious weeds over the long term. Requiring OHV vehicles to be cleaned immediately before entering the plan area would also inconvenience some recreationists, but would further reduce the spread of noxious weeds over the long term. Requiring the use of weed-free feed for range animals and horses for two weeks prior to their transport into the area would cause some short-term inconvenience and economic impact for some ranchers and recreationists, but would further reduce the spread of noxious weeds over the long term, which would improve the range for livestock.

Range

AFFECTED ENVIRONMENT

The plan area includes portions of four grazing allotments: Soldier Meadow, Leadville, Buffalo Hills, and Blue Wing (see Table 3-15 and Map 13). These allotments encompass a total of approximately 302,000 acres in the proposed plan area. Soldier Meadow has the most acres (64% of its total acreage) in the plan area, Leadville and Buffalo Hills have 14 to 17 percent, and the Blue Wing Allotment has less than 1 percent. The majority of the Black Rock Desert playa is outside the four allotment boundaries (see Map 13). Since the playa has little to no vegetation, it is not included as part of any grazing allotment.

All four allotments have Multiple Use Decisions (MUDs) that address specific rangeland issues, including forage allocation, livestock grazing systems, monitoring, and range improvement projects. These allotments are monitored annually to ensure compliance with the respective MUDs. Any future allotment re-evaluations would also incorporate the Standards For Rangeland Health (see Appendix A) as developed in consultation with the Sierra Front-Great Basin Resource Advisory Council, other publics, and approved by the Secretary of the Interior on February 12, 1997.

See Tables 3-15 and 3-16 for additional information on these allotments.

Allotment	Management Category ¹	Total Acres	Acres in Plan Area	Percent in Plan Area
Soldier Meadow	I	332,726	214,333	64
Leadville	M	54,572	7,621	14
Buffalo Hills	I	431,006	71,404	17
Blue Wing	I	1,279,299	8,644	<1
TOTAL		2,097,603	302,002	

¹ I = Improve, and M = Maintain (see glossary)

Table 3-16. Allotment Permit Information

Allotment	Type of Domestic Animals	Number of Animals	Season of Use	Total AUMs ¹
Soldier Meadow	Cattle	1,117	1/1 to 12/31	7,687
Leadville	Cattle	235	5/1 to 10/15	1,291
Buffalo Hills	Cattle	613	4/1 to 10/15	3,984
	Cattle	20	4/1 to 10/15	130
Blue Wing	Cattle	836	3/1 to 2/28	6,620
	Sheep	4,320	12/7 to 3/17	2,867
Total		6,524 to 7,141		22,579

¹Amount of forage to sustain a cow and her calf (up to 6 months of age) or five sheep for one month.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON RANGE

Under the No Action Alternative (present management), OHV use and recreational activities would continue to adversely impact springs, meadows and riparian areas by reducing vegetation and introducing undesirable non-native vegetation. Unlimited access to all areas in the plan area, excluding Wilderness Study Areas, could degrade water sources and forage for livestock. In addition, OHV disturbances to livestock, especially during calving season, could separate cows from their calves. The OHV traffic could also displace livestock from critical water sources, especially during the hot summer months. Due to the limited interpretation provided with this alternative, public education would depend on casual contact, which is a limited and unorganized means of providing information to the public on rangeland management.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON RANGE

Management actions in Alternative 1 (Proposed Action) are expected to help maintain proper livestock grazing systems, which is important to sustaining healthy rangelands. Among the beneficial management actions are limiting vehicle use to designated roads, which should reduce disturbance to livestock grazing, especially during calving season when OHV activity could separate cows from their calves. Another benefit from limiting vehicles to certain roads is that there would be reduced potential for livestock to be displaced from water sources. The management action to limit access would also benefit rangeland resources by reducing adverse impacts to springs, meadows, and riparian areas.

Increased emphasis on interpretation with Alternative 1 (Proposed Action) would provide an educational outreach to the public about historical ranching activities and public land grazing in the area. This educational outreach should improve public awareness and understanding of multiple use management of public rangelands.

CONSEQUENCES OF ALTERNATIVE 2 ON RANGE

Management actions of Alternative 2 regarding limiting access would benefit rangeland resources by reducing adverse impacts to springs, meadows, and riparian areas that provide watering and foraging sources for range animals. The proposal to limit access would also reduce the potential for OHV activity to separate cows from their calves. This educational outreach should improve public awareness and understanding of multiple use management of public rangelands.

The proposal to require the use of weed-free feed for all domestic range animals brought into the plan area, together with the proposal to require all OHVs to be cleaned immediately before entering the plan area, would reduce the spread of noxious weeds over the long term, therefore improving the range overall.

CUMULATIVE IMPACTS ON RANGE

Under the No Action Alternative, impacts upon livestock grazing on public lands within the proposed plan area would remain as they are. Under Alternative 1 (Proposed Action), the increased emphasis on public education and interpretation should result in an improved public awareness and understanding of the multiple use management of rangeland resources. Limiting OHV use to designated routes and ways should reduce the potential of disturbing livestock and displacing them from water sources. Alternative 2 would have the additional benefit of limiting the spread of noxious weeds on the allotment areas that are within the plan area.

Wild Horses and Burros

AFFECTED ENVIRONMENT

The planning area encompasses part of four Herd Management Areas (HMAs) and one Herd Area (HA) (see Map 13 and Table 3-17). The Black Rock Range-West, Calico Mountains, and Warm Springs Canyon HMAs are located north of the Union Pacific Railroad tracks. There are approximately 42,840 acres (43%) of the Black Rock Range-West, 72,491 acres (46%) of the Calico Mountains, and 16,800 acres (20%) of the Warm Springs Canyon HMAs within the plan area. Wild horses are primarily found at higher elevations in the HMAs, except for the winter months when there is some movement to the valley floor. Burros are found only in the Warm Springs Canyon HMA, typically on upland areas in the vicinity of the hot springs complex, from Fly Canyon north to the mouth of Warm Springs Canyon.

The Lava Beds HMA and Selenite Range HA are located south of the Union Pacific Railroad tracks. There are approximately 10,100 acres (4%) of the Lava Beds HMA, and 1,260 acres (1%) of the Selenite Range HA within the plan area. Wild horses are seldom found within the proposed plan area boundary. Wild horses may utilize Rabbithole Spring during droughts or the late summer season, as water becomes scarce at other sources. Wild burros are not found within the planning area boundary.

Table 3-17 lists the appropriate management level (AML) for Wild Horses and Burros by allotment in each HMA and HA, as well as October 1999 estimated population. The management objectives, management actions, and the Appropriate Management Level for wild horses and burros were established

by the Blue Wing/Seven Troughs, Buffalo Hills, Leadville, and Soldier Meadow Allotments Final Full Force and Effect Multiple Use Decisions.

Table 3-17. Appropriate Management Level for Wild Horses and Burros, by Allotment		
Herd Management Area/Herd Area	AML Range	Estimated Population October 1999
Black Rock Range-West HMA Soldier Meadow Allotment	Horses 60 to 93	Horses 404
Calico Mountains HMA Buffalo Hills Allotment Leadville Allotment Soldier Meadow Allotment	Horses: 106 to 142 Horses: 95 to 126 Horses: 49 to 65 Total: 250 to 333	314 494 264 Total: 1,072
Lava Beds HMA Blue Wing/Seven Troughs Allotment	Horses: 89 to 119 Burros: 10 to 13	Horses: 179 Burros: 34
Warm Springs Canyon HMA Soldier Meadow Allotment	Horses: 131 to 175 Burros: 18 to 24	Horses: 578 Burros: 30
Selenite Range HA Blue Wing/Seven Troughs Allotment	Horses: 0 Burros: 0	Horses: 5 Burros: 0

CONSEQUENCES OF NO ACTION ALTERNATIVE ON WILD HORSES AND BURROS

Continued recreational use with no limitations and open access to all areas except WSAs, as proposed under the No Action Alternative, could damage and degrade vegetation and water resources, reducing forage and available water for wild horses and burros. Disturbance to wild horses and burros by OHVs could increase, particularly during the foaling period and the hot summer months when animals are more closely associated with watering sites.

Present areas of recreational use are not adversely impacting any of the four herd management areas in the plan area. However, increasing numbers of people using the plan area in an unlimited manner as No Action allows could extend cross-country OHV activity beyond the current use areas and result in disturbance to wild horses and burros. The casual, non-structured interpretation provided for in the No Action Alternative would limit educational outreach about wild horses and their management on public land.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON WILD HORSES AND BURROS

Management actions in this alternative, to limit access and OHV activity, should benefit wild horses within the plan area by reducing potential for disturbing them, minimizing impacts to vegetation and water resources that provide forage and water, and providing protection for streams and riparian areas that serve as habitat components.

Opportunities to view wild horses and burros would not likely be reduced. Increased emphasis on interpretation in Alternative 1 (Proposed Action) should educate the public on the history, habitat, and impacts by public land users on wild horses and burros in the plan area. This should lead to a greater appreciation of the wild horses and burros, as well as a decrease in human impacts to them. Increased presence of BLM employees and volunteers will help detect and resolve potential problems. Opportunities to acquire private lands should increase management opportunities for wild horses and burros.

CONSEQUENCES OF ALTERNATIVE 2 ON WILD HORSES AND BURROS

The habitat, including vegetation and water sources, of wild horses and burros would be protected more under this alternative than under No Action and Alternative 1 (Proposed Action). Access limitations and OHV closure under this alternative would reduce disturbance to wild horses and burros and also chances for viewing wild horses and burros. The casual, non-structured interpretation provided for in the No Action Alternative would limit educational outreach about wild horses and their management on public land.

CUMULATIVE IMPACTS ON WILD HORSES AND BURROS

Increased emphasis on interpretation, as stated in Alternative 1 (Proposed Action) and Alternative 2, would educate the public on wild horse and burro life histories, habitat needs, and impacts by public land users to them not only in the plan area, but also in the entire district. Limiting OHV activities in the plan area as proposed in Alternative 1 (Proposed Action) and Alternative 2 would reduce disturbance to wild horses and burros within the plan area; however, adverse impacts on wild horses and burros and their habitat would increase on public lands surrounding the plan area as these users seek out new areas. The entire plan area boundary is surrounded by wild horse and burro herd management areas; designation of an intensive-use OHV area outside the plan area would adversely impact wild horses particularly during the foaling season, March through May. Intensive use during this time period would place undue stress on mares and new-born foals, potentially causing foals to become separated from their mares, as they run from OHVs.

Wildlife and Fisheries

AFFECTED ENVIRONMENT

The habitat and wildlife within the plan area are representative of northern Great Basin flora and fauna. The plan area has an unusual mosaic of diverse habitat types within a relatively small area (see Map 14). Small patches of sagebrush and grasslands provide year-long habitat for mule deer and pronghorn antelope. Aspen and mountain mahogany provide nesting sites for a variety of bird species more commonly found in more heavily timbered areas. Large and small rim rock complexes in canyons and along mountain ridges provide cliff and rock slope habitats that are primary nesting sites for swallows, swifts, golden eagles, prairie falcons, turkey vultures and numerous species of hawks. These rim rocks also provide escape cover for bighorn sheep, denning sites for mountain lions and bobcats, and year-long homes for many small mammals including ground squirrels, wood rats, rabbits and marmots. The abandoned mine shafts and adits in the plan area, along with some of the natural caves, provide potential and probably occupied habitat for numerous species of bats. At this time, however, intensive bat inventories have not been completed within the plan areas.

Water sources are important to the location and survival of plants and animals within the plan area. Small seeps and springs provide water and meadow habitats of green lush vegetation during hot, dry summer months to various wildlife species, including sage grouse. Riparian habitats are used extensively by wildlife, including neotropical and migrant bird species in the spring and fall months, including hummingbirds, finches, warblers, thrushes, and orioles. Small, shallow lakes provide seasonal habitat for resident and migrant waterfowl and shorebirds including American avocet, killdeer, black-necked stilt, long-billed curlew, Canada geese, mallard, gadwall, cinnamon teal, northern shoveler, redhead, canvasback and tundra swan. The small streams and spring outlets provide wet meadow and stream-side riparian habitats used by a great variety of species.

The playa area provides little to no habitat potential for any wildlife, fish or plant species other than microscopic flora and fauna and some invertebrates. Some use of the dunes in the southern part of the playa by birds, rodents and kit foxes has been observed. When flooded, the playa provides resting and limited feeding areas for waterfowl and shorebirds.

Huntable populations of mule deer, pronghorn antelope, bighorn sheep, chukar, sage grouse, California quail, waterfowl and small game species such as rabbits are found within the plan area. Complete species lists for the mammals, birds, reptiles and amphibians found on the Winnemucca District are available at the BLM office in Winnemucca. Most of the species on these lists can be found within the plan area .

The lack of large perennial streams in the plan area limits stream fisheries. Tui chub are found in Donnelly Creek; Tui chub, desert dace, and speckled dace are found in spring outlets in the Soldier Meadow area; and mosquito fish have been introduced to the hot springs pool at Trego.

CONSEQUENCES OF NO ACTION ALTERNATIVE ON WILDLIFE AND FISHERIES

A continued loss of vegetation under the No Action Alternative could adversely affect food, water, cover and breeding areas for species using these areas. Wildlife could also be adversely impacted by disturbance from increasing numbers of people using the plan area. Unlimited OHV use could disturb wildlife during critical times of their life cycle and increase the vulnerability of game species during hunting seasons.

The increasing numbers of people expected to visit the plan area each year could disturb wildlife during critical times of their life cycle, including breeding, nesting, birthing, and rearing seasons.

Continuing to use an informal education program, without a theme, would not support the interpretive approach to educate the public about wildlife species needs in the plan area and the impacts of human activities on them.

In general during the short term, OHV use under the No Action Alternative could degrade or destroy vegetation in upland areas, as well as water sources, in the plan area for wildlife.

Potential mineral development under the No Action Alternative could have direct and indirect negative impacts to fish and wildlife populations on the plan area outside of the area covered by the Soldier Meadow Activity Plan.

Increased vehicle traffic associated with exploration, operation and reclamation activities could increase the potential for wildlife to be injured or killed. Power lines needed for operation of facilities could pose an electrocution hazard to raptors and other birds using the poles as perches, unless bird protection devices were used on the poles. Power line installation could cause increased predation from raptors using power poles as hunting perches.

Construction of any facilities could disturb some wildlife species during critical times in their life cycle, including nesting, rearing, migration, and wintering. Construction, road building and fencing of facilities could displace individual animals, and interrupt daily movement and migration patterns of some species such as mule deer and pronghorn. Operation of sites could lead to a net loss in habitat due to the location of buildings, pits, leach pads and waste dumps.

Geothermal exploration and development could interrupt flows in springs and adversely impact macroinvertebrate populations, and populations of animals dependent on them. Reinjection of water may cool aquifers, adversely impacting thermal-dependent species. Discharge of warm water on the surface may also deplete the subsurface reservoir, which could have long-term adverse impacts by lowering the temperature of springs. Discharge water released on the surface could produce wetland habitats that benefit wetland wildlife and plant species if the water is of sufficient quality. If the water has toxins, the wetland could be lethal to species using them. Warm water discharge may also adversely impact species dependent of cooler water if mixing occurs.

With increased use of the area there is a greater potential that some people may explore old mine shafts, adits and natural caves. This disturbance to bats during critical periods in their life cycle, such as breeding, rearing and hibernation, could be detrimental to populations.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON WILDLIFE AND FISHERIES

Management actions in Alternative 1 (Proposed Action) would benefit terrestrial and aquatic species within the project area. Providing protection to spring areas would benefit terrestrial and aquatic species by reducing habitat degradation and reducing disturbance to these species during critical seasons, including mating; birthing, nesting, brooding and rearing.

Limiting vehicle use to designated roads would reduce disturbance to wildlife during critical seasons, as mentioned above under No Action Alternative, and lower the vulnerability of game species during hunting seasons. A reduction in OHV use would also help protect wildlife habitat values in the area, including forage and cover.

Emphasis on interpretation in Alternative 1 would educate the public on wildlife life histories, habitat needs and impacts by public land users to the species in the area. This would lead to a greater appreciation for wildlife and a decrease in adverse impacts of the public on plants and wildlife, even if the total numbers of visitors to the plan area increases. In addition, the increased presence of BLM employees and volunteers would help detect any issues early, allowing them to be addressed in a timely manner.

Including stipulations in special recreation permits that specifically address measures to minimize adverse impacts to various resource values in the plan area could benefit wildlife and fisheries populations by protecting their habitats.

Impacts to wildlife and fisheries habitat from mineral development would be similar to the No Action Alternative, except that Alternative 1 would provide more habitat protection by removing an increased amount of area from locatable mineral development along the Applegate-Lassen Trail Corridor.

In the short term, Alternative 1 (Proposed Action) would benefit wildlife populations by improving physical habitats and limiting human disturbances. In the long term, wildlife populations are expected to be maintained or increased.

CONSEQUENCES OF ALTERNATIVE 2 ON WILDLIFE AND FISHERIES

Adverse impacts to fish and wildlife resources from actions taken in this alternative would be minimized further, and benefits to these populations would be greater than those from the actions taken in Alternative 1 (Proposed Action). More habitat would be protected under Alternative 2 as a result of the total withdrawal of locatable mineral development within the plan area (except for existing claims) and additional limits on OHV activities.

CUMULATIVE IMPACTS ON WILDLIFE AND FISHERIES

Increased emphasis on interpretation, as stated in Alternative 1 (Proposed Action) and Alternative 2, would educate the public on wildlife life histories, habitat needs, and impacts by public land users to

species, not only in the plan area, but also in the entire district. Limiting activities in the plan area as proposed in Alternative 1 (Proposed Action) and Alternative 2 may lead to a decrease of adverse impacts on wildlife habitat and disturbance within the plan area, but, indirectly, an increase of adverse impacts on wildlife habitats and increased disturbance of wildlife populations on public and private lands surrounding the plan area.

Special Status Animal and Plant Species

AFFECTED ENVIRONMENT

Most of the habitat for desert dace (*Eremichthys acros*), a federally listed threatened species, is on public land around Soldier Meadow in the northern part of the plan area. Donnelly Creek, located on the east side of the central Calico Mountains, is a proposed reintroduction site for Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), a federally listed threatened species. Species of hydrobiid spring snails (Genus *Pyrgulopsis*) have also been identified in some springs and their outflows within the proposed plan area (see Map 15). These snails are unique to specific springs and may not be found in any other spring complexes.

Table 3-18 has a list of Nevada BLM sensitive species of plants and animals occurring or having potential to occur in the plan area.

Table 3-18. List of Nevada BLM Sensitive Species of Plants and Animals Occurring or Having Potential to Occur Within the Plan Area.

Note: those marked with an asterisk have been identified within the plan area.

Common Name	Scientific Name
Mammals	
Pygmy rabbit*	<i>Brachylagus idahoensis</i>
Spotted bat	<i>Euderma maculatum</i>
Small-footed myotis	<i>Myotis ciliolabrum</i>
Long-eared myotis	<i>Myotis evotis</i>
Fringed myotis	<i>Myotis thysanodes</i>
Long-legged myotis	<i>Myotis volans</i>
Pacific Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii townsendii</i>
Birds	
Western burrowing owl*	<i>Athene cunicularia hypugea</i>
Black Tern	<i>Chlidonias niger</i>
Sage grouse*	<i>Centrocercus urophasianus</i>
Plants	
Windloving buckwheat*	<i>Eriogonum anemophilum</i>
Crosby's buckwheat*	<i>Eriogonum crosbyae</i>
Grimy ivesia*	<i>Ivesia rhypara</i> var. <i>rhypara</i>
Smooth stickleaf*	<i>Mentzelia mollis</i>
Cordelia beardtongue*	<i>Penstemon floribundus</i>
Basalt cinquefoil*	<i>Potentilla basaltica</i>
Schoolcraft's catseye*	<i>Cryptantha schoolcraftii</i>

CONSEQUENCES OF NO ACTION ALTERNATIVE ON SPECIAL STATUS SPECIES

The consequences of No Action on special status species would be similar to those impacts identified for special status species in the Soldier Meadow Activity Plan (SMAP; USDI 1998b).

Continued loss of vegetation under the No Action Alternative could adversely affect food, water, cover and breeding areas for special status species using these areas. Special status species could also be

adversely impacted by increasing numbers of people using the plan area. Unlimited OHV use would disturb special status species during critical times of their life cycle and increase vulnerability of sage grouse during hunting seasons. An increase in recreation use, particularly OHV activities, could increase siltation, destabilize streambanks, decrease stream bank vegetation, and introduce toxic substances into aquatic environments. These actions could adversely impact special status aquatic animal populations by causing siltation in spawning gravels, decreasing food bases, and increasing water temperatures by removing shading and decreasing instream and bank cover. Human disturbance at critical periods, such as spawning, could adversely impact aquatic species. Plant species could also be adversely impacted by the increase in recreation use, including OHV activities. Special status plant populations could decrease due to soil compaction; introduction of toxic substances, such as motor oil, gasoline or detergents; and uprooting or pruning of individual plants.

The increasing numbers of people expected to visit the plan area each year may disturb special status species during breeding, nesting, birthing, or rearing seasons, which are critical times for all wildlife species.

Continuing to use an informal education program, without an interpretive theme, would not support the interpretive approach to educate the public about special status species needs in the plan area and the impacts of human activities on them.

In general during the short term, the No Action Alternative (by not limiting OHV use) could degrade or destroy vegetation in upland areas including special status plant species, as well as water sources, in the plan area that special status species are dependent on.

Potential mineral and energy development under the No Action Alternative could have direct and indirect negative impacts to special status species populations in the plan area that is outside of the area covered by the Soldier Meadow Activity Plan.

Increased vehicle traffic due to exploration, operation and reclamation activities could cause direct mortality to special status species. Power lines needed for operation of facilities could pose an electrocution hazard to raptors and other birds using the poles as perches. This could be mitigated with bird protection devices on the poles. Power line installation near sage grouse strutting, nesting, rearing, and/or wintering areas could cause increased predation from raptors using poles as hunting perches.

Development activities could cause disturbances during critical times in the life cycle of some special status species such as nesting, rearing, migration and wintering. Construction, road building and fencing of facilities could displace individual animals and then interrupt daily movement and migration patterns of some special status species. Actual operation sites could lead to a net loss in habitat due to the location of buildings, pits, leach pads and waste dumps.

Geothermal exploration and development could interrupt flows in springs and adversely impact macroinvertebrate populations and populations animals dependent on them, using those springs systems. Discharge of water may cool aquifers if reinjected, thereby adversely impacting thermal-dependent special status species. If discharge water is released on the surface it could produce wetland habitats that may benefit wetland special status species, if the water is of sufficient quality. If the water has toxins the wetland could be lethal to the special status species using them. Warm water discharge may also adversely impact special status species that are dependent on cooler water through mixing.

An increase in use of the area may lead to exploration of old mine shafts, adits and natural caves. This disturbance to bats during critical periods in their life cycle (such as breeding, rearing and hibernation) could be detrimental to their populations.

In the long term, wildlife populations could decrease, resulting in further listings under the Endangered Species Act.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON SPECIAL STATUS SPECIES

Consequences for the species of concern within the Soldier Meadow Activity Plan area are discussed in that document (USDI 1998b).

Management actions in Alternative 1 (Proposed Action) would benefit special status species within the project area. Providing protection to spring areas would benefit terrestrial and aquatic species by reducing habitat degradation and reducing disturbances to these species during critical seasons, including mating, birthing, nesting, brooding, and rearing.

Limiting vehicle use to designated roads would reduce disturbances to special status species during critical seasons mentioned above and lower the vulnerability of sage grouse during hunting seasons. Physical habitat parameters would also be protected from destruction resulting from off-road vehicle use.

Emphasis on interpretation in Alternative 1 would educate the public about the life histories and habitat needs of special status species, as well as the role of public land users in helping to protect these species in the area. Such interpretation would lead to a greater appreciation for these species and a decrease in human impacts on them, even if the total numbers of visitors to the plan area increases. In addition, the increased presence of BLM employees and volunteers would help detect any issues early, allowing them to be addressed in a timely manner.

Including stipulations in special recreation permits that specifically address minimizing adverse impacts to various resource values could benefit wildlife and fisheries populations and protect their habitats..

Adverse impacts to special status species from mineral development would be similar to the No Action Alternative, except Alternative 1 would protect more habitat by removing an increased amount of area from locatable mineral development along the Applegate-Lassen Trail Corridor.

In the short term, Alternative 1 (Proposed Action) would benefit wildlife populations by improving physical habitats and limiting human disturbance. In the long term, wildlife populations are expected to be maintained or increased, resulting in a lower probability of additional listings under the Endangered Species Act.

CONSEQUENCES OF ALTERNATIVE 2 ON SPECIAL STATUS SPECIES

Impacts on the species of concern within the plan area would be similar to those addressed in the Soldier Meadow Activity Plan (USDI 1998b). Adverse impacts to special status species from actions taken in Alternative 2 would be minimized further, and benefits to these populations would be greater than those from the actions taken in Alternative 1 (Proposed Action). More habitat would be protected under Alternative 2 than the other two alternatives, considering the total withdrawal of locatable mineral development within the plan area (except for existing claims) and additional limits on OHV activities.

CUMULATIVE IMPACTS ON SPECIAL STATUS SPECIES

Increased emphasis on interpretation, as stated in Alternative 1 (Proposed Action) and Alternative 2, would educate the public on wildlife life histories, habitat needs, and impacts by public land users to species not only in the plan area, but also in the entire district. Limiting activities in the plan area as proposed in Alternative 1 (Proposed Action) and Alternative 2 may lead to a decrease on wildlife habitat and disturbance within the plan area, but, indirectly, an increase of adverse impacts on wildlife habitats and increased disturbance of wildlife populations on public and private lands surrounding the plan area

Air Quality

IMPACTS TO AIR QUALITY FROM ALL ALTERNATIVES

Dispersed OHV activities and special recreation permit event activities associated with all alternatives would be a temporary source for airborne particulates and gaseous emissions. Vehicles traveling along dirt roads and the playa surface may create fugitive dust and possible sustained direct brown- or white-out events. Adverse air quality impacts would occur from dust generated due to aircraft landing and taking off. These impacts would be localized in nature and would be of temporary duration. Temporary gaseous emissions would also occur from vehicle and aircraft traffic in the area. These impacts would be of short duration and would quickly dissipate.

Other potential air quality impacts could occur from burning of synthetics. Synthetics could emit dangerous vapors, the consequences of which may be unknown to visitors. These impacts would also be localized and short term.

Socio-Economics

AFFECTED ENVIRONMENT

Portions of the planning area are within Humboldt, Pershing, and Washoe counties; and the potential exists for each of these counties to experience economic effects as a result of management prescriptions for this plan. The principal economic activities conducted on these resource lands are recreation, agriculture, and mining.

LOCALE AND ACCESS

The main access to the Black Rock Desert is through the towns of Gerlach and Empire, which are just outside the southwest boundary of the planning area, on State Route 447. Neither Gerlach nor Empire are incorporated. The population of Gerlach Township was estimated at 867 for 1997, and is projected to grow to no more than 891 persons in the year 2000. Almost all of these people reside in Gerlach or Empire. Other than in the towns, habitation in the area is on isolated ranches.

Gerlach has some limited retail services, including a motel, a few restaurants and bars, and a gas station with a tow-truck. Empire is about 6 miles south of Gerlach, and serves as a residency for employees of the U.S. Gypsum mine and wallboard plant. There is a general store and gas station in Empire.

None of the services in Gerlach or Empire are available 24-hours-a-day. There is a medical clinic and a Washoe County Sheriff station in Gerlach; however, the nearest full medical and emergency services are in the Reno-Sparks area, about 110 miles distant. Cellular phones are not always successfully used in the Black Rock Desert area, as the closest transmission towers are in the Reno-Sparks area. Several pay telephones are available in Gerlach and Empire. There are no banks or Automated Teller Machines (ATMs).

The town of Fernley is located about 75 miles south of the plan area, on Nevada State Highway 447 at its intersection with Interstate 80. Nearly all services are available in Fernley, including a hospital. Fernley has the nearest American Automobile Association (AAA) towing service, banks and ATMs. About 30 miles west of Fernley is the Reno-Sparks metropolitan area with all major facilities and services. Medical air-lift service is available in Reno for remote assistance.

The nearest town to the north is Cedarville, California, about 84 miles from Gerlach on State Route 447. Cedarville has limited services. Major services are available in Alturas, 30 miles west of Cedarville. County Road 34, a good improved road, leads north from Gerlach to Vya (no services), and from there to Cedarville, California or Denio, Nevada. Winnemucca offers complete services, but is 98 miles east of Gerlach on an unpaved, very rough road. All other roads in the area are passable when dry, but are best driven in a high-clearance, four-wheel-drive vehicle. There are no services and few inhabitants along the back-country roads.

Humboldt County

Humboldt County, the fourth largest of the state's 17 counties, is rural and sparsely populated. With a total area of approximately 9,700 square miles, and an estimated 1998 population of 18,190 (Nevada State Demographer's Office, September 1999), population density for the county is slightly less than 1.9 persons per square mile. The largest population center in the county, and its only incorporated city, is Winnemucca with a 1998 population estimate of 8,800, representing almost half of the county's population.

The federal government represents a significant presence in the county, as illustrated by land ownership data. Almost 80 percent of the county's 6,210,560 acres (4,964,568 acres) are under federal ownership. Federal Payments in Lieu of Taxes to Humboldt County for fiscal year 1999 amounted to approximately \$492,000.

Table 3-19 shows earnings by place of work, and employment by major industrial sectors, for Humboldt County in 1997. Total personal income for the county in 1997 is reported at approximately \$391 million, which includes earnings by place of work, personal contributions for social insurance, adjustments for residence, dividends, interest, and rent, and transfer payments. Earnings by place of work constituted the majority of that total (about \$345.4 million). Per capita personal income is estimated at about \$22,368 for 1997. This per capita personal income ranked sixth in the state and was 84 percent of the state average of \$26,514, and 88 percent of the national average of \$25,288.

Table 3-19. Humboldt County Earnings and Employment, by Major Industry (1997).

Industrial Sector	Earnings (in thousands of dollars)		Employment	
	\$000	Percent Of Total	Number Of Jobs	Percent of Total
Agriculture	9,389	2.7	471	4.4
Agriculture Services	2,161	0.6	244	2.3
Mining	136,678	39.6	2,487	23.4
Construction	22,789*	6.6	610*	5.8
Manufacturing	14,050	4.1	240	2.3
Transportation and Public Utilities	25,268	7.3	514	4.8
Wholesale and Retail Trade	42,792	12.4	1,997	18.8
Finance, Insurance, and Real Estate	4,219	1.2	277	2.6
Services	46,903*	13.6	2,506*	23.6
Government	41,158	11.9	1,279	12.0
TOTAL	345,407	100.0	10,625	100.0

*BLM estimates

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is further comprised of dividends, interest, rent and transfer payments, less personal contributions for social insurance.

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May (1999)

Total employment is estimated at 10,625. The mining industry is the single most important employer and income producer for the county, employing about 2,500 people and generating \$136.7 million in income. The mining industry represents 23.4 percent of employment and 39.6 percent of income in the county. The service industries provide the second largest source of income and employment, at an estimated \$46.9 million and about 2,500 jobs.

Humboldt County unemployment was reported for the fourth quarter of 1999 at 340 persons, for an unemployment rate of 4.4 percent. This compares with data for the fourth quarter of 1998, which indicates 370 people unemployed and an unemployment rate of 4.5 percent. However, during this period, total employment actually declined by 650 persons, but there were also 680 fewer people in the labor force.

Agriculture continues to be regarded as the foundation of the county's economic base. Humboldt County is one of the leading agricultural counties in Nevada. Total cash receipts from agricultural marketings in 1997 were reported as \$52.7 million, with \$16.7 million from livestock and livestock products and \$36 million from crops. This was second in the state, with almost 16 percent of the state's total agricultural receipts.

The economy of Humboldt County remains tied to mining, however. A study conducted by the University of Nevada-Reno's Center for Economic Development reported that over 56 percent of total economic activity in Humboldt County is created by the gold mining industry. Therefore, while direct employment by the mining industry accounts for less than one-third of the employment in the county, the industry provides over one-half of the economic activity and three-quarters of the income in the county (Tingley et al. 1993, USDI 1996, Tri-County Development Authority 1996).

The economic dependence on the mining industry makes the regional economy very vulnerable to external conditions, such as fluctuations in world prices and demand. This potential risk has been noted by local development authorities. Overall Economic Development Plans have been developed for both Humboldt and Pershing Counties to provide direction and support in the development of other industries and economic activities in order to diversify the economy. Target industries for development include gaming and tourism, recreation, agriculture, and geothermal resources (USDI 1996, Tri-County Development Authority 1995).

Pershing County

Pershing County, too, is a sparsely populated and rural county. With a land area of about 6,030 square miles, Pershing ranks as the eighth largest county in the state. However, its 1998 estimated population of 6,880 persons ranks twelfth. While this equates to 1.1, or just slightly more than one person per square mile, almost 38 percent of Pershing's population (2,630 persons) are concentrated in the incorporated city of Lovelock.

Much of the land within the county is public land managed by the federal government. Approximately 2.9 million acres (about 76% of the county's 3,859,840 acres) are public land. The public land includes 2,909,949 acres managed by the Bureau of Land Management (BLM) and 19,180 acres administered by the Bureau of Reclamation. Federal Payments in Lieu of Taxes to Pershing County for fiscal year 1999 amounted to about \$249,400.

Table 3-20 shows earnings by place of work, and employment by major industrial sectors, for Pershing County in 1997. Total personal income for the county in 1997 is reported at about \$104.5 million, which includes earnings by place of work, personal contributions for social insurance, adjustments for residence, dividends, interest, and rent, and transfer payments. Earnings by place of work constituted approximately \$86.1 million of that total. In 1997, Pershing County had a per capita personal income of \$19,343. This per capita personal income ranked fourteenth in the state, and was 73 percent of the state average of \$26,514, and 76 percent of the national average of \$25,288.

Table 3-20. Pershing County Earnings and Employment, by Major Industry (1997).

Industrial Sector	Earnings(in thousands of dollars)		Employment	
	\$000	Percent Of Total	Number Of Jobs	Percent of Total
Agriculture	4,593	5.3	216	7.9
Agriculture Services	346*	0.4	20*	0.7
Mining	45,552	52.9	884	32.1
Construction	1,255	1.5	58	2.1
Manufacturing	1,058	1.2	45	1.6
Transportation and Public Utilities	3,296	3.8	70	2.5
Wholesale and Retail Trade	6,840	8.0	503	18.3
Finance, Insurance, and Real Estate	427*	0.5	46*	1.7
Services	3,114	3.6	269	9.8
Government	19,584	22.8	640	23.3
TOTAL	86,065	100.0	2,751	100.0

*BLM estimates

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is further comprised of dividends, interest, rent and transfer payments, less personal contributions for social insurance.

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May (1999)

Historically, mining and agriculture have been the constant and most dependable economic activities in Pershing County. These industries were the county's original and primary source of income and continue to play an important role in the county's economy today.

Total employment is estimated at 2,262. Mining dominates the county economy, providing \$45.6 million in income, which represents 52.9 percent of the county's income and 884 jobs (or 32.1% of the county's employment). Government is the second largest employer and income producer, with 640 jobs (23.3% of the county economy) that generate \$19.6 million in earnings.

Although agriculture has become less important as other industrial sectors have expanded, many residents still regard agriculture as the solid, stable, and dependable bedrock of the economic base. Agriculture provided 216 jobs in 1997, which represented 7.9 percent of the county's employment. Cash receipts from marketings totaled \$29.1 million, with \$22.2 million from livestock and livestock products, and \$6.9 million from crops. This was fifth in the state, with 8.7 percent of the state's total agricultural receipts. These marketings provided \$4.6 million in income to the county.

Unemployment in Pershing County was reported for the fourth quarter of 1999 at 70 persons, for an unemployment rate of 3.0 percent. This compares with data for the fourth quarter of 1998, which indicates 50 people unemployed and an unemployment rate of 2.8 percent. During this period, total employment in the county declined by 340 persons, but there were 320 fewer people in the labor force.

With almost 53 percent of total county earnings directly generated by the mining industry, Pershing County, like Humboldt County, is strongly tied to the mining industry for its economic livelihood. As discussed above, both counties are aware of the economic vulnerability of this large dependency on a single industry, and both counties are seeking opportunities to diversify their economy.

Washoe County

As the second most populous county in the state, with an estimated population of 318,050 for 1998, Washoe County is regarded as an urban area. However, more than 95 percent of its population is concentrated in the southern portion of the county, in Reno, Sparks, Verdi, and Incline Village Townships. The remainder of the county, and the vast majority of its land area, is sparsely settled and rural in character. The county encompasses about 6,600 square miles and is the seventh largest county in the state. Population density is calculated at 48.1 persons per square mile, however this figure is deceptive; density is much greater in the Reno-Sparks metropolitan area, and much lower in the balance of the county. Washoe County's population was forecasted to be 327,830 persons in 2000, and is forecasted to grow to 381,300 persons in the year 2018 (Nevada State Demographer's Office 1999).

In Washoe County, too, much of the land is public land managed by the federal government. Approximately 2.9 million acres (70 percent) of the county's 4,229,120 acres are public land. The BLM manages about 2.6 million of those acres; the U.S. Fish and Wildlife Service, Forest Service, and Bureau of Reclamation are responsible for the balance. Federal Payments in Lieu of Taxes to Washoe County for fiscal year 1999 amounted to almost one million dollars, which was the highest in the state.

Table 3-21 shows earnings by place of work, and employment by major industrial sectors, for Washoe County in 1997. Total personal income for the county in 1997 is reported at about \$9.3 million, which includes earnings by place of work, personal contributions for social insurance, adjustments for residence, dividends, interest, and rent, and transfer payments. Earnings by place of work constituted approximately \$6.6 million of that total. Per capita personal income is estimated at \$30,214 for 1997. This per capita personal income ranked second in the state, and was 114 percent of the state average of \$26,514, and 119 percent of the national average of \$25,288.

Table 3-21. Washoe County Earnings and Employment, by Major Industry (1997)

Industrial Sector	Earnings(in thousands of dollars)		Employment	
	\$000	Percent Of Total	Number Of Jobs	Percent Of Total
Agriculture	33	0.0	414	0.2
Agriculture Services	30,732	0.5	2,049	0.9
Mining	49,141	0.7	975	0.4
Construction	617,622	9.4	15,329	7.0
Manufacturing	524,738	7.9	14,278	6.6
Transportation and Public Utilities	484,163	7.3	12,478	5.7
Wholesale and Retail Trade	1,154,577	17.5	47,433	21.8
Finance, Insurance, and Real Estate	411,795	6.2	15,625	7.2
Services	2,510,430	38.0	87,466	40.2
Government	826,590	12.5	21,760	10.0
TOTAL	6,609,821	100.0	217,807	100.0

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is further comprised of dividends, interest, rent and transfer payments, less personal contributions for social insurance.

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May (1999)

Total employment is estimated at about 217,800 jobs. The service industries (including hotels, gaming, tourism, entertainment, and recreation) clearly dominate the economy, creating 40.2 percent of the jobs and 38.0 percent of the county's income. Wholesale and retail trade is in a distant second place with 21.8 percent of the jobs and 17.5 percent of the income. Agriculture in Washoe County has had far better years than 1997, with earnings having declined from \$2.1 million in 1993. While total cash receipts from marketings were \$13.5 million in 1997, total production expenses were reported as \$18.6 million. Farm wages and perquisites, and other farm labor income, make the difference in showing a positive income producing year. Nevertheless, when viewed in terms of the entire county economy, both agriculture and mining are considerably less significant than in the other counties. Together, agriculture and mining produce less than 1 percent of Washoe County earnings, and provide less than 1 percent of the jobs in the economy. This is an interesting consideration, because the mining industry's earnings and employment in Washoe County exceed those generated in Pershing County for the same year, and yet in Pershing County, the mining industry is the most significant contributor to the economy. Therefore, it is useful to recognize that, while the mining industry's earnings of \$49.1 million in Washoe County may be less than 1 percent of the total earnings for the county, it remains an important contributor to the economic well-being and diversity that helps to sustain the county's growth.

Agriculture, too, is more important than a relative comparison might indicate. Cash receipts from marketings in 1997 totaled about \$13.6 million. This ranked eighth in the state, which is ahead of many

counties in Nevada traditionally regarded as agricultural counties. Cash receipts from livestock and livestock products yielded \$5.8 million, and cash receipts from crops produced \$7.7 million.

Total employment in Washoe County increased by 3,000 jobs, from December 1998 to December 1999, while the labor force increased by 2,900 during that same period, removing only about 100 persons from the unemployment rolls. Consequently, the unemployment rate declined by about 0.1 percent, to 2.5 percent, from 2.6 percent in December 1998. However, 2.5 percent was the lowest unemployment rate of all the counties in the state at that time, which is characteristic of a strong and healthy, growing economy.

Affected Sectors

Recreation economics and the revenues that could derive from potential minerals development are the principal economic activities that could be affected by management prescriptions for this plan. Visual Resource Management requirements could impose some constraints on the granting of rights-of-way for electric power lines and on some commercial activities that are permitted through the Lands Program. Payments in Lieu of Taxes to the counties would not be affected.

Agricultural activities and revenues would not be affected by this plan. Although portions of four livestock grazing allotments are within the area covered by this plan, they would continue to be managed under the existing Multiple Use Decisions, with no further management stipulations resulting from this plan.

Recreation: Expenditures for recreation in the planning area contribute to the regional economy through the purchase of lodging, services, equipment, fuel, and food. Based on data developed by the Nevada Department of Wildlife for hunting expenditures, on data prepared by the U.S. Fish and Wildlife Service on wildlife and wildlife-associated recreation expenditures, and on data gathered and evaluated by the U.S. Forest Service for their National Forest Service Benefit Values, these expenditures and the value of the recreation experience, itself, can be estimated.

Total recreation visits to the planning area, excluding Special Recreation Permits, are estimated at 28,535 for fiscal year 1999. This is based on data gathered for specific sites and professional estimates for dispersed use. The number of hours spent pursuing different recreation activities on these visits is translated into User Days. These total visits of 28,535 yield an estimated total of about 160,000 User Days. For BLM, a User Day is any calendar day, or portion thereof, spent engaged in a particular recreation activity (43 CFR8372).

For purposes of economic analysis, these *User Days* must be converted to *Visitor Days*, which provide a consistent means of applying appropriate expenditure estimates. Expenditure estimates per *Visitor Day* are calculated based on the number of hours per day of participation in a particular recreation activity. An examination of the total number of estimated hours used in compilation of *User Days* yields a total estimated 91,258 *Visitor Days* with which expenditures may be associated. For this total of 91,258 *Visitor Days*, 19,520 are estimated for camping, 6,793 for upland bird and small game hunting, 458 for deer hunting, 346 for antelope hunting, and 64,141 for all other recreation activities.

Expenditures associated with camping are estimated at \$24.25 per day. Expenditures for upland bird and small game hunting at \$28.62 per day; deer and antelope hunting at \$80.49 per day; and all other recreation activities at \$24.25 per day. All estimates are in 1999 dollars.

Applying these expenditure estimates to the estimated number of days for each activity gives us a total estimate of \$2,287,910 (1999 dollars) for expenditures associated with dispersed recreational activities in the planning area. This is about \$25.07 for each person, per day. And, this estimate of approximately \$2.3 million does not include visits associated with Special Recreation Permits.

In fiscal year 1999, BLM issued Special Recreation Permits for 19 events. These included the Burning Man Festival, land sailing events, rocket launching, a golf tournament, an organized OHV trip, a horseback riding tour, and outfitter and guide trips. Fees received by BLM in 1997 for the Special Recreation Permits totaled \$70,060. There were almost 25,000 persons attending these various events, either as participants or spectators. Total Visitor Days are estimated at 119,099. Applying the conservative expenditure estimate of \$24.25 per day (for all other recreation activities) to the 119,099 Visitor Days yields an additional recreation-associated expenditure estimate of \$2,888,151.

Estimated recreation-associated expenditures generated by the planning area in 1999 totaled \$5,176,061, or \$5.2 million. Informal data indicate that about 60 percent of the casual use recreation participants in the area reside in the Reno-Sparks metropolitan area, and many of the other participants pass through the Reno-Sparks area enroute to the Black Rock Desert. It may be expected, therefore, that the majority of these expenditures occur in Washoe County—in Gerlach, Empire, Reno, or Sparks.

The Burning Man Festival returned to the Black Rock Desert's public land in 1998 with 15,000 participants, and again in 1999 with 24,000 participants. Event organizers expect 28,000 to 35,000 participants in 2000, with the event scheduled for seven days. However, it is expected that the majority of participants would be on the site for only three days. This projection would yield a conservative participation activity estimate of about 84,000 Visitor Days, with local recreation expenditures estimated at \$2,037,000 (\$24.25 per person, per day). For the 1999 Burning Man Festival, the BLM received \$67,000 in permit fees, which were calculated on a cost-recovery basis.

The participation history of the Burning Man Festival is interesting in that, for the first seven years in which the festival was held on public land, the number of participants almost doubled each consecutive year. For 1991, which was the first year BLM issued a special recreation permit for the event, there were 250 participants. In 1992, the number of participants grew to 600; 1993 to 1,000, 1994 to 2,000; 1995 to 4,000; and 1996 to 8,000. In 1997, the festival was located on private land in the area, and 10,000 people participated. As mentioned above, the festival returned to public land in 1998 with 15,000 participants, and 24,000 participants in 1999. This use clearly indicates that even remote public land sites that become popular with recreationists can generate some unusually high recreation participation numbers.

The value of the free public land recreation experience to the recreationist is referred to as a Willingness-to-Pay value and represents what economists refer to as Consumer Surplus. This is a value over and above the recreationist's expenditures, and represents what the recreation experience would be worth to the recreation consumer if it were necessary to pay for it. It is a surplus value, a value obtained without additional cost. Estimates of Willingness-to-Pay values are available from a number of sources, and they are almost always based on questionnaires or interviews with recreationists, and statistical sampling and estimation techniques.

Based on the U.S. Forest Service's National Forest Service Benefit Values, the value of recreation on the public lands in the planning area in 1999 is estimated at \$1,487,061. This is the total estimated amount that the recreationists would have been willing to pay for all recreation activities, if a fee for participation

had been required. Participants in the organized recreation events that obtain Special Recreation Permits have paid a fee for that activity, so the User Days spent participating in the organized events are excluded from the estimate.

Mining: Currently there is very little minerals activity in the planning area and no reported production in commercial quantities. There are 139 mining claims totaling 2,780 acres; this includes three active mining notices, two of which are opal mines.

There are no geothermal leases within the plan boundary, although there are three lease applications pending. Some interest has been expressed with relatively recent exploration activity. **Three free-use** permits for sand and gravel are utilized for road construction and maintenance. No oil and gas leases are currently in effect. Previous oil and gas leases that had been established in the Black Rock Desert have been canceled.

However, based on a broadly favorable potential for hot-spring gold deposits, industrial minerals, gems, and semi-precious stones, and a high potential for geothermal energy development, it is hypothesized in the Reasonably Foreseeable Minerals Development Scenarios that some minerals development with viable economic production could occur during the life of the plan. The economic potential of hypothetical minerals development is discussed in the No Action Alternative.

CONSEQUENCES OF THE NO ACTION ALTERNATIVE ON SOCIO-ECONOMICS

Impacts on Recreation

Under No Action, which represents continuation of present management, participation rates for both casual recreation use and Special Recreation Permit events may be expected to expand. No limits would be placed on Off-Highway Vehicle use, and all areas would remain **open** to OHV travel. Casual recreation participation would continue to increase as a result of normal population growth, particularly in the Reno-Sparks metropolitan area. Participation in Special Recreation Permit events would grow in response to expanded publicity in the news media and communication on the Internet. More events and more participation may be expected as knowledge of the unique qualities of the Black Rock Desert Playa and its particular suitability for specific types of recreation become increasingly well known. The public has already demonstrated a growing interest as a result of publicity associated with the Burning Man event and the land speed record event. This publicity has been national and international in scope.

Based on forecasted population growth for the Reno-Sparks metropolitan area, casual recreation visits may be expected to increase to about 34,000 visits by the year 2018. This would produce about 108,000 visitor days with associated expenditures estimated at about \$2.7 million. Willingness-to-Pay value, the value (or worth) of the experience to the recreationists, is estimated at \$1.8 million (all estimates are in 1999 dollars).

It is not possible to accurately project the total demand associated with participation in Special Recreation Permit events. However, publicity and public interest and enthusiasm will affect participation more than an expanding population will. It is reasonable to assume that a most conservative estimate of growth in this activity would be at least equal to the expected increase in participation rates for casual-use recreation. Based on this premise, participation in Special Recreation Permit events should reach a

minimum of 29,500 persons, with about 141,000 visitor days, and generate about \$3.4 million in expenditures. If participation in the Burning Man Festival continues to grow, as evidenced in recent years, and the festival continues to be held in its present location, the future numbers of visitors, visitor days, and expenditures would likely exceed these estimates.

Demand for public services would increase correspondingly with an increase in Special Recreation Permit events. It would be important to fully assess potential requirements and assure that cost-recovery agreements are adequate to provide complete reimbursement for services provided by the county governments, and for federal planning and management services.

In the long term, as all types of recreation participation increase in the planning area, some deterioration and degradation of resource conditions could be expected. This would increase management costs for resource maintenance and protection.

Impacts on Energy and Minerals

Locatable Minerals: Under the No Action Alternative, the area where a gold mining operation is likely to be developed is in VRM IV, which would not impact the operations.

A Reasonably Foreseeable Minerals development scenario has been prepared to describe potential mineral resource development. This scenario assumes that present management prescriptions will continue, and that existing regulations and policy will be unchanged. It serves to forecast the kind and degree of minerals development that might reasonably be expected to occur under the No Action Alternative, and serves as a benchmark for comparing effects of management prescriptions under the other alternatives.

Three small opal mines are expected to be developed. Opal mines in this area are not likely to be developed by an established company, but rather would most likely be operated by a private individual, possibly with a partner, or as a family operation. The opal is extracted by hand using hammers, chisels, and pry bars to carefully break apart the basalts and remove the opal. Overburden is removed with picks and shovels.

Work may be conducted on a full-time or a part-time basis, and it is generally seasonal, avoiding the colder months. Operators usually have other employment and conduct their mining operation as a supplement to their regular income, as a hobby or recreational activity.

Earnings are not likely to be high, but some commercial sales could result, with a potential income of up to \$10-20,000 per year. Operators are likely to have a permanent residence outside of the local area, so the additional income will not provide much benefit to the local economy. Local expenditures, too, will be small, as these operators usually remain on site while working the mine, with temporary quarters in a trailer located at the mine site, or in a truck with a camper shell. All necessary supplies are usually brought in for the duration of the expected stay. Local purchases may consist of incidental groceries, an occasional restaurant meal, local entertainment, and gasoline. County revenues from Net Proceeds of Mine Tax would be insignificant.

Based on probability of a hot-spring gold deposit consisting of an estimated 600,000 troy ounces of gold and 2.4 million troy ounces of silver, development of one gold and silver mining operation is also forecasted to occur. The mine would be a typical open pit heap-leach operation.

The grade of the ore is not known, but for purposes of analysis an estimate of 0.077 ounces of gold per ton has been determined to be reasonable. It is further assumed that the operation would achieve a 90 percent recovery rate for the precious metals. Annual production would be about 67,500 troy ounces of gold, with an 8-year operating life.

Exploration to determine the extent and quality of the ore body would begin about one year before site preparation and construction, and continue at a less intensive level throughout the operating life of the mine. No direct local employment may be expected to result from the exploration activities. Usually an exploration company is contracted for the work. However, indirect local income and employment may result from field crew expenditures for food and lodging, gasoline and tire purchases, and vehicle maintenance. Industry sources estimate local expenses for the field crews to be \$200-\$300 per day.

Site preparation and construction should take about 3 or 4 years, with production operations beginning within the last year of the construction phase. Total construction employment is estimated at 115 people, with wages of about \$3.7 million annually. This employment level may be expected to create additional employment and income in the local area estimated at 44 more jobs with \$920,000 in wages. The operational phase, expected to last 8 years, will employ an estimated 104 persons with total annual wages estimated at \$4.7 million. Based on multiplier and economic impact analysis (Dobra 1988, 1989), this may be expected to create an additional 74 jobs in the local area, and 52 more jobs in the Reno metropolitan area, with additional wages estimated at \$7.3 million. Tax revenue from Net Proceeds of Mines would accrue to the state and to the county where the mine is located; the amount of that tax revenue would depend on the prevailing price of gold at that time, as well as the assessment rate of the host county. Taxes would also be paid for sales, use, and property taxes.

It is expected that the majority of the construction and operations employees would reside in the Fernley area, where housing and services, and community infrastructure are adequate to accommodate the additional population, and access via highway can provide a reasonably comfortable commute. However, it is likely that some employees would reside in Washoe County and commute from Reno and Sparks. Others might commute from Winnemucca.

Leasable Minerals: Development of two 20-megawatt geothermal power plants within the planning area would be a positive short and long-term benefit to the counties where they may be located, as well as to the local and regional economies. Tax revenues would be enhanced and short and long-term employment opportunities would be created.

Geothermal exploration activities would be very similar to those conducted for oil and gas, as discussed below. While it is likely that no local employment would result, field crew expenditures in the local communities are estimated to range from \$200 to \$500 per day, throughout the exploration period.

After a suitable location is established, well drilling is initiated and construction is begun. It may be expected that commercial operation would begin about 9 months after project construction is started. Final construction would continue for about another 3 months while commercial production is in effect.

Each of the projects would consist of drilling, testing, construction and operation of geothermal production wells; construction and operation of production, injection, and discharge pipeline systems and surface facilities related to the geothermal well field; and the construction and operation of a 20-megawatt binary electrical generation facility and transmission lines.

The power generation facilities are likely to include a generator-turbine building to house interconnected modular binary generating units, a control room and office building, a powerhouse and switchgear building, an electrical substation, binary phase separators, direct contact spring condensers, a cooling tower, an evaporation pond, a vent stack, pumps, pipelines, and ancillary equipment and machinery. A service yard might be located on-site, or perhaps in Gerlach.

The projects would most likely be located in a VRM Class II viewshed, but could successfully be mitigated to meet those requirements at some additional cost. Possible mitigation that could be used to minimize adverse impacts to visual resources include land contouring, screening with native vegetation, and painting.

It is expected that the electric power generated would be sold to the Sierra Pacific Power Company. Both operations would pay sales, use, and property taxes, net proceeds from mines taxes, and royalties to the federal government which are shared with the state. On average, a 20-megawatt geothermal power plant would provide about \$550,000 in revenues from these sources, per year, to the state and counties where the plant is located. Geothermal power plants typically operate for 20 to 30 years.

Costs for construction of the power plants and development of the well fields are estimated at about \$35 million, for each project. The construction workforce would probably consist of about 150 workers at the peak of activity, with about 100 persons employed throughout the 12 month construction period on each job site. Because of the technical nature of the facilities, it is expected that no more than 60 percent of the construction contracts would be subcontracted to local firms. This would provide an estimated 90 construction jobs for the local communities, for each project. An additional economic benefit would derive from incoming construction workers who would be housed and provisioned within the local economies, probably taking up temporary residence in Gerlach, Fernley, or Winnemucca.

Operation of the power plants and well fields would probably require 12 permanent employees for each facility; 8 operators and helpers, 2 maintenance personnel, a foreman, and a supervisor. Seven or eight of these employees might be local hires. Total salaries for each operation are estimated at \$534,000. If both operations came on line, 14 to 16 new jobs would be created for local employees, and additional salaries totaling about \$1.1 million annually.

Additional workers may be required over the life of the projects for periodic activities such as reworking a well, pulling a pump, or repairing a turbine. The projects each have a predicted 20-30 year economic life.

Oil and gas exploration is also hypothesized for the planning area under this No Action Alternative. But very little, if any, direct local employment results from oil and gas exploration and development. All of the work entails considerable investment, planning, and preparation, and requires employees with specialized education, skills, and experience. Some of the workforce are regular full-time company employees, primarily supervisory; others may be consultants or contract-hires employed through established sources of the exploration companies.

However, very real, but small, indirect local income and employment may result from field crew expenditures for food and lodging, gasoline and tire purchases, and vehicle maintenance. Industry sources estimate daily local expenditures of geological field crews to be \$200 to \$300 per day.

Geological exploration usually occurs during a three-month summer field season, and, on the average, may consist of three crews (one to three geologists each) doing general field and site-specific evaluation.

Geophysical exploration may occur throughout the year and consists of two distinct data-gathering and analysis phases. The first phase involves seismic acquisition and generally requires a crew of 15 to 20 people, working intensively in the local area for two to three weeks. The second phase (gravity and magnetic acquisitions) involves a smaller crew, generally two men, and requires three to four months in the field. From time to time, the magnetic survey crew may need to hire a local pilot and aircraft. Expenditures in the local community are estimated to average about \$500 per day.

Exploratory drilling is conducted as a 24-hour per day operation and generally requires two crews of five men each (one driller, three assistants, and one "mud logger"), plus a support group consisting of a "tool pusher" and a company supervisor. The exploratory drilling crew, too, are non-local hires brought in with the equipment. These crews may or may not require local food and lodging, depending on the location and conditions of the particular operation. Expenditures for food and lodging are estimated by industrial sources at \$500 per day for each crew.

Drilling a well may take anywhere from 3 weeks to (in extreme cases) 3 months to complete; with 1 in 10 to 1 in 16 wildcat wells successfully producing significant amounts of oil and gas. It is not expected that any oil and gas development would occur over the life of this plan.

However, should a well prove successful and development occur, the development (or production) phase generally employs two people who remain on-site on a 24-hour basis. One of these employees (the pumper) may be hired locally; the other (the sales representative or bookkeeper) is ordinarily a company representative.

The majority of all equipment needs for the above operational phases are purchased non-locally from regional equipment suppliers to the industry, located in Bakersfield, California; Vernal, Utah; Denver, Colorado; or Rock Springs or Evanston, Wyoming. Incidental tool and equipment requirements may be purchased locally.

In the event of a producing well, royalties to the federal government are 12.5 percent of gross (priced at the well-head), with 50 percent of these proceeds distributed to the state. The state would also receive taxes from net proceeds of mines, sales and use tax, while the counties would collect a tax on possessory interest.

Generally, for the reclamation effort, the operators would employ temporary local labor and custom workers who possess the necessary heavy equipment to conduct the reclamation work attendant to abandonment of a site. Estimated costs for reclamation range from \$4,000 to \$10,000 per well pad.

The population, direct income, and employment effects of oil and gas operations in the local area, then, may be seen to be moderate, and insignificant in terms of the local economy. Local expenditures for food, lodging, entertainment, vehicle maintenance, gasoline, incidental tools, equipment, and supplies are also not sufficient to represent a significant contribution to the local economy; but do represent a part of the everyday transfer of goods and services that contribute to the regions economic health and viability. To individual operators of motels, restaurants, gas stations, etc., such expenditures may represent an important increment of their incomes.

Salable Minerals: Salable minerals (sand, gravel, and borrow pit materials) are distributed widely throughout the planning area. Three free-use permits for sand and gravel are currently authorized, with

eight additional free-use permits pending. Free-use permits are provided for public purposes and are utilized by the state, counties, and BLM for road construction and maintenance.

Community pits and free-use permits are usually separate pits, but free-use operations may, from time-to-time, utilize community pits. Local community use is assessed at 50 cents per ton. Five sales per year are expected from one pit within the planning area.

Three private sales for landscape or decorative rock are anticipated within the area covered by this plan. Private operations are conducted on a contract of sale basis, for which BLM receives a royalty on production. Contracts of sale are issued for a specific amount of materials to be extracted within a specified period of time.

The state receives four percent of the revenues from sand and gravel sales for the state school fund. The balance of the monies are utilized to cover the costs of reclaiming the pits. Revenues from sales of sand and gravel are relatively small and primarily assessed for the purposes of reclamation. The principal value of these commodities is from the cost of labor and equipment for extraction and transportation, and the haul-distance to the location of use. Close proximity of the source pits to the site of application can represent considerable cost savings to the state and county governments, private operations, and the BLM.

The No Action Alternative would have no effect on current extraction and use of these commodities.

Impacts on Lands and Realty

No adverse economic effects. Permitting for commercial photography and filming, and rights-of-way for power lines would continue as at present, under existing management direction.

CONSEQUENCES OF ALTERNATIVE 1 (PROPOSED ACTION) ON SOCIO-ECONOMICS

Impacts on Recreation

Special recreation permit events are likely to continue expanding in numbers of visitors, visitor days, and recreation expenditures. Enhanced amenities and services for recreation visitors could serve to increase visitation beyond that projected in the No Action Alternative.

Applying cost-recovery and the fee schedule would ensure that federal expenditures necessitated for planning and managing large-scale events would be fully reimbursed. These methods would also provide compensation for costs imposed on public health, public safety, law enforcement and medical services provided by the counties.

Dispersed recreation use could increase to levels discussed in the No Action Alternative. Indeed, the proposed development of a Visitor Contact Station and other recreational facilities, which would provide assistance, information, interpretive services and environmental education, and an increased sense of public safety and security, should serve to enhance the recreation experience for many of the visiting public. Such improved facilities, together with the proposed increase in publicity and the distribution of public information through the media and to schools and organizations, may have the effect of moderately

encouraging casual recreation visitation beyond currently projected levels, with comparable growth in expenditures and income in the Gerlach-Empire area. In addition, the local employment of an attendant for the Visitor Contact Station would provide an additional job and income of about \$15,000 to \$20,000 in the local area.

Limiting Off-Highway Vehicle recreation to existing roads and dry washes in non-playa areas, and limiting access to the playa except by way of existing roads and access points would constrain unlimited travel and exploration via OHVs. These actions are expected to adversely affect OHV visitor use and recreation, and therefore may effect expenditures in the local area.

Impacts on Energy and Minerals

Locatable Minerals: The gold mining operation would be required to bear extra costs to conform to VRM Classes III standards during operations and VRM Class II standards for final reclamation. The commercial gold mining operation and the small opal mines would be subject to special stipulations and mitigation measures.

Major gold mining companies are accustomed to preparing mining plans of operations and environmental assessments. These requirements, however, could have a discouraging effect on smaller or higher risk based operations. However, in all such situations, the decision to proceed would be based on estimated returns over costs. For larger operations, entailing major investment and the expected long-term returns, such additional costs are usually incidental, not prohibitive, and may be found to exist in one form or another in most mineral exploration and development areas. If any gold ore discoveries prove to be of sufficient quality, it is not likely that a gold mining operation would be discouraged.

Leasable Minerals: Geothermal exploration and development, and oil exploration, would be less likely to occur under this Alternative 1 (Proposed Action). The application of "no leasing" measures to protect important values and resources of the expanded Soldier Meadow ACEC, together with VRM Class II requirements, and "No Leasing" along the Applegate-Lassen Emigrant Trail and within the Trego Hot Springs area, would close these potential development areas. By not allowing geothermal leasing in these areas, which are classified as high potential, the state and counties could lose revenues associated with direct use or power plant development. Assuming 20 megawatts of potential in these areas, the economic benefit to the state and involved counties from royalties, property taxes, and net proceeds tax would total approximately \$550,000 per year, with power plants typically operating for 30 years. Additionally, indirect economic benefits from salaries could be foregone.

However, if private landowners in the vicinity of Double Hot Springs were to develop geothermal resources from their property, there could be lost revenue to the federal government. In this case, the state and county governments would still receive revenues.

The potential for geothermal development in the Gerlach area would continue to be promising, due to the minimal modifications that might be necessary to conform to VRM Class II standards in this area. The possibility for an additional 12 jobs in the local area and the associated incomes, including the possibility of 9 local hires, which could result from the operation of one geothermal plant, would not be affected. The likelihood of a second geothermal operation within the plan area would be reduced. Companies would make their investment decisions based on expected returns, taking into consideration the extra costs that might be entailed.

Salable Minerals: No significant adverse economic impact is anticipated. Specific and necessary pits could be identified and authorized, and VRM Class II standards could be maintained.

Public lands outside of the planning area also contain abundant supplies of sand and gravel, so it is highly likely that, if necessary, alternative sources could be found. Transportation costs could be affected if haul-distance is increased. It is estimated that transportation costs increase about 25 percent for each doubling of the haul-distance (Mine Cost Services 1998).

Impacts on Lands and Realty

Through its Lands Program, the BLM issues permits for commercial motion pictures and commercial still photography. For commercial motion pictures, fees range from \$150 to \$750 per day. The rate schedule for commercial still photography ranges from \$50 to \$250 per day. The fees are based on the number of people (cast, crew, observers, etc.) present on the site, and apply for each full and partial day of occupancy.

Permit fees for projects beyond the scope of normal filming or photography are addressed on a negotiated fee basis. Such projects may include those that require extensive monitoring, those that inflict abnormal adverse impact or surface disturbance, and those that provide benefits to the programs of the Secretary of the Interior.

In addition to the permit fees paid to BLM, expenditures might occur in the local area for fuel, food, entertainment, and lodging. Most often, however, these crews consist of relatively few people preparing photo layouts or photographs for advertisements in magazines, or video taping for television commercials. The crews are generally well equipped and professionally prepared, using their own motor homes for temporary quarters, and provisioned with ample supplies of food and other necessities. Fuel, of course, is a very necessary commodity that would be most often purchased in the local area. No information is available regarding the extent of expenditures that might occur locally. Although such expenditures certainly contribute to the local economy, the incidence of these commercial activities are few, and the majority of their local expenditures are probably only incidental. A major filming effort for a commercial motion picture, of course, would be quite another matter. Local expenditures in that case could be quite substantial.

In recent years, only two or three such permits have been issued per year. There have also probably been several of these photo-expeditions that were unaware of the permit requirement and simply availed themselves of the public lands as any recreationist might do. A stronger management presence, which is provided for by this alternative, would assure, to a greater degree, that the necessary fees for commercial use of the public lands are collected.

These crews rarely create unusual surface disturbance, or contribute noticeably to environmental degradation, nor do they generally conflict with Visual Resource Management requirements. If any such adverse effects were necessary for, or were to result from, the purposes of the commercial activity, BLM's active management presence would assure that the appropriate fees are collected and arrangements are made for the necessary mitigation.

It is unlikely that any but the most potentially damaging or destructive of these temporary activities would not be permitted. Those permits that might be denied would only be in those cases where adequate and

effective mitigation could not be accomplished. So, permitting for commercial filming and photography may be expected to continue as it has in the past, with no adverse effect on local revenues.

Another concern is the additional costs that could be engendered from the requirement that, in certain areas, electrical transmission and distribution lines must be placed underground. It is expected that these costs could be prohibitive for the provision of electricity to private lands within the management planning area. However, the question appears to be moot.

Current costs of providing electricity in these rural areas range upward from \$60,000 per mile. At this cost, electricity provided by gasoline generators or solar panels is already more cost effective. While requiring that electrical lines be buried underground could increase costs by two to five times as much, such needs are clearly not a consideration. Because commercial mining operations do require connection to a commercial power source, the development of an operating mine in the proximate area of any of these private lands would render their connection to commercial power lines much more feasible.

CONSEQUENCES OF ALTERNATIVE 2 ON SOCIO-ECONOMICS

Impacts on Recreation

Elimination of all Special Recreation Permit events would result in the immediate loss of an estimated \$2.9 million in annual recreation expenditures and revenues in the local area.

Limits on free travel and access for OHV recreation may create dissatisfaction on the part of OHV enthusiasts who may seek alternative areas without such limits where they might move more freely about the area and enjoy a less restrained OHV recreation experience. This would result in fewer visitor days and reduced expenditures in the local area.

The present character of casual, solitudinous, and undisturbed recreation, with few restraints on access and use would not be encouraged. Recreationists currently using the area who are accustomed to fewer constraints and prefer a more independent, self-reliant form of recreation would be discouraged. Visitor use and expenditures may decline, or at best remain at about present levels, as recreationists new to the area, who wish to explore the Black Rock Desert, replace the recreationists who have abandoned this location.

Construction of a Visitor Center would provide short-term employment for a construction crew. The full-service Visitor Center would create one permanent full-time job, employing a locally hired attendant with a salary of about \$15,000 to \$20,000.

Impacts on Energy and Minerals

Locatable Minerals: A minerals withdrawal throughout the entire planning area, together with VRM Class I requirements, would effectively eliminate the potential for development of the commercial gold mining operation and the private opal mines. All potential economic benefits would be foregone.

Leasable Minerals: Since the entire plan area would be closed to leasing in Alternative 2, all possibility for potential economic benefits of additional income and employment, as discussed in the No Action

Alternative and Alternative 1, would be eliminated. Geothermal power plants would not be constructed, and oil exploration would not occur.

Impacts on Salable Minerals: Except for the Blue Pit, minerals materials pits within the plan area would be closed and pending authorizations would not be approved. Revenues from sale of landscape and decorative rock, though small, would be lost.

Impacts on Lands and Realty

Economic effects under this alternative would be similar to those discussed in Alternative 1 (Proposed Action). Only those commercial filming and photographic activities that would create adverse impacts to natural and cultural resources in the planning area, or those that would involve surface disturbance, would not be permitted. Under the VRM Class I standards for the entire plan area, above-ground utility lines would not be allowed. Economic effects from these impacts would not be significant.

CHAPTER 4

CONSULTATION AND COORDINATION

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CHAPTER 4 CONSULTATION AND COORDINATION

INTRODUCTION

This chapter summarizes the consultation and coordination activities conducted during preparation of the 1998 draft plan amendment and EIS and this revised draft plan amendment and EIS. Public comments and responses on this revised draft plan amendment and EIS will be included in Chapter 4 of the Final EIS.

The following sections describe formal and informal efforts made in the planning process to involve the public, numerous interest groups and organizations, and other federal, state and local agencies.

PUBLIC MEETINGS

As discussed in Chapter 1, five public meetings were held in July and August of 1997 to gather public input and identify issues concerning the Black Rock Desert area. These meetings were held in Sacramento and Cedarville (California), and in Reno, Gerlach, and Lovelock (Nevada). The meeting in Sacramento, California drew heavy interest from four-wheel-drive clubs, off-highway vehicle users, land sailers, and rocketeers. Interest at the other meetings varied from support for preserving and/or protecting the emigrant trail and viewshed, to concern about resource degradation, protection of cultural resources, human health and safety, to management of large-scale events.

CONSULTATION AND COORDINATION

Native American Tribal Consultation and Coordination

Three tribes (Summit Lake Paiute, Pyramid Lake Paiute, and the Lovelock Paiute) were consulted, through scoping letters and public meetings, about their concerns regarding the proposed plan. Several Paiute Tribes were invited on a field trip of the planning area in November 1997. Tribes invited included the Susanville Rancheria, Nevada Indian Environmental Coalition, Pyramid Lake Paiute Tribe, Cedarville Rancheria, Fort Bidwell Reservation, McDermitt Reservation, Lovelock Paiute Colony, Summit Lake Reservation, and Winnemucca Colony. Representatives of the following tribes participated in the field trip: Pyramid Lake Paiute Tribe, Summit Lake Paiute Tribe, Lovelock Paiute Tribe, and Walker Lake Paiute Tribe. The BLM also held an informational meeting at the Winnemucca BLM Field Office on April 21, 1998, inviting the same tribes listed above, as well as Walker Lake Paiute Tribe. This meeting was attended by representative from the Summit Lake Tribe and two elders from the McDermitt Tribe. The meeting's purpose was to discuss the Proposed Action and alternatives and to learn of any concerns. A meeting for the same purpose was held with the Pyramid Lake Tribal Council on May 1, 1998.

During the public comment period following release of the Draft Sonoma-Gerlach and Paradise-Denio Management Framework Plan and Paradise Denio Management Framework Plan Amendment and Draft Environmental Impact Statement (USDI 1998), the BLM met with the Summit Lake Paiute Tribal Council at their request to discuss the document. During the public comment period (on January 11 and 12, 1999), the Fort McDermitt Tribe, Cedarville Rancheria, Susanville Rancheria, Lovelock Tribe, Fort Bidwell, and Pyramid Lake Tribes were also contacted by telephone. The Tribes were asked if they had comments or would like BLM to make a presentation to them. The Tribes were also offered an additional 30 days (until February 15, 1999) to review the document, if necessary. Only the Summit Lake Tribe had comments on the document or requested a meeting, although one other Tribe identified a sacred area outside the plan area.

Tribal concerns expressed through the above meetings, letters, and contacts are described in Chapter 3 under the sections on Cultural Resources and Native American Values.

Other Coordination

Coordination for consistency with other federal, state and local plans has been ongoing throughout the planning process. The public meetings were attended by representatives from local and state agencies. In addition, briefings were conducted for Humboldt, Pershing and Washoe counties in June of 1998.

There has been ongoing coordination with the Sierra Front-Northwestern Great Basin Area Resource Advisory Council during plan development. In early April 1998, a briefing was presented to the council and BLM received their input. In July of 1998, a preliminary draft of the plan was provided for the Council's review and, since then, periodic updates have been given about the plan's progress. Other information about coordination efforts with the RAC is provided in Chapter 1.

Another ongoing coordination effort has been with the BLM Susanville Field Office to ensure plan consistency to the extent possible with similar planning efforts in their planning unit.

During preparation of the EIS, the BLM coordinated with, and received input, from various federal, state, and local agencies and private organizations (see list below).

Federal Government Agencies:

California State Office, BLM
Susanville Field Office, California, BLM
Oregon State Office, BLM
Vale District Office, Oregon, BLM
Bureau of Indian Affairs
U.S. Fish and Wildlife Service
U.S. Geological Survey

State Government Agencies:

Nevada Commission for the Preservation of Wild Horses
Nevada Division of Conservation Districts
Nevada Division of Environmental Protection
Nevada Division of Minerals
Nevada Division of State Lands

Nevada Division of State Parks
Nevada Division of Wildlife
Nevada State Clearinghouse
State Historic Preservation Office

Local Governments:

Humboldt County Commission
Pershing County Commission
Pershing County Sheriff Office
Washoe County Commission
Washoe County Sheriff Office
Gerlach General Improvement District

Tribal Governments:

Cedarville Rancheria
Fort McDermitt Tribal Council
Lovelock Paiute Colony
Nevada Indian Environmental Coalition
Pyramid Lake Paiute Tribe
Summit Lake Paiute Tribe
Susanville Rancheria
Walker Lake Paiute Tribe
Winnemucca Tribal Council

Nongovernmental Organizations:

American Motorcyclist Association
California Association of 4-WD Clubs, Inc.
California 4-WD Clubs, Inc.
Commission on Tourism
Desert Research
Nature Conservancy

Representatives and Senators:

Honorable Richard Bryan
Honorable John Ensign
Honorable James Gibbons
Honorable Harry Reid

AVAILABILITY OF THE REVISED PLAN AMENDMENT AND DRAFT EIS

This revised draft plan amendment and Draft EIS will be placed on the internet at:
<www.nv.blm.gov/winnemuca>.

Copies of the revised draft plan amendment and EIS will also be available for public review at the following locations:

Bureau of Land Management Offices:

Bureau of Land Management
Washington Office of Public Affairs
18th Street, N.W.
Washington, D.C. 20240

Bureau of Land Management
Nevada State Office
1340 Financial Blvd.
Reno, Nevada 89502-7147

Bureau of Land Management
Winnemucca Field Office
5100 E. Winnemucca Blvd.
Winnemucca, Nevada 89445

Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

Bureau of Land Management
Cedarville Field Office
602 Cressler Street
Cedarville, California 96104

Libraries:

Humboldt County Library
85 E. 5th Street
Winnemucca, Nevada 89445

Pershing County Public Library
1125 Central Avenue
Lovelock, Nevada

Washoe County Public Library

301 S. Center
Reno, Nevada 89520

Washoe County Branch Library
555 E. Sunset Blvd.
Gerlach, Nevada 89412

Lyon County Library
321 Old Dayton Valley Road
Dayton, Nevada

Carson City Library
900 N. Roop Street
Carson City, Nevada 89701

University of Nevada-Reno
Getchell Library
Government Publication Dept.
Reno, Nevada 89507

Sacramento City College Library
3835 Freeport Blvd.
Sacramento, California 95822

Susanville Library District
1618 Main Street
Susanville, California 96130

CHAPTER 5

PREPARERS AND REVIEWERS

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CHAPTER 5 PREPARERS AND REVIEWERS

This revised draft plan amendment and EIS, combined into one document, was prepared by an interdisciplinary team of specialists from the Winnemucca BLM Field Office and reviewed by specialists of the Nevada BLM State Office. Technical review and support were provided by individuals from BLM and other federal and state agencies.

CORE EIS TEAM

Members of the core EIS team responsible for preparing sections of the revised plan amendment and draft EIS, specific to their discipline, are listed below.

Name	Discipline	Qualifications
Arn Berglund	Wildlife	B.S. Wildlife-Fisheries, 7 years BLM
Mike Bilbo	Recreation	B.S. Park Administration, 9 years BLM
Delores Cates	Geology & Minerals	B.S. Geology, 11 years BLM
Mary Figarelle	Lands	B.S. Business, 14 years BLM
Kathy Helm	Writer/Editor	20 years BLM
Peggy McGuckian	Cultural Resources	M.A. Anthropology, 22 years BLM
Paul Myers	Socio-economic	B.S. Economics, 18 years BLM
Gerald Moritz	Project Manager	M.S. Range, 24 years BLM
Ron Pearson	Range	B.S. Soils, 13 Years BLM
Tom Seley	Wild Horse & Burro	B.S. Agricultural, 23 Years BLM
Regina Smith	Paleontology	B.A. Anthropology, 20 Years BLM
Mike Zielinski	Soils	B.S. Resource Management, 23 years BLM

A number of other people supported the plan analysis and document preparation effort. Gary Bridges, a computer specialist at the Winnemucca BLM Field Office, assisted the EIS core team by meeting their

computer needs. Rick Crawford and Sarah McGuire, also of the Winnemucca BLM Field Office, provided GIS support in preparing maps for the revised plan amendment and draft EIS.

Jeff Johnson, who has a B.S. in Environmental Studies and has worked for the BLM for 12 years, came on as Interim Project Manager after Gerald Moritz's retirement.

Barbara Bilbo, who has an M.S. in Physical Geography and has been a BLM volunteer for 9 years, assisted by researching and writing portions of the landscape and geology sections of the document.

Eric Bateman, who has an M.A. in English, assisted as a contract writer/editor providing support editing and compiling the document.

REVIEWERS

Several management and staff specialists at the Winnemucca BLM Field Office and the Nevada BLM State Office in Reno reviewed the document at various stages of its preparation and provided oversight and input. Those people are listed below:

Name	Office	Responsibility
Les Boni	Winnemucca Field Office	Overall Content
Pete Christensen	Winnemucca Field Office	Overall Content
Craig Drake	Winnemucca Field Office	Hydrology
Vic Dunn	Winnemucca Field Office	Minerals
Brian Amme	Nevada State Office	NEPA/Planning
Pat Barker	Nevada State Office	Cultural/Paleontology
Rich Hoops	Nevada State Office	Fluid Minerals
Steve Smith	Nevada State Office	Wilderness
Larry Stewart	Nevada State Office	Minerals
Margaret Wolf	Nevada State Office	Recreation

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GLOSSARY

GLOSSARY

Note: Bolded words in the definitions are listed separately in this glossary.

Accelerated Erosion – See **erosion**.

Action Alternative – See **alternative**.

Actual Costs – Money expended or used by Bureau of Land Management to process a land use authorization or to monitor the construction, operation, maintenance, and termination of a permit or lease, including both direct and indirect costs, but excluding management overhead.

Actual Expenses (Special Recreation Permit) – Expenses directly related to permitted activity (such as costs of food, rentals, transportation, and permit or use fees). Excludes rental or purchase of personal equipment, amortization of equipment, salaries or other payments to participants, insurance premiums, or profit.

Affected Environment – Natural, physical and human-related environment that is sensitive to changes from proposed actions.

Affiliate – Any entity or person that controls, is controlled by, or is under common control with, an applicant or permittee.

Allocation (Special Recreation Permit) – Assignment of use between and ration among competing users for a particular area of public lands or related waters. Allocation includes both indirect and direct methods.

Allotment – An area of land designated and managed for grazing of livestock.

Alluvial Fan – A low, outspread mass of rock material, commonly with gentle slopes and fan shaped, deposited by a stream where it issues from a mountain drainage.

Alluvial Flats – A small **alluvial plain** bordering a river, on which **alluvium** is deposited during floods.

Alluvial Plains – A level or gently sloping tract or a slightly undulating land surface produced by extensive deposition of **alluvium**, usually adjacent to a river that periodically overflows its banks.

Alluvium – The sedimentary material (sand, rock, etc.) carried and deposited by running water.

Alternative – A mix of management prescriptions applied to specific land areas to achieve objectives.

Each alternative represents a different way of achieving similar management objectives. The term “action alternative” is used when it is desirable to recognize that there is a “no action” alternative under which the proposed activity would not take place.

Applicant – Any individual of legal age, a state or local governmental entity, a partnership, corporation, association, or other business entity subject to the laws of any state or of the United States, that applies for a permit or lease.

Area of Critical Environmental Concern (ACEC) – Areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. The identification of a potential ACEC shall not, of itself, change or prevent change of the management or use of public lands.

Assignment or Subletting (Special Recreation Permit) – Prohibited practice whereby a **permittee** assigns, subleases, sells, or otherwise transfers authorized use to another individual, group, or business who is not an employee or approved agent of the permittee.

Aquifer – A saturated, permeable sediment or rock that can transmit significant quantities of water under hydraulic gradients.

Authorized Officer – Employee of the Bureau of Land Management who has been delegated authority to perform specific duties for various actions.

Backcountry – An area without roads, accessible only by trails or water.

Bajada – A broad alluvial slope extending from the base of a mountain range out into a basin and formed by a coalescence of separate **alluvial fans**.

Bar – Any long offshore ridges, banks, or mounds of sand, gravel or other unconsolidated material submerged in water and built up by current or wave action slightly offshore and/or at the mouth of a channel.

Barrier Beach (Off-shore Bar) – A wide, gently sloping portion of a **bolson** or **playa** representing relict **longshore bars** of a receding **pluvial lake**.

Basin (see Bolson) – A depressed area with no surface outlet.

Beach Plain – A continuous and level or undulating area formed by closely spaced successive embankments of wave-deposited beach material added more or less uniformly to a shoreline.

Biological Soil Crust – Soil-stabilizing agents in semi-arid and arid land consisting of cyanobacteria, green algae, lichens, mosses, and/or microfungi, which entrap and bind soil particles together, protecting the soil surface from wind and water erosion (Belnap and Gillette 1998).

Bolson – An extensive flat alluvium-floored **basin** into which drainage from the surrounding mountains

flows toward a **playa** or central depression.

Bond – A contractual arrangement between the government, permittee, and a financial institution that provides monetary protection for the public for allowing use of public lands. The following specific types of bonds are relevant to **Special Recreation Permits**:

Cash Bond: Amount of money deposited with the government that can be drawn on to defray the costs of restoration and rehabilitation of lands affected by a permitted use.

Payment Bond: Amount of money deposited, or a promissory arrangement entered into, to guarantee payment of fees associated with a special recreation permit.

Surety Bond: Promissory note of a financial institution that guarantees payment of an amount of money to be used to defray costs of restoring lands affected by the permitted use.

Breccia – A coarse-grained rock composed of angular broken rock fragments held together by a mineral cement or fine-grained matrix.

Brecciation – The natural process of forming a **breccia** by crushing rock into angular fragments and solidifying it.

Bureau of Land Management (BLM) – Department of the Interior Agency responsible to manage public lands (see BLM Mission Statement, inside the front cover).

Candidate Species – See **Special Status Species**.

Cash Bond – See **bond**.

Casual Use (Locatable Minerals) – Mining activities that only negligibly disturb federal lands and resources. Casual use does not include use of mechanized earth-moving equipment or explosives or the use of motorized equipment in areas closed to off-highway vehicles. Under casual use, operators do not have to notify the Bureau of Land Management, and operations do not need to be approved. However, operations are subject to monitoring by BLM to ensure that federal lands do not undergo unnecessary or undue degradation. Casual use operations must be reclaimed. See **Energy and Mineral Resources, Mining Notice, Plan of Operation, Reclamation**.

Cathole – Small hole dug in ground in sunny spots where bacteria will cause rapid decomposition of human body wastes.

Cavers – People who explore caves and are involved nationally with public land agencies in cave resource management.

Cenozoic – An era of geologic time extending from the beginning of Tertiary period to the present and including the Quaternary period (from approximately 65 million years ago to the present). See **Geologic Time**.

Cherry-stem (Road) – Narrow linear areas, usually roads, that intrude into and are surrounded by

Wilderness Study Area lands, but which are not a part of the WSA. Most cherry-stems meet the Bureau of Land Management's legal definition of a "road." See **Transportation System**.

Closed Areas – See **Off-highway Vehicle Designations**.

Commercial Recreation Photography (Special Recreation Permit) – Motion picture and video photography, advertising still photography, and still motion picture or video photography taken of public land users for sale to those users.

Commercial Use (Special Recreation Permit) – Recreational and other use of the public lands or related waters for business or financial gain:

(1) When any person, group, or organization makes or attempts to make a profit, or receives money or obtains goods or services as compensation from participants in a recreational activity using public land, or for services provided to participants of a recreational activity on public land, public advertising for participants, or a duty of care or expectation of safety is owed the participants by the activity provided, the use is considered commercial. An activity, service, or use is commercial if a permittee or his agent collects any fee, charge, or other compensation that is not strictly a sharing of, or is in excess of, actual expenses incurred for the purposes of the activity, service or use.

(2) Use by scientific, educational, and therapeutic institutions or nonprofit organizations is considered commercial when the above criteria are met.

(3) Nonprofit status of any group or organization under the Internal Revenue, postal laws, or associated regulations does not by itself determine whether an event or activity arranged by such a group or organization is noncommercial. Profit-making organizations are automatically classified as commercial, even if that part of their activity covered by the permit is not profit-making.

Competitive Use (Special Recreation Permit) – Any organized, sanctioned, or structured use, event, or activity on public land in which two or more contestants compete and any or all of the following elements apply: (1) Participants register; or (2) A predetermined course or area is designated. Competitive use also refers to situations where one or more individuals contest an established record such as speed, altitude or endurance.

Consequences – Used synonymously with **impacts** and **effects** in this Revised Plan Amendment and Draft Environmental Impact Statement. The consequences are the results or outcomes of the alternative management actions (including the No Action Alternative) upon the various issues covered by the plan (Recreation, Visual Resources, etc.). Consequences may be direct, indirect or cumulative:

Direct Effects: Caused by the action and occur at the same time and place.

Indirect Effects: 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 related effects on air and water and other natural systems, including ecosystems.

Cumulative Effects: Impact on the environment resulting from incremental impact of the action when added to impacts of past, present and reasonably foreseeable future actions, regardless of the agency (federal or nonfederal) or person undertaking such other actions. Cumulative effects can result from individually minor, but collectively significant actions occurring over a period of time.

Co-sponsored Recreational Activity or Event – Activity or event that the Bureau of Land Management is involved in organizing and hosting, and that is arranged through authorizing letters or written agreements.

Cost Recovery (Special Recreation Permit) – Actual costs will be charged whenever a permit application requires more than 40 hours to process. Processing charges may include the cost of environmental analysis, consultation with other agencies, and conducting public participation. For short-term, high intensity uses (such as large one-day motorcycle race), actual costs of administering the permit may also be charged as monitoring, use supervision, permit compliance, and post-use reports and close-out. Recovery of actual costs may also be charged when special application fees or service fees are necessary to cover the costs of a lottery system, site reservation system or other special services.

Cross-country Travel – Moving over land where there is no trail.

Cryptobiotic Crust – See **Biological Soil Crust**.

Cryptogramic Crust – See **Biological Soil Crust**.

Cultural Resources – Physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) having scientific, prehistoric, or social values.

Cumulative Effect – See **consequences**.

Data Recovery (Cultural Resources) – The professional application of scientific techniques of controlled observation, contextual measurement, controlled collection, excavation or removal of physical remains, including the analysis, interpretation, explanation, and curatorial safeguarding of recovered remains and associated records in an appropriate public repository.

Degree of Acceptable Visual Change – See **Visual Resource Management**.

Department of the Interior – The department of the federal government charged with the conservation and development of the natural resources of the United States and its possessions.

Designated Roads, Trails, and Ways – Specific segments of the transportation system identified by the Bureau of Land Management where some type of motorized vehicle use is appropriate and allowed either yearlong or seasonally. Also see **Transportation System**.

Desired Use Level (Special Recreation Permit) – Amount and type of recreational use an area can accommodate without altering either the environment or the user's experience beyond the degree of change deemed acceptable by the management objectives for the area; can also be called the maximum

allowable use level. Developed through the use of **Limits of Acceptable Change**.

Developed Sites and Areas – Sites and areas that contain structures or capital improvements primarily used by the public for recreation purposes. Improvements may include: delineated spaces for parking or camping, boat launching facilities, sanitary facilities, potable water, grills or fire rings, tables, or controlled access.

Direct Effect / Direct Impact – See **consequences**.

Discretionary – Situations where the Bureau of Land Management has the authority to approve or reject proposals. No specific constraints are placed on the BLM by law. See **nondiscretionary**.

Dispersed Recreational Use – Outdoor activity in which recreationists are diffused over relatively large areas. Where facilities or developments are provided, they are more for access and protection of the environment than for the comfort or convenience of the people.

Displacement – Movement of soil from one place to another, as a result of **erosion** occurring naturally (by wind or water) or due to human activity.

Draw – See **Gully**.

Dune – A low mound, ridge, bank or hill of loose, windblown, granular material (generally sand) with discernible slip faces on leeward slopes, either bare or covered with vegetation, capable of movement from place to place while retaining a characteristic structure and shape. Types of dunes include **parna**, barchan, parabolic, shrub-coppice, seif and transverse.

Eco-tourism – Tours designed to provide participants with a better understanding of the natural resources and the ecosystem as a whole.

Effects – See **consequences**.

Endangered Species – Any plant or animal species that is in danger of extinction throughout all or part of a significant portion of its range, and that is listed under the Endangered Species Act. See **Special Status Species**

Energy and Mineral Resources – Classified as follows:

Locatable Minerals: Any valuable mineral that is not salable or leasable. Includes gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872 (also see **Casual Use**).

Leasable Minerals: A mineral such as oil, gas, and geothermal resources that may be developed under the Mineral Leasing Act of 1920, as amended.

Salable Minerals: Minerals that may be sold under the Material Sale Act of 1947, as amended. Includes common varieties of sand, stone, gravel, and clay.

Endangered Species Act (ESA) – A law passed in 1973 that identifies species of wildlife and plants determined by the Director of the U.S. Fish and Wildlife Service to be endangered or threatened with extinction. See **Special Status Species**.

Environmental Impact Statement (EIS) – A statement of the environmental effects of a proposed action and alternatives to it, required for major federal actions under Section 102 of the **National Environmental Policy Act (NEPA)**, and released to the public and other agencies for comment.

Eocene – Epoch of geologic time in the early Tertiary period extending from approximately 55 million to 40 million years ago. See **Geologic Time**.

Eolian – Sediment or soil particles carried and deposited by wind.

Ephemeral Lake – A shallow lake that fills intermittently, such as during and following rain or snow melt, but that later evaporates.

Ephemeral Stream – A stream with a channel above the water table that flows sporadically, such as during and following rain or snow melt. See **Perennial Stream**.

Erosion – Detachment or movement of soil or rock fragments by water, wind, ice, or gravity. *Accelerated erosion* is much more rapid than normal, natural, or geologic erosion, and results primarily from the influence of activities of people, animals, or natural catastrophes.

Ethics – Guidelines that help us choose appropriate actions and behavior.

Evaluation – Systematic process for determining the effectiveness of management actions and assessing progress toward meeting management objectives. See **monitoring**.

Event (Special Recreation Permit) – A single, structured, organized, consolidated or scheduled meeting or occurrence for recreational use of public land and water resources; may involve several related activities.

Fan Piedmont – Extensive **landform** on **piedmont** slopes formed by the lateral, downslope coalescence of mountain-front **alluvial fan** into one generally smooth slope.

Fault – A fracture or fracture zone of the earth with displacement along one side relative to the other.

Fauna – Wildlife or animals of a specified region or time.

Federal Land Policy and Management Act of 1976 (FLPMA) – Public Law 94-579, October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislation, authority, direction, policy, and basic management guidance.

Federal Register – A daily publication that reports Presidential and Federal agency documents.

Fee Area (Special Recreation Permit) – A site that contains or provides specialized facilities, equipment, or services for or related to outdoor recreation, and that is administered by BLM.

Fee Demonstration Program – Program which requires that all fees collected from special recreation permits or other recreational sources within the plan area remain for use at the fee collection site. For the Black Rock Desert, these funds are applied to resource protection and management, visitor management, and public education outreach (including safety, interpretation, and preservation).

Flora – Plant life of a specified region or time.

Foothills – A steeply sloping upland that flanks a mountain range.

Fossil – Remnant or trace (such as a skeleton or leaf imprint) of an organism of a past geological age.

Geochemistry – Study of relative abundance of elements in rock types.

Geologic Time – The eras, periods, and epochs of historical geology (see table).

Era	Period	Epoch	Years Ago	Characteristics	
Precambrian	Archeozoic		5 - 2.5 billion	Earth's crust solidifies; earliest life; blue-green algae.	
	Proterozoic		2.5 billion - 570 million	Bacteria; algae; earliest multi-cellular life.	
Paleozoic	Cambrian		570-500 million	Earliest marine invertebrates (shellfish).	
	Ordovician		500 - 425 million	Earliest fishes, seaweed, fungi.	
	Silurian		425 - 405 million	Abundant shellfish; earliest land plants; modern fungi.	
	Devonian		405 - 345 million	Age of fishes; earliest amphibians, insects, land animals.	
	Missippian	Carbon-iferous		345 - 310 million	Shallow seas, low lands; fern forests; age of amphibians begins.
	Pennsylvanian			310 -280 million	Swamps and coal forests; earliest reptiles.
	Permian		280 - 230 million	Conifer forests; extinction of many marine invertebrates.	
Mesozoic	Triassic		230 - 190 million	Age of reptiles begins; earliest dinosaurs.	
	Jurassic		190 - 140 million	Age of dinosaurs; earliest birds and mammals.	
	Cretaceous		140 - 65 million	Last dinosaurs; modern insects; flowering plants.	
Cenozoic	Tertiary	Paleocene	65 - 55 million	Age of mammals begins; earliest primates.	
		Eocene	55 - 40 million	Modern birds and mammals begin to appear.	
		Oligocene	40 - 24 million	Browsing mammals.	
		Miocene	24 - 5 million	Grazing mammals, apes.	
		Pliocene	5 - 2 million	Mountain uplift; increase in size and numbers of mammals.	
	Quaternary	Pleistocene	2 million - 10,000	Glacial ice (ice age).	
		Holocene	10,000 - present	Modern humans.	

Geomorphic – Processes of geological change (i.e., erosion, sedimentation, volcanic activity, etc.).

Geophysics – Geologic exploration and prospecting by observing seismic, electrical, gravitational, magnetic, or thermal phenomena.

Gully (Draw) – A small channel with steep sides cut by running water after rain or snow melt. Generally

an obstacle to a wheeled vehicle.

Habitat – The sum total of environmental conditions of a specific place occupied by a wildlife species.

Historical Use (Special Recreation Permit) – The average of the highest two use seasons in the preceding 5-year period.

Holocene – Epoch of the Quaternary Period extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present). See **Geologic Time**.

Igneous Rock – Rocks formed by solidification of molten material from magma within or on the earth's surface. May be extrusive (volcanic) or intrusive (plutonic) rock. See **Sedimentary Rock**, **Metamorphic Rock/Metamorphism**.

Impacts – See **consequences**.

Indirect Effect – See **consequences**.

Interbed – A bed, typically thin, of one kind of rock material occurring between or alternating with beds of another kind.

Intermittent Stream – See **ephemeral stream**.

Intermontane Basin – A valley or plain between mountain ranges.

Interpretation – An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information.

Inventory – Systematic acquisition and analysis of information needed to describe, characterize, or quantify resources for land use planning and management of the public lands.

Invertebrate – Species having no backbone or spine.

Irretrievable – Applies to losses of production, harvest, or commitment of **renewable** natural resources.

Irreversible – Applies primarily to use of **nonrenewable** resources (such as minerals or cultural resources), or to those factors that are renewable only over long time spans (such as soil productivity). Irreversible also includes loss of future options.

Issue – A point, matter, or question of public discussion or interest to be addressed or decided through the planning system.

Key Observation Point (KOP) – One or a series of points on a travel route or at a use area or potential use area where the view of a management activity would be most revealing.

Kiosk – A signboard with a protective cover, where interpretive and safety information is posted.

Known Geothermal Resource Area (KGRA) – Areas known to contain significant geothermal resources.

Lacustrine – Pertaining to lakes (i.e., geological features formed along the shore or at the bottom of lakes).

Lake Bed – The flat to gently undulating surface underlain by fine-grained sediments in a formed lake.

Lake Plain – A nearly level surface making the floor of an extinct lake filled with well-sorted, generally fine-textured, stratified deposits. See **playa**.

Lake Terrace/Lake Plain Terrace – A narrow shelf cut and/or built along a lake shore and later exposed when the water level drops.

Landform – Any physical, recognizable form or feature on the earth's surface, having a characteristic shape and range in composition and produced by natural processes.

Landscape – A collection of related, natural landforms, usually the land surface which the eye can comprehend in a single view.

Leave No Trace – Outdoor skills and ethics program that teaches individuals or groups how to minimize their direct impact on the environment. Go to <<http://www.int.org>> for more information about Leave No Trace. See **Tread Lightly!**.

Leasable Minerals – See **Energy and Mineral Resources**.

Limited Area – See **Off-highway Vehicle Designations**.

Limits of Acceptable Change (Special Recreation Permit) – The amount of human-caused change to biological, physical, or social components that are tolerable within an acceptable level without degrading the recreational experience.

Locatable Minerals – See **Energy and Mineral Resources**.

Loess – Material transported and deposited by wind and consisting predominately of silt-sized particles.

Longshore Bar – A narrow, elongated, coarse-textured ridge that once rose near to, or above a **pluvial lake** surface and extended generally parallel to the shore but separated from it by a trough or lagoon.

Long Term – More than 5 years. See **short term** and **temporary**.

Lotic – Flowing water. A creek, for example, is a lotic system.

Management Framework Plan (MFP) – Land-use plan applying to a specific region.

Maximum Allowable Use Level – See **Desired Use Level**.

Mechanized Travel / Mechanized Vehicle - Transport by mechanical means; includes all motorized vehicles as well as human-powered vehicles such as mountain bikes.

Megafauna – Large vertebrate **fauna** of any given region or age, extinct or living, such as mammoth, bison, camel, elk, moose, etc.

Mesic – Pertaining to or adapted to an area that has a balanced supply of water; neither wet nor dry.

Mesozoic – An era of geologic time extending from the beginning of Triassic period to the end of the Cretaceous period (from approximately 230 million years ago to 65 million years ago). See **Geologic Time**.

Metamorphic Rock / Metamorphism – Changes in rock structure, texture, appearance, etc., caused by pressure, heat and water.

Metasediment – A sediment or sedimentary rock that shows evidence of having been subjected to metamorphism.

Metavolcanics – Informal term for volcanic rocks that show evidence of having been subjected to mineralogical, chemical or structural change.

Microbiotic Crust – See **Biological Soil Crust**.

Microphytic Crust – See **Biological Soil Crust**.

Mineral Material – Refers to salable minerals. See **Energy and Mineral Resources**.

Mineral Potential – Classifications assigned areas as follows:

High (Prospective): The geologic environment, inferred geologic processes, reported mineral occurrences and/or valid geochemical/geophysical anomalies, and known mines or deposits indicate high potential for accumulation of mineral resources. The “known mines and deposits” do not have to be within the area that is being classified, but have to be within the same type of geologic environment.

Moderate (Favorable): The geologic environment, inferred geologic processes, and reported mineral occurrences or valid geochemical/geophysical anomalies indicate moderate potential for accumulation of mineral resources.

Low (Permissive): The geologic environment and inferred geologic processes indicate low potential for accumulation of mineral resources.

No Potential (Non Permissive): The geologic environment and inferred geologic processes indicated no potential for accumulation of mineral resources.

Minerals – Any of a class of inorganic substances occurring naturally. See **Energy and Mineral Resources and Mineral Potential**.

Minimal Surface Disturbance – Only the amount of surface disturbance needed to complete a project. No additional surface disturbance is authorized.

Mining – The process of extracting **minerals** from the earth.

Mining Claim – An individual or corporate right to a given parcel of federal land for the purpose of developing and extracting a discovered **locatable mineral** deposit according to the General Mining Law of 1872, as amended.

Mining District – A section of country usually designated by name and used for accounting purposes in which gold, silver or other minerals may be or have been found in paying quantities.

Mining Notice – Mining **operations** conducted under 43 CFR 3809 regulations that cause cumulative surface disturbance of 5 acres or less. A mining notice does not require approval by the BLM, and a reclamation bond is not required, but **operators** must notify the BLM at least 15 calendar days before commencing operations. See **Casual Use, Energy and Mineral Resources, Plan of Operation**.

Miocene – Epoch of geologic time in the middle Tertiary period extending from approximately 24 million to 5 million years ago. See **Geologic Time**.

Mitigation – Modifications of actions taken to: (1) avoid impacts by not taking a certain action or parts of an action; (2) minimize impacts by limiting the degree or magnitude of the action and its implementation; (3) rectify impacts by repairing, rehabilitating, or restoring the affected environment; (4) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action; or (5) compensate for impacts by replacing or providing substitute resources or environments.

Monitoring – A 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. See **Evaluation**.

Mound – Small, sometimes isolated, hills of wind-blown sediments, usually stabilized by vegetation, developed due to capture of particles by vegetation.

Multiple Use – Management of public lands and their various resource values so that they are used in combination that will best meet the present and future needs of the American people. Multiple use does not necessarily result in the combination of uses that will give the greatest potential economic return or the greatest unit output, nor does it mean that every use will occur on every acre.

National Environmental Policy Act (NEPA) – An Act passed in 1969 to declare a National policy that: encourages productive and enjoyable harmony between humankind and the environment; promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity; enriches the understanding of the ecological systems and natural resources important to the Nation; and establishes a Council on Environmental Quality.

Noncommercial Use (Special Recreation Permit) – A recreational activity on public land or related waters whose actual expenses are shared equally among all members or participants. Any person, group, or organization seeking to qualify as noncommercial must establish to the satisfaction of BLM that no financial or business gain will be derived from the proposed use.

Nondiscretionary – Situations where the BLM is constrained by law to proceed in a certain manner. See **Discretionary**.

Nonrenewable Resource – Cultural, natural, or other resource that, once altered or extracted, do not replenish themselves and cannot be replaced (minerals extracted by mining, for example). See **Renewable Resource**.

No Surface Occupancy – Restriction placed on geothermal and oil and gas leases in order to ensure that no surface-disturbing activities occur on the lease. Therefore, the lessee may not occupy the surface of the lease. See **Energy and Mineral Resources (Leasable Minerals)**.

Noxious Weed – A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the United States. According to the Federal Noxious Weed Act (PL 93-639), a noxious weed is one that causes disease or has other adverse effects on people or their environment and, therefore, is detrimental to the agriculture and commerce of the United States and to the public health.

Off-highway Vehicle (OHV; Special Recreation Permit) – Any motorized vehicle capable of, or designed for travel on or immediately over land, water or other natural terrain excluding: any non-amphibious registered motorboat; any military, fire, emergency or law enforcement vehicle while being used for emergency purposes; any vehicle whose use is expressly authorized by the authorized officer or otherwise officially approved. OHV is the term used in this Revised Plan Amendment and Draft Environmental Impact Statement and is interchangeable with **off-road vehicle** (see “No Action Alternative: Dispersed Recreation, Including Vehicle Access” in Chapter 2 for further clarification).

Off-highway Vehicle Designations (Special Recreation Permit) – Categories defining OHV use, as follows:

Open Area: An area where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in 43 CFR 8341 and 8342.

Limited Area: An area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following: numbers of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions.

Closed Area: An area where off-road vehicle use is prohibited. Use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

Off-road Vehicle (ORV) – See **Off-highway Vehicle**.

Oligocene – Epoch of geologic time in the middle Tertiary period extending from approximately 40 million to 24 million years ago. See **Geologic Time**.

Open Area – See **Off-highway Vehicle Designations**.

Operation Plan (Special Recreation Permit) – An applicant's/permittee's plan to conduct their activity or event on public lands or related waters in conjunction with a **special recreation permit**. An operating plan will, at a minimum, describe how services will be delivered, how an event will be conducted, and measures that will be implemented to protect resources and provide for public health and safety.

Operator (Special Recreation Permit) – A group, association, individual, corporation, or organization that provides recreational services. (**Locatable Minerals**) – A person conducting or proposing to conduct mining operations.

Paleocene – Epoch of geologic time in the early Tertiary period extending from approximately 65 million to 55 million years ago. See **Geologic Time**.

Paleontology – Study of fossils and ancient life forms.

Parna – Silt and sand-sized aggregates of eolian (wind-blown) deposits of silt and clay particles occurring in sheets or dune-like mounds.

Parna Dune – A low mound, ridge, bank or hill of loose, windblown, silt and clay, either barren or with some vegetation, capable of movement from place to place but retaining a characteristic dune structure and shape.

Payment Bond – See **bond**.

Perennial Stream – A stream with a channel below the water table that flows continuously throughout the year. See **Ephemeral Stream**.

Permian – The last Period of the Paleozoic era and preceding the Mesozoic era (from approximately 280 million to 230 million years ago). See **Geologic Time**.

Permit (Special Recreation Permit) – A license, revocable by or at the discretion of BLM, to utilize public lands for a fixed period of time, not exceeding 3 years. A permit is non-renewable, non-assignable, and conveys no possessory interest in the land.

Permittee (Special Recreation Permit) – An individual, group or organization who has fulfilled all the requirements for and has been awarded a special recreation permit.

Phreatophyte Mound – Small mounds or hillocks generally a few feet high and occurring in groups, composed of wind-deposited, cross-bedded sediments, capped with living and/or dead woody shrubs such as greasewood (*Sarcobatus vermiculatus*).

Physiographic Province – A region within which all parts are similar in geologic structure and climate and which has had a unified **geomorphic** history.

Piedmont – An area at the base of a mountain that may consist of several kinds of **alluvial** slopes.

Plan Area – Area to which the amendment applies (see Maps 1, 2A, and 2B) .

Plan of Operation – An **operator's** plan submitted for exploration and development for minerals or for approval when more than 5 acres a year will be disturbed or when the operator plans to work in an area of critical environmental concern, wild and scenic river, wilderness study area, or wilderness. A plan of operation must document, in detail, all actions the operator plans to take from exploration through reclamation and present all information needed for preparing a NEPA document. A reclamation bond is required. See **Casual Use, Mining Notice, Energy and Mineral Resources**.

Playa – The usually dry and nearly level **lake plain** that covers the lowest part of closed depressions such as those occurring on **intermontane basin** floors which are temporarily flooded due to precipitation and runoff. Playa deposits are fine-grained and may or may not have a high water table and saline conditions.

Playa Lake – A shallow, intermittent or **ephemeral lake** covering a playa in wet seasons but drying up in the summer. See **Pluvial Lake**.

Pleistocene – Epoch of geologic time in the early Quaternary period from approximately 2 million to 10 thousand years ago. Characterized by extensive continental glacial ice sheets and also known as the ice age. See **Geologic Time**.

Pliocene – The last epoch of the Tertiary period from approximately 5 million to 2 million years ago. See **Geologic Time**.

Pluvial Lake – A lake formed during periods of exceptionally high precipitation and cooler temperatures relative to the present (such as during the **Pleistocene** epoch) and now extinct (**relict**) or existing as a remnant lake. Pyramid Lake and Walker Lake are remnant lakes of Lake Lahontan, for example. **Playas** and **playa lakes** are also features of relict lakes.

Precious Metals – Rare and valuable **locatable minerals** (gold, silver, platinum and palladium, etc.).

Proposed Species – See **Special Status Species**.

Prospect – An attempt to determine mineral values or the site of this attempt.

Public Lands – Any lands and interests in lands owned by the United States (without regard to how the United States acquired ownership) and administered by the Secretary of the Interior through the Bureau of Land Management.

Quaternary – Period of geologic time extending from the present to approximately 2 million years ago. See **Geologic Time**.

Reclamation – To rectify the impacts of actions on public lands by repairing, rehabilitating, or restoring the affected environment. Also see **mitigation**.

Record of Decision – A document separate from, but associated with, an **environmental impact statement** that: states the management decision and the reason for that decision; identifies all alternatives including the environmentally preferable and selected alternatives; and also states whether all practicable measures to avoid environmental harm from the selected alternative have been adopted, and, if not, why.

Relict – Surface landscape features which are products of past environments. A **playa**, for example, is a relict feature of a **pluvial lake**.

Renewable Resource – Cultural, natural, or other resource that can replenish itself (trees, water, etc.). See **Nonrenewable Resource**.

Road – See **Transportation System**.

Salable Minerals – See **Energy and Mineral Resources**.

Sand Sheets – A large, irregular-shaped, commonly thin, surficial mantle of wind-blown (eolian) particles (sand and detrital feldspar or clay and silt), but lacking discernible slip faces of dunes.

Sediment – Mineral and organic material in suspension, in transport, or moved by its place of origin by water, wind, or mass-wasting, and has come to rest on land surface or in water.

Sedimentary Rock – A layered rock resulting from consolidation of sediment at or near the earth's surface under earth-surface conditions.

Seep – A small area where water percolates slowly to the land surface. A term generally applied to flows too small to be considered springs.

Sensitive Species – See **Special Status Species**.

Shoreline – The intersection of surface level of a lake or sea with the beach which rises or falls with changes in water level.

Short Term – Three months to 5 years. See **temporary** and **long term**.

Soil – See **Biological Soil Crust**.

Soil Types – Classifications of varieties of soil. See Table 3-1.

Special Area (Special Recreation Permit) – An area officially designated by statute or Secretarial order, or for which BLM determines that the resources require special management and control measures for their protection, or an area covered by joint agreement between BLM and a State under Title II of the Sikes Act (16 U.S.C. 670a et seq.), or any other area where the authorized officer determines that the resources require special management and control measures for their protection.

Special Recreation Permit – See **Event (Special Recreation Permit)**.

Special Status Species – Species considered for listing as threatened or endangered are categorized as follows.

Proposed Species: Plant or animal species officially proposed for listing as threatened or endangered by the Secretary of the Interior. A proposed rule has been published in the Federal Register.

Threatened Species: Plant or animal species likely to become endangered throughout all or a significant portion of its range within the foreseeable future. A plant or animal identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Candidate Species: Plant or animal species included in Federal Register “Notices of Review” that are being considered for listing as threatened or endangered.

State Listed Species: Plant or animal species proposed for listing or listed by a state in a category implying potential endangerment or extinction. Listing is either by legislation or regulation.

Sensitive Species: Those species that (1) have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, (2) are on an official state list, or (3) are recognized by the implementing agencies as needing special management to prevent their being placed on federal or state lists.

Spit – A small point or narrow embankment of land generally consisting of land or gravel deposited by longshore drifting and having one end attached to the mainland and the other end extending into open water.

Standards and Guidelines – The rules and limits governing actions, as well as the principles specifying the environmental conditions or levels to be achieved and maintained.

State Listed Species – See **Special Status Species**.

Stipulation – A requirement, usually dealing with protection of the environment, that is made a part of a lease, grant, or other authorizing document. In the case of oil and gas leases (see **leasable minerals**), a provision that modifies standard lease rights and is attached to and made a part of the lease.

Surety Bond – See **Bond**.

Surface Sealing – Sealing of clay-rich soils caused from repeated compaction by activities to the point of reducing infiltration of water and preventing vegetation recovery.

Temporary – Less than three months. See **short term**.

Tertiary – Period of geologic time between 65 and 2 million years ago. See **Geologic Time**.

Threatened Species – See **Special Status Species**.

Thrust Fault – A **reverse fault** characterized by a low angle of inclination.

Transportation System – Categorized as follows:

Existing Road: In areas other than wilderness study areas, any kind of roadway found during an inventory.

Existing Trail: In areas other than wilderness study areas, any kind of trail (usually single-tracked) found during an inventory. Jeep trails are extremely rough 2-track roads.

Designated Road: In areas other than wilderness study areas, an inventoried, defined road that is included in a management plan after plan approval.

Designated Trail: In areas other than wilderness study areas, an inventoried, defined trail that is included in a management plan after plan approval.

Road: Travel route that has been improved and maintained by mechanical means to ensure relatively regular and continuous use. A *way* maintained solely by the passage of vehicles does not constitute a road.

Way: In reference to wilderness study areas, a route created and maintained solely by passage of motor vehicles.

Trail – See **Transportation System**

Tread Lightly! – A land use ethics program that encourages individuals and groups to minimize their direct impact on an area. See **Leave No Trace**.

Trespass – Any use, occupancy, or development of the public lands or their resources without authorization from the United States if authorization is required, or exceeding such authorization, or causing **unnecessary or undue degradation** of the land or resources.

Tufa – The calcareous and siliceous rock deposits of springs, lakes and ground water.

Unnecessary or Undue Degradation – Surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations. Failure to initiate and complete reasonable **mitigation** measures, including **reclamation** of disturbed areas or creation of a nuisance may constitute unnecessary or undue degradation. Failure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation.

U.S. Geologic Survey (USGS) – Department of the Interior agency that studies the nation's water and mineral resources and makes topographical surveys. Required by FLPMA Section 603 to survey the

mineral potential of **wilderness study areas** recommended for designation as **wilderness**.

User Day (Special Recreation Permit) – Any calendar day, or portion thereof, for each individual accompanied or serviced by an **operator** or **permittee** on the **public lands** or related waters; synonymous with passenger day or participant day.

Vehicle – Any motorized transportation conveyance designed and licensed for use on roadways, such as an automobile, bus, or truck, and any motorized conveyance originally equipped with safety belts. Distinct from **Off-highway Vehicles** (OHVs).

Vertebrate – A species that has a backbone or spinal column (includes fishes, amphibians, reptiles, birds, and mammals, all of which have a segmented bony or cartilaginous spinal column).

Viewshed – Landscape that can be directly seen under favorable atmospheric conditions and from a viewpoint or along a transportation corridor.

Visual Resource – Composite of landforms, water features, vegetative patterns, and cultural features that create the visual environment.

Visual Resource Management (VRM) Classes – Categories defining the degree of acceptable visual changes within a characteristic landscape. A class is based on the physical and sociological characteristics of any given homogeneous area and serves as a management objective. See Table 2-1 in Chapter 2 for a description of VRM classes and acceptable visual changes.

Wash – A dry bed of an intermittent stream that carries periodic runoff (from rain and snowmelt) and alluvial material.

Water Table – Depth at which the ground is saturated with water.

Wave-cut Platform – A gently sloping surface produced by wave erosion along ocean or lake shores.

Way – See **Transportation System**.

Wilderness – Areas designated by Congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation.

Wilderness Study Area (WSA) – Public land blocks proposed for **wilderness** designation. WSAs are larger than 5000 acres, natural in character, that have outstanding opportunities for solitude and/or primitive and unconfined recreation.

Withdrawal – An action that restricts the use or disposal of public lands, segregating the land from the operation of some or all of the public land and/or mineral laws and holding it for a specific public purpose. Withdrawals may also be used to transfer jurisdiction of management to other federal agencies.

APPENDICES

- A Sierra Front-Northwestern Great Basin Area Rangeland Standards and Guidelines
- B Areas of Critical Environmental Concern (ACEC) Nomination Evaluation
- C Existing Management for Geothermal and Oil and Gas Leasing (No Action Alternative)
- D Figures

**APPENDIX A
SIERRA FRONT-NORTHWESTERN
GREAT BASIN AREA
STANDARDS AND GUIDELINES**

This appendix contains a verbatim version of the Standards and Guidelines for livestock grazing in the Sierra Font-Northwestern Great Basin Area.

SIERRA FRONT-NORTHWESTERN GREAT BASIN AREA



PREAMBLE

The Standards and Guidelines for livestock grazing on Bureau of Land Management lands are written to accomplish the four fundamentals of rangeland health, insofar as they are affected by livestock grazing practices. Those fundamentals are:

- Watersheds are properly functioning;
- Ecological processes are in order;
- Water quality complies with state standards; and
- Habitats of protected species are in order.

Other uses can affect the health of the land, and guidelines for these currently exist or will be developed as needed. In addition, implementation of livestock grazing guidelines must be coordinated with other uses of the land, and collectively these uses should not detract from the goal of achieving public land health.

Standards, indicators and guidelines will be implemented through standard public land management practices as defined in the Nevada Rangeland Monitoring Handbook and the other documents listed in Appendix A [of this appendix].

Standards; The goal to be achieved.

Indicators: Indicators are observations or measurements of physical, chemical or biological factors that should be used to evaluate site conditions or trends, appropriate to the potential of the site. Indicators assist in determining whether Standards are met or Guidelines followed.

Guidelines: Guidelines are livestock management practices (e.g. tools, methods, strategies and techniques) designed to achieve healthy public lands as defined by Standards and portrayed by Indicators. Guidelines are designed to provide direction, yet offer flexibility for local implementation through activity plans and grazing permits. Activity plans may add specificity to the Guidelines based on local goals and objectives as provided for in adopted manuals, handbooks and policy. Not all Guidelines fit all circumstances. Monitoring and site specific evaluation will determine if the Standards are being met or the trend on a particular site is toward desired objectives, and if the correct Guidelines are being applied. The BLM Authorized Officer, in consultation with public land users, will identify and document acceptable or unavoidable exceptions on a case-by-case basis.

STANDARDS FOR RANGELAND HEALTH

STANDARD 1. SOILS:

Soil processes will be appropriate to soil types, climate and land form.

As indicated by:

- Surface litter is appropriate to the potential of the site;
- Soil crusting formations in shrub interspaces, and soil compaction are minimal or not in evidence, allowing for appropriate infiltration of water;
- Hydrologic cycle, nutrient cycle and energy flow are adequate for the vegetative communities;
- Plant communities are diverse and vigorous, and there is evidence of recruitment; and
- Basal and canopy cover (vegetative) is appropriate for site potential.

STANDARD 2. RIPARIAN/WETLANDS:

Riparian/Wetland systems are in properly functioning condition.

As indicated by:

- Sinuosity, width/depth ratio and gradient are adequate to dissipate streamflow without excessive erosion or deposition;
- Riparian vegetation is adequate to dissipate high flow energy and protect banks from excessive erosion; and
- Plant species diversity is appropriate to riparian-wetland systems.

STANDARD 3. WATER QUALITY:

Water quality criteria in Nevada or California State Law shall be achieved or maintained.

As indicated by:

- Chemical constituents do not exceed the water quality standards;
- Physical constituents do not exceed the water quality standards;
- Biological constituents do not exceed the water quality standards; and

- The water quality of all water bodies, including ground water located on or influenced by BLM lands will meet or exceed the applicable Nevada or California water quality standards. Water quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and antidegradation requirements set forth under State law, and as found in Section 303(c) of the Clean Water Act.

STANDARD 4. PLANT AND ANIMAL HABITAT:

Populations and communities of native plant species and habitats for native animal species are healthy, productive and diverse. As indicated by:

- Good representation of life forms and numbers of species;
- Good diversity of height, size, and distribution of plants;
- Number of wood stalks, seed stalks, and seed production adequate for stand maintenance; and
- Vegetative mosaic, vegetative corridors for wildlife, and minimal habitat fragmentation.

STANDARD 5. SPECIAL STATUS SPECIES HABITAT:

Habitat conditions meet the life cycle requirements of special status species. As indicated by:

- Habitat areas are large enough to support viable populations of special status species;
- Special status plant and animal numbers and ages appear to ensure stable populations;
- Good diversity of height, size, and distribution of plants;
- Number of wood stalks, seed stalks, and seed production adequate for stand maintenance; and
- Vegetative mosaic vegetative corridors for wildlife, and minimal habitat fragmentation.

GUIDELINES FOR GRAZING MANAGEMENT:

1. Waters must be free from high temperature, biocides, organisms pathogenic to human beings, toxic, corrosive or other deleterious substances attributable to domestic or industrial waste or other controllable sources at levels or combinations to interfere with any beneficial use of the water. Compliance with the provisions of this subsection may be determined in accordance with methods of testing prescribed by the State. If used as an indicator, survival of test organisms must not be significantly less in test water than in control water.
2. Grazing management practices should be planned and implemented to meet water quality provisions in either California State water law or Nevada Administrative Code Section 445A.120-121 as applicable.
3. Management practices within allotments will maintain or promote stream channel morphology, appropriate soil organisms; adequate amounts of ground cover to support infiltration, maintain soil moisture storage, and stabilize soils; and the hydrologic cycle, nutrient cycle and energy flow.

4. After a range fire or other natural catastrophic event, vegetation should be returned to the native species as rapidly as possible, to afford forage and habitat for native animals. If a nurse crop is needed to protect the land from erosion, all native nurse crops should be used first.
5. Treated areas will be rested from livestock grazing for two growing seasons or until seedlings are established or the vegetative response has achieved objective levels. Wild horse and burros removed from Herd Management Areas will be restored after rehabilitation objectives have been met.
6. Alternative solutions (e.g. reseeding, funding, labor, equipment use or rental) to facilitate fire rehabilitation, may be included in cooperative agreements involving qualified groups and individuals who want to participate.
7. Appropriate livestock grazing treatments will be implemented to control the frequency, duration, and level of grazing use. Where livestock grazing is authorized, grazing systems will provide within any one grazing year one or more of the following treatments:
 - a. Rest or deferment from livestock grazing on a specified area as appropriate to meet Standards.
 - b. Systematic rotation of deferred use and/or rest from livestock grazing among two or more units.
 - c. Continuous, season-long use where it has been demonstrated to be consistent with achieving identified standards. Once season long use is determined to be unacceptable, an alternative system will be developed and implemented before termination of season long use, prior to the next grazing season.
 - d. Excluding further livestock grazing within the affected use area through appropriate techniques when utilization objectives are reached.
8. Conservation of Federal threatened or endangered, proposed, species of concern (formally Category One and Two) and other special status species is promoted by the restoration and maintenance of their habitats.
9. Salt and/or supplements will be placed at least 1/4 mile from live waters (springs/ streams) and outside of associated riparian areas, permanent livestock watering facilities, wet or dry meadows, and aspen stands. Also salt should not be placed in known historic properties.
10. Night bedding of sheep will be located at least 1/4 mile from live waters, streams, springs, seeps, associated riparian areas, wet or dry meadows, and aspen stands.
11. Encourage the use of prescribed and natural fires, meeting prescription objectives, for the restoration and maintenance of healthy rangelands.
12. Departure from traditional grazing management practices may be authorized by BLM to achieve Standards on a case by case experimental basis for rangeland restoration and rehabilitation.
13. The best available science and technology will be utilized in monitoring and assessing the condition of rangelands from the pasture to the BLM District level.

14. Recognizing State Water Law requirements, wildlife and wild horses/burros within their herd areas will have access to surface water they customarily use.
15. Design of water facilities will incorporate features to insure safe access and escape for small animals and birds.
16. The development of springs and seeps or other projects affecting water and associated resources shall be designed to maintain the associated riparian area and assure the attainment of Standards.
17. Grazing management practices shall be planned and implemented to allow for habitat requirements of wildlife and wild horses and burros within Herd Management Areas.
18. Implement aggressive action to reduce the invasion of exotic plant species into native plant communities. Control the spread of noxious weeds through various methods such as, grazing management, fire management and other vegetative management practices.
19. Riparian structural developments (i.e, gabions, dams, etc.) designed to achieve improvement in riparian and wetland conditions shall only be implemented in conjunction with changes in existing grazing management practices, where grazing is a significant factor contributing to a riparian condition needing such attention. Where grazing is not a significant factor causing a riparian condition needing attention, structural developments designed to achieve improvement in riparian and wetland conditions may be implemented independent of changes in existing grazing management practices.
20. The utilization, monitoring and evaluation process will be used as a tool to promote healthy rangelands and achieve standards.
21. Implement grazing management practices that sustain biological diversity across the landscape.
22. To prevent transmission of disease between domestic and bighorn sheep, adopt and implement the "Guidelines for Domestic Sheep Management in Bighorn Sheep Habitats" contained in *Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska*.
23. Rangeland management plans will consider listings of known historic properties and new eligible properties as they become known.

APPENDIX A

Nevada Rangeland Monitoring Handbook, 1984. *Mountain Sheep Ecosystem Management Strategy in 11 Western States and Alaska*, 1995. *Riparian Area Management Technical Reference 1737-9*, 1993. *BLM Riparian-Wetland Initiative/or the 1990's Riparian Area Management Technical Reference 1737-1 1*, 1994. "National Environmental Policy Act Quarterly Update", Volume I, Number 2. "Programmatic Agreement Among BLM, SHPO and ACHP," August 24, 1990.

U.S. Department
of the Interior
Bureau of
Land Management

STANDARD AND GUIDELINES IMPLEMENTATION PROCESS

It is a requirement that grazing permits and leases shall contain terms and conditions that ensure conformance with the approved Standards and Guidelines.

The implementation process for Standards and Guidelines will occur under two separate processes as described below:

- 1) During the supervision and/or monitoring of an allotment, if it is determined that the existing terms and conditions of a grazing permit are not in conformance with the approved Standards and Guidelines and that livestock grazing was determined to be a significant factor in the nonattainment of a standard, then as soon as possible, or no later than the start of the next grazing year, the terms and conditions of the permit/lease will be modified to ensure that the grazing management practices or the levels of the grazing use will be in conformance with the Standards and/or Guidelines.

The modification of the terms and conditions of the permit/lease will be implemented by agreement and/or by decision.

- 2) The allotment evaluation process will continue to be the process used to determine if existing multiple uses for allotments are meeting or making progress towards meeting land use plan objectives, allotment specific objectives, Range-land Program Summary objectives and land use plan decisions, in addition to the Standards and Guidelines for grazing administration.

Additionally, allotment specific objectives may have to be developed or amended, objectives in the land use plans further quantified at the allotment specific level, and terms and conditions of permits changed or revised to reflect the Standards and Guidelines. Allotment evaluations will continue to be completed based on district priorities.

- a. The allotment evaluation consists of or involves:
 - 1) The evaluation of current grazing use by all users (livestock, wild horses, wildlife) based on monitoring data analysis and interpretation;
 - 2) Recommendations to change or adjust grazing systems;
 - 3) Recommendations to change or adjust stocking levels; and
 - 4) Establishment of stocking levels for wild horses.
- b. The allotment evaluation also serves as the basis for either issuing multiple use decisions, agreements, or a no change determination. Multiple use decisions are prepared subsequent to completion of land use plans and are based on the attainment or nonattainment of objectives established in the land use plans and allotment evaluations.

During the evaluation process, the existing terms and conditions of a permit will be evaluated to determine if they are in conformance with the approved Standards and Guidelines. If it is determined that the existing terms and conditions are not in conformance and that livestock grazing was a significant factor in

the non-attainment, then as soon as possible or no later than the start of the next grazing year, the terms and conditions of the permit/lease will be modified to ensure that the grazing management practices or the levels of grazing use will be in conformance.

At the conclusion of the evaluation process, the multiple use decision process will continue to be used to establish:

- 1) The terms and conditions of the grazing permits;
- 2) The appropriate management level for wild horses and burros that occur within the allotment; and
- 3) Any recommendations for wildlife populations or habitat management actions required if it is determined that these actions are necessary.

The preamble to the final regulations contains additional information regarding implementation. The following preamble language is found on page 9,956 of the Federal Register notice:

" . . . The Department intends that failing to comply with a standard in an isolated area would not necessarily result in corrective action.

"The Department recognizes that it will sometimes be a long-term process to restore rangelands to proper functioning condition. The Department intends that Standards and Guidelines will result in a balance of sustainable development and multiple use along with progress towards attaining healthy, properly functioning rangelands. For that reason, wording has been adopted in the final rule that will require the authorized officer to take appropriate action upon determining that existing grazing management practices are failing to ensure appropriate progress toward the fulfillment of standards . . ."

"In some areas, it may take many years to achieve healthy rangelands, as evidenced by the fundamentals, established standards, and guidelines. The Department recognizes, that in some cases, trends may be hard to even document in the first year. The Department will use a variety of data, including monitoring records, assessments, and knowledge of the locale to assist in making the "significant progress" determination."

The acceptance of progress toward reaching the desired end state is also addressed in the regulatory text in 43 CFR 4180.1 Fundamentals of Rangeland Health which includes the "making significant progress toward" language in each of the four fundamentals.

The concept of "making progress toward" is a specific consideration when determining a course of action during implementation. Determining whether a standard is being met is a distinctly different concept from determining whether progress is being made toward or away from the standard. Determining a course of action is then dependent on a variety of factors, one of which is whether progress is being made toward the standard.

With regard to actions, it is the BLM's policy and intent to work in a collaborative manner to achieve or maintain the Standards necessary for healthy, productive rangelands. It is not the policy or intent of the BLM to arbitrarily and immediately remove all livestock from an entire allotment based solely on finding a range site that is not meeting a standard. As a practical matter the BLM has neither policy, intent, desire nor capability to arbitrarily remove all livestock where acceptable progress is being made toward meeting the Standards.

APPENDIX B

ACEC NOMINATION EVALUATION

An area under consideration for Area of Critical Environmental Concern (ACEC) status must meet certain criteria of relevance and importance, as established and defined in 43 CFR 1610.7-2.

Name: **Black Rock Desert ACEC**
Location: Black Rock Desert's west arm
Size: 452,086 acres
Nominated by: BLM Winnemucca Field Office

Rationale: The west arm of the Black Rock Desert contains exceptional prehistoric, historic, cultural, and scenic values. The Black Rock Desert playa, with its lake-plain terrace margins, is part of the largest dry lake bed in North America: a unique vast landform which forms the focus of a scenic landscape. Within the proposed ACEC are over 110,000 acres of WSA lands, comprising nearly one-fourth of the proposed planning area. Through this landscape pass segments of the National Historic Trail System: the Applegate-Lassen Trail, the Nobles Route, and the John Fremont Exploration Route. The Applegate-Lassen Trail, a cut-off from the California Emigrant Trail, is listed on the National Register of Historic Places. Its integrity of setting was a primary qualifying characteristic for listing. In addition to the historic trails, the region is known to have prehistoric sites which display aboriginal use of the area. The environment has the potential for discovery of Western Pluvial Lakes Tradition sites, which are some of the earliest human occupations in the Great Basin.

This area of the Black Rock Desert is being considered for special management attention based on recreational impacts to natural and cultural resources.

RELEVANCE

1. Significant historic, cultural or scenic value?

The Applegate-Lassen Trail, Nobles Route, and 1843-44 John C. Fremont Exploration Route pass through the area. Many traces of the overland emigrants are visible, including wagon wheel ruts and carvings and paintings on the rocks. The US military also left unique traces in this area such as Camp McGarry, Camp McKee and major transportation routes linking the gold fields of the late 1800's. Representative relics of the homestead era occur along the trail corridor and throughout the proposed management area. The area allows public access and visitation to modern western American enterprises including mining, ranching, and rural outdoor recreation. Important historic sites within the area include Hardin City, the Lassen Clapper Murder site, and camp sites along the emigrant trail. A historic military outpost is also at Soldier Meadows (on private land but covered by a conservation agreement). Prehistoric archeological sites dating to as early as 10,000 years and Native American sacred sites also exist in the area.

The area has few modern intrusions and is fairly unaltered from the time Native Americans occupied this area and explorers and emigrants first passed through this land. The viewshed of the Applegate-Lassen Trail is considered to be an important cultural value.

Scenic values abound within the proposed management plan area. The vast flat alkali playa of the Black Rock Desert is juxtaposed by the high relief of the surrounding mountains: the Black Rock Range, the Granite Range, the Calico Mountains, and the Jackson Mountains. Scenic vistas abound: the colorful Calico Range; the Black Rock (the promontory from which the desert takes its name); Paiute Peak; Big Mountain; the steaming hot springs which punctuate the edge areas; the multi-hued pastels of the badlands secreted deep in the flanks of the Black Rock Range; and the cavernous Fly Canyon potholes, to name a few. During off-peak visitor days, a visitor may experience the solitude, beauty, and stillness of the desert without contact for hours or even days.

2. Fish and wildlife resource?

The Soldier Meadow project area is unique for its combination of natural and cultural resources. The hot spring complexes within the area provide the only known habitat for a federally listed threatened fish species, desert dace (*Eremichthys acros*). The spring complexes and 50 feet of the bank on either side of them have been designated as critical habitat (50 CFR 50304). The Endangered Species Act of 1973 as amended (ESA) directs federal agencies to seek to conserve endangered and threatened species and to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitats. At the time of the writing of this document the Recovery Plan for the Rare Species of Soldier Meadows has been finalized (USFWS 1997).

The area is also one of the few habitats for the plant, basalt cinquefoil (*Potentilla basaltica*), a federally listed species of concern and Nevada BLM sensitive species. Recent investigations of the hot springs in the area have also revealed the presence of several species of hydrobiid snails.

These resources are addressed by the Soldier Meadow Activity Plan (SMAP).

IMPORTANCE

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource?

The Applegate-Lassen Trail, John C. Fremont Exploration Route, and the Nobles route were all extremely important in the exploration, opening, and settlement of the west as well as in the history of transportation. Nearly half of all the 1849 Gold Rush traffic traveled this route.

The portion of the Applegate Lassen Trail which passes through the proposed ACEC area is the longest segment of emigrant trail in the far west which can be followed through an environment which has changed very little. This allows the visitor to experience the area as explorers and emigrants experienced it.

2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, unique, endangered, threatened or vulnerable to adverse change?

The Applegate-Lassen trail and the viewshed of the trail are vulnerable and threatened by increased recreation use as well as potential commercial development.

Irreplaceable cultural resource sites occur within the proposed management plan area.

The habitat of the desert dace is located within the proposed management plan area. This area provides the only known habitat for a federally listed threatened fish species, desert dace (*Eremichthys acros*). The area is also one of the few habitats for the plant, basalt cinquefoil (*Potentilla basaltica*), a federally listed species of concern and Nevada BLM sensitive species.

3. Has qualities which warrant highlighting in order to satisfy public management concerns or to carry out the mandates of FLPMA?

The Applegate-Lassen Trail is listed on the National Register of Historic Places and has been designated a National Historic Trail.

4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare: None known.
5. Poses a significant threat to human life and safety or to property? Not known.

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and conserve the cultural and scenic values. The Proposed Action and Alternative Two contain provisions for special management attention.

Soldier Meadows ACEC Expansion

(Note: This information is extracted, with minor editorial changes, from the Soldier Meadow Activity Plan.)

The Soldier Meadow project area is unique for its combination of natural and cultural resources. The area affected by the proposed action is located in Humboldt County at the northern end of the west arm of the Black Rock Desert, approximately 75 miles north of Gerlach, Nevada and 10 miles south of the Summit Lake Reservation. The project area is approximately 35,000 acres in size.

The hot spring complexes within the area provide the only known habitat for a federally listed threatened fish species, Desert Dace (*Eremichthys acros*). The spring complexes and 50 feet of the bank on either side of them have been designated as critical habitat (50 CFR 50304). The Endangered Species Act of 1973 as amended (ESA) directs federal agencies to seek to conserve endangered and threatened species and to ensure that actions authorized, funded, or implemented by them are not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitats. At the time of the writing of this document the Recovery Plan for the Rare Species of Soldier Meadows has been finalized (USFWS 1997).

The area is also one of the few habitats for the plant, Basalt Cinquefoil (*Potentilla basaltica*), a federally listed species of concern and Nevada BLM sensitive species. Recent investigations of the hot springs in the area have also revealed the presence of several species of hydrobiid snails.

A total of 307.22 acres of public land surrounding some of the dace habitat has been designated the Soldier Meadow Desert Dace Area of Critical Environmental Concern (ACEC) and is also designated a Research Natural Area (RNA). This area was designated an ACEC to highlight the area where special management attention is needed to protect and prevent irreparable damage to, important biological, cultural and historic resources. *A research natural area is an area which contains natural resource values of scientific interest and is managed primarily for research and educational purposes.*

The area is also significant for its prehistoric and historic cultural resource sites. It is believed that humans have utilized the hot springs and associated resources for at least the last 10,000 to 12,000 years. Much of the opportunity to study the cultural history of the area has been lost due to illegal exploitation of these resources. Native Americans have also expressed concerns about protection of the cultural and natural resources in Soldier Meadows.

Estimated recreational use in the area is about 4,000 12-hour visitor days each year and has shown a significant increase over the last five years. With the increase in northern Nevada's population, the loss of areas of solitude near urban development and restrictions on off-highway vehicle use near these areas recreational use in the Soldier Meadows area will probably continue to increase. In addition there has been an overall increase in large permitted events in the Black Rock Desert, including the Burning Man Festival, wagon train re-enactments, recreational rocket launchings, land sailing regattas and land speed trials, that have lead to large groups of people from outside of the northern Nevada area "discovering" the area. Most recreation use in the area is in the proximity of the springs and outflows that support populations of desert dace. It is believed that visitor use is starting to create adverse impacts to special status species, their habitats and cultural resources in the area.

Livestock grazing has occurred in the area since the late 1800s, and the study area lies within the Hot

Springs Pasture that provides a portion of the winter pasture for the Soldier Meadows Allotment. The area also provides habitat for wild horses and burros and includes part of three Herd Management Areas (HMAs), Black Rock Range-West, Warm Springs Canyon and Calico Mountains. There have been no studies to assess the impact of grazing by livestock, wild horses and burros on the special status species and cultural resources in the area.

At this time, there are no active mining claims or leases in the area, but the potential exists for the occurrence and extraction of locatable and leasable minerals. Salable mineral resources are presently being extracted.

APPENDIX C EXISTING MANAGEMENT FOR GEOTHERMAL AND OIL AND GAS LEASING (NO ACTION ALTERNATIVE)

This appendix summarizes existing management for geothermal and oil and gas leasing contained in the Paradise-Denio and Sonoma-Gerlach Management Framework Plans (1982a, b).

Paradise-Denio MFP: The following, applicable to the Management Framework Revised Plan Amendment and Draft Environmental Impact Statement, is excerpted from the Paradise-Denio Management Framework Plan (1982b):

The Paradise-Denio Resource area will be open to geothermal and oil and gas leasing with the following restriction: No surface occupancy will be allowed on the Applegate-Lassen Emigrant Trail.

Sonoma-Gerlach MFP: The following is excerpted from the Sonoma-Gerlach Management Framework Plan (1982a):

The Sonoma-Gerlach Resource Area will be open to geothermal and oil and gas leasing with the following restrictions:

1. Special stipulations for no surface occupancy will be applied to the following:
 - a. Visible remnants of the Applegate Lassen Trail from Rye Patch Reservoir to the Western Pacific Railroad track near Trego. In this area the Trail is defined as the actual trail itself.
 - b. Sage grouse strutting grounds
 - c. The S-1 cultural and historical sites
 - d. The George Lund Petrified Forest
 - e. The Soldier Meadows desert dace ACEC
 - f. Non-competitive areas and all KGRAs or portions thereof within the Black Rock Desert will be offered for lease except for those which are areas of significant environmental conflict or have historical and/or cultural significance. The following areas meet the above criteria: Double Hot Springs, Black Rock Springs, and the Applegate-Lassen Emigrant Trail. This includes that portion of the Emigrant Trail from the Sonoma-Gerlach Resource Area boundary near the Western Pacific Railroad track [now the Union Pacific Railroad] northerly to High Rock Canyon as legally described below. This encompasses approximately 97,288 acres.

The following will be leased with special stipulations:

- The west arm of the Black Rock Playa.
- Critical wildlife habitat areas

2. No leasing will be permitted on community watersheds and the Mahogany Creek Natural Area.

Note: Legal descriptions for the community watersheds can be found in Lands Decision 2.5.

T. 35 N., R. 27 E.

Sec. 2	SW 1/4
Sec. 3	All
Sec. 4	All
Sec. 5	All
Sec. 6	NE1/4
Sec. 8	NE1/4
Sec. 9	All
Sec. 10	All
Sec. 11	All
Sec. 12	SW1/4
Sec. 13	All
Sec. 14	All
Sec. 15	All
Sec. 22	NE1/4
Sec. 23	All
Sec. 24	All
Sec. 25	All
Sec. 26	NE1/4
Sec. 36	NE1/4

T. 35 ½ N., R. 27 E.

Sec. 28	SW1/4
Sec. 29	All
Sec. 30	All
Sec. 31	All
Sec. 32	All
Sec. 33	All
Sec. 34	All

T. 35 N., R. 28 E.

Sec. 19	All
Sec. 20	SW1/4

Sec. 28 SW1/4
Sec. 29 All
Sec. 30 All
Sec. 31 All
Sec. 32 All
Sec. 33 All

T. 37 N., R. 25 E.

Sec. 1 Lots 1 and 2, S1/2 NE1/4, SE1/4

T. 36 N., R. 27 E.

Sec. 7 All
Sec. 8 NW1/4

T. 35 1/2N., R. 26 E.

Sec. 25 E1/2
Sec. 36 NE1/4

T. 36 N., R. 26 E.

Sec. 1 Lots 4, 5, 6, 11, 12, 13, and 14, S1/2
Sec. 2 All
Sec. 3 All
Sec. 4 Lots 1, 2, and 3, S1/2, S1/2
Sec. 5 Lot 2, S1/2NE1/4,SE1/4
Sec. 9-15 All
Sec.16 Lots 1-6, 11-14, SW1/4, E1/2SE1/4
Sec. 21 S1/2NE1/4, SE1/4
Sec. 22 All
Sec. 23 All
Sec. 24 SW1/4
Sec. 25 W1/2
Sec. 26 All
Sec. 27 All
Sec. 28 E1/2
Sec. 33 E1/2E1/2
Sec. 34 All
Sec. 35 W1/2, SE1/4
Sec. 36 SW1/4

T. 37 N., R. 26 E.

Sec. 1 W1/2
Sec. 2 All
Sec. 3 All
Sec. 4 Lots 1-4, S1/2N1/2, NW1/4SW1/4, S1/2SW1/4, SE1/4
Sec. 5 All
Sec. 6 All

Sec. 7	N1/2, SE1/4
Sec. 8	All
Sec. 9	All
Sec. 10	N1/2, NW1/4SW1/4, S1/2SW1/4, SE1/4
Sec. 11-17	All
Sec. 18	NE1/4
Sec. 20-29	All
Sec. 32	N1/2, SW1/4, N1/2SE1/4, SW1/4SE1/4
Sec. 33-36	All

T. 37 N., R. 27 E.

Sec. 7	SW1/4
Sec. 18	W1/2
Sec. 19	W1/2
Sec. 30	NW1/4

T. 38 ., R. 25 E.

Sec. 1-3	All
Sec. 4	N1/2, SW1/4
Sec. 9	NE1/4,
Sec. 10-14	All
Sec. 15	N1/2, SE1/4
Sec. 22	NE1/4
Sec. 23-25	All
Sec. 26	N1/2, SE1/4
Sec. 36	All

T. 38 N., R. 26 E.

Sec. 4	W1/2
Sec. 5-8	All
Sec. 9	W1/2
Sec. 16	W1/2
Sec. 17-20	All
Sec. 21	W1/2, SE1/4
Sec. 26	SE1/4
Sec. 27	W1/2
Sec. 28-34	All
Sec. 35	N1/2, SW1/4

T. 39 N., R. 24 E.

Sec. 1	Lots 1 and 2
Sec. 2	Lots 1-4
Sec. 3	Lots 1-4, S1/2 NW1/4
Sec. 4	Lots 1-4, S1/2 N1/2, SW1/4
Sec. 5-6	All
Sec. 7	Lots 1-6, NE1/4, E1/2 NW1/4
Sec. 8	Lots 1,2, and 3, NE1/4, N1/2 SE1/4, SE1/4SE1/4
Sec. 17	Lots 1-4, E1/2 E1/2
Sec. 18	Lots 1-7, W1/2 NE1/4, E1/2 NW1/4, NE1/4 SW1/4, W1/2 SE1/4
Sec. 19	Lots 3 and 4, E1/2 NE1/4, E1/2 NW1/4, NE1/4 SE1/4, S1/2 SE1/4
Sec. 20	Lots 1-3, NE1/4 NE1/4, N1/2 NE1/4, S1/2 NW1/4, S1/2
Sec. 29	All
Sec. 30	Lots 1-4, E1/2
Sec. 31	Lots 1-4, E1/2, E1/2S W1/4
Sec. 32	All
Sec. 33	W1/2

T. 39 N., R. 25 E.

Sec. 2	SW1/4
Sec. 3-4	All
Sec. 5	Lots 1-3 S1/2 N1/2, S1/2
Sec. 6	All
Sec. 7	NE1/4
Sec. 8-11	All
Sec. 12	SW1/4 (NW1/4 SW1/4 - water rights withdrawn)
Sec. 13-16	All
Sec. 17	NE 1/4, N1/2 NW1/4, SE 1/4 NW1/4, S1/2
Sec. 20-28	All
Sec. 29	N1/2, SE 1/4
Sec. 32	NE 1/4
Sec. 33-36	All

T. 39 N., R. 26 E.

Sec. 18	Lots 3 and 4, E1/2 SW1/4
Sec. 19	Lots 1-4, E1/2 W1/2, SE1/4
Sec. 20	S1/2 S1/2
Sec. 29	N1/2, SW1/4
Sec. 30-32	All
Sec. 33	SW1/4

T. 40 N., R. 24 E.

Sec. 26	SW1/4, W1/2 SE1/4, SE1/4 SE1/4
Sec. 27	Lots 3 and 4, SW1/4, W1/2 SE1/4
Sec. 28	SE1/4
Sec. 32	Lots 3 and 4, NE1/4, N1/2 SE1/4
Sec. 33-34	All

Sec. 35 Lots 1-11
Sec. 36 SE1/4 SE1/4

T. 40 N., R. 25 E.

Sec. 31 S1/2 SE1/4
Sec. 32 E1/2 SE1/4

APPENDIX D FIGURES

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7. AeroPac Rocket Launch	D-5
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9. OHV Impacts on Linear Mounds.	D-6
10. Clay-silt Mound	D-7
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16. Steamboat Rock	D-11
17. Top of Steamboat Rock	D-11
18. New OHV Road Up the Bar Behind Black Rock	D-12
19. Examples of Dune Interspaces for Camping	D-13

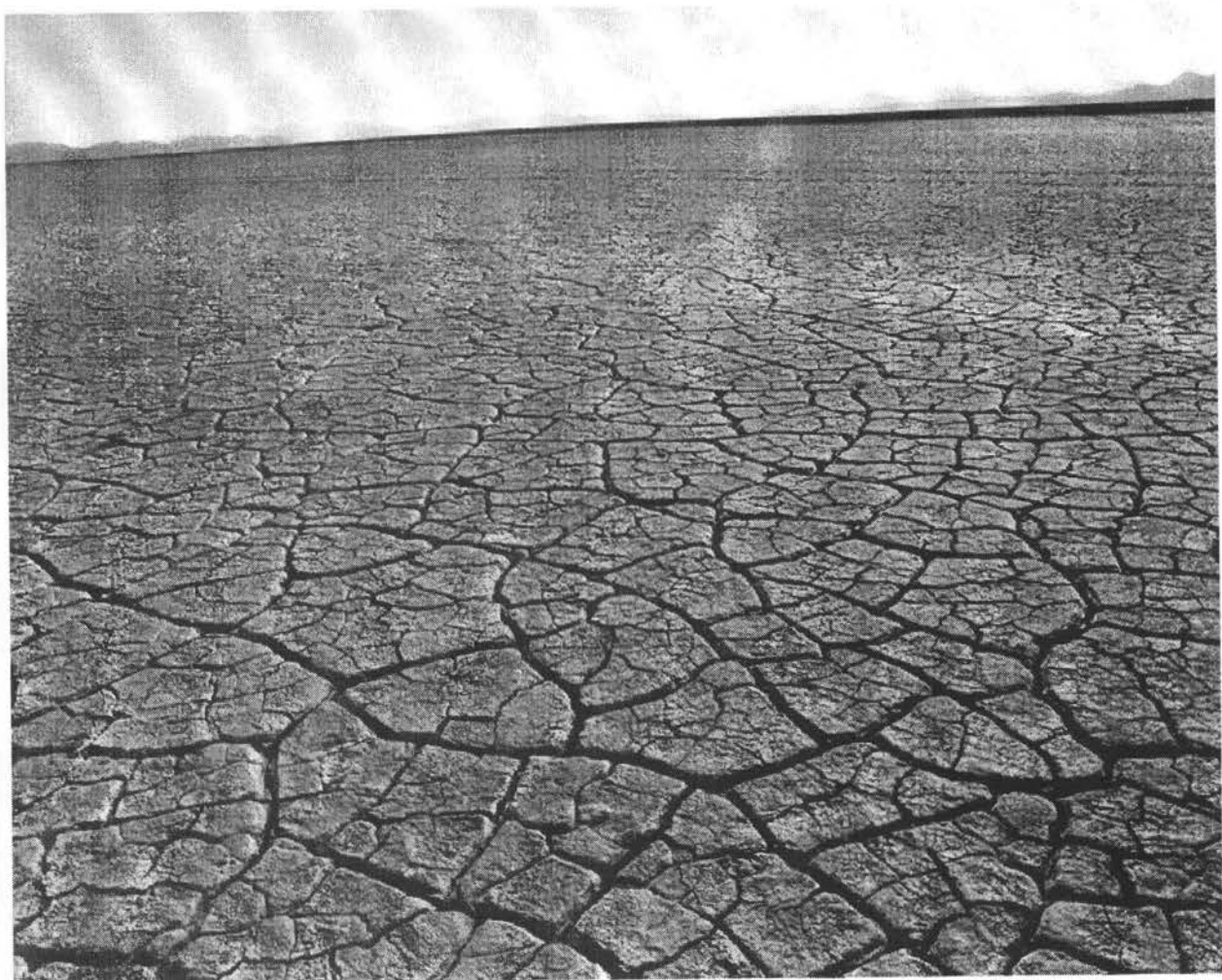


Figure 1: Black Rock Desert Playa, view northeast. BLM photo, 8/17/95.



Figure 2: The Applegate-Lassen Emigrant Trail, superimposed by a contemporary 2-track road, makes a beeline for the Black Rock, about 7 miles distant. BLM photo, 7/14/98.



Figure 3: Public lands portion of Double Hot Springs, view south. BLM photo, 6/17/99.



Figure 8: Alignment of linear mounds that would be investigated for uniqueness, view southwest. Gerlach is at the upper right. BLM photo, 10/23/99.



Figure 9: Ground-level view of linear mounds shown in Figure 8, showing impacts from OHV use, view northeast, Old Razorback in the distance. BLM photo, 11/14/99.



Figure 2: The Applegate-Lassen Emigrant Trail, superimposed by a contemporary 2-track road, makes a beeline for the Black Rock, about 7 miles distant. BLM photo, 7/14/98.



Figure 3: Public lands portion of Double Hot Springs, view south. BLM photo, 6/17/99.

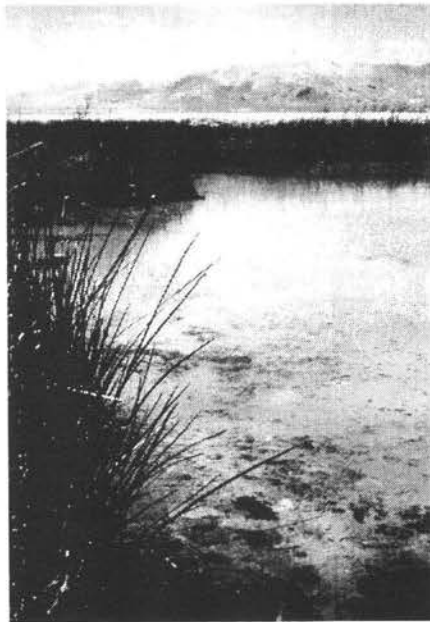


Figure 4: Black Rock Hot Spring, with playa and Calico Mountains in background, view west. BLM photo, 5/14/99.

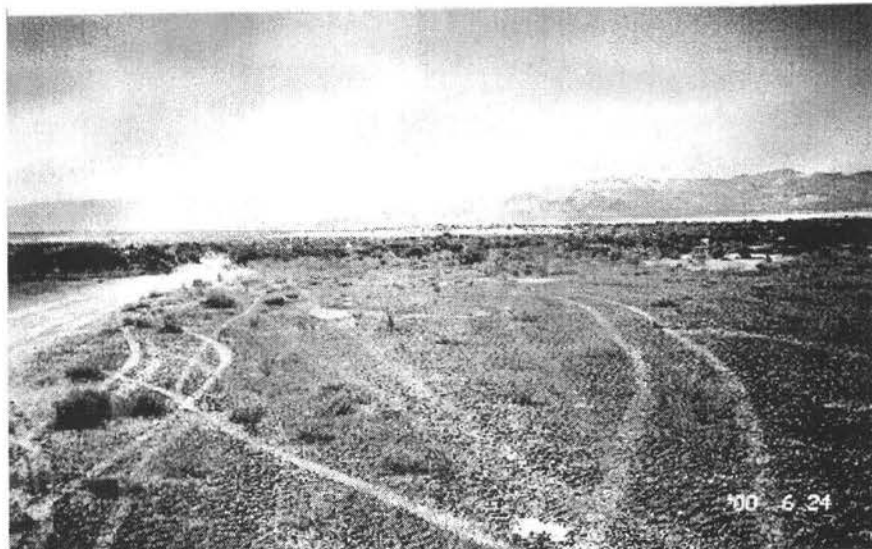


Figure 5: OHV impacts across extensive biological (cryptobiotic) crusts near Black Rock Hot Spring (located beyond the dark area, left center edge of photo). The road is access from the hot spring to "High Dry" microplayas east of spring. Where road disappears in vegetation, it intersects with the Applegate-Lassen Trail. View west. BLM, 6/24/00.



Figure 6: Special recreation event: Burning Man 1999, view northwest. Area of event coverage is about four square miles. The Union Pacific rail line is the dark line in upper right corner. Photo courtesy of Burning Man.

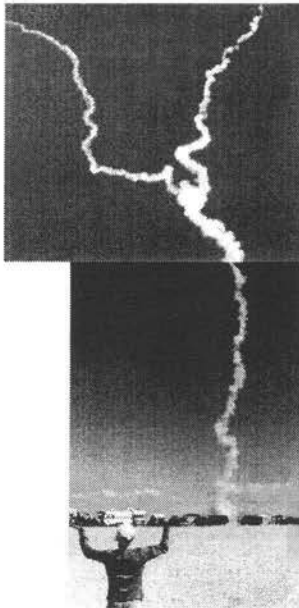


Figure 7: Special recreation event: AeroPac rocket launch. BLM photo, 7/11/98.



Figure 8: Alignment of linear mounds that would be investigated for uniqueness, view southwest. Gerlach is at the upper right. BLM photo, 10/23/99.



Figure 9: Ground-level view of linear mounds shown in Figure 8, showing impacts from OHV use, view northeast, Old Razorback in the distance. BLM photo, 11/14/99.

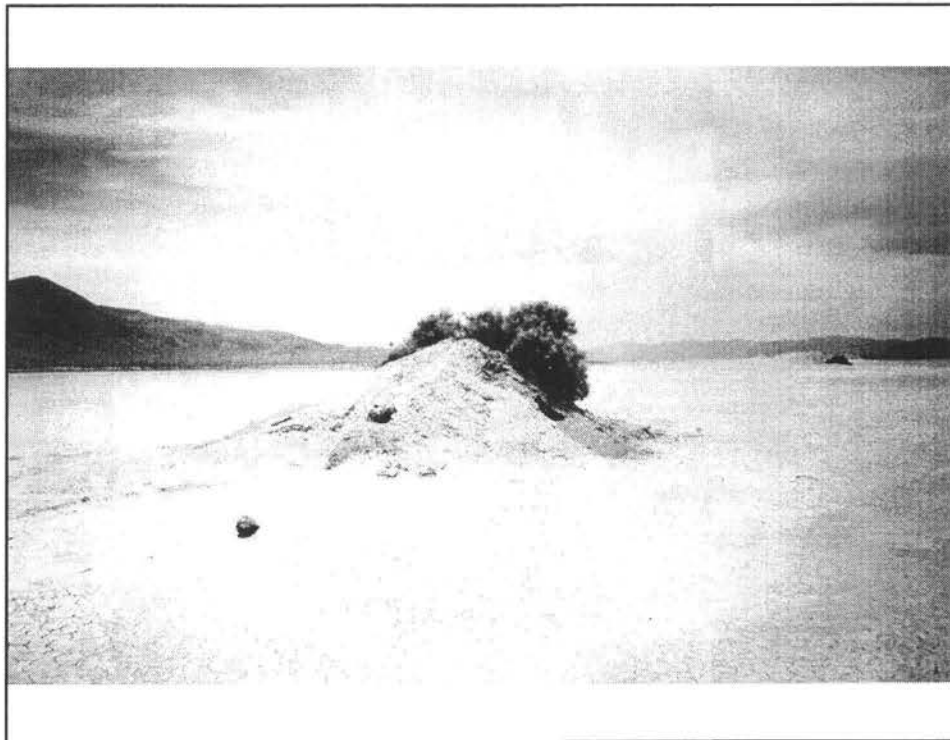


Figure 10: Clay-silt mound, view south, Selenite Range in background. BLM photo, 6/17/99.

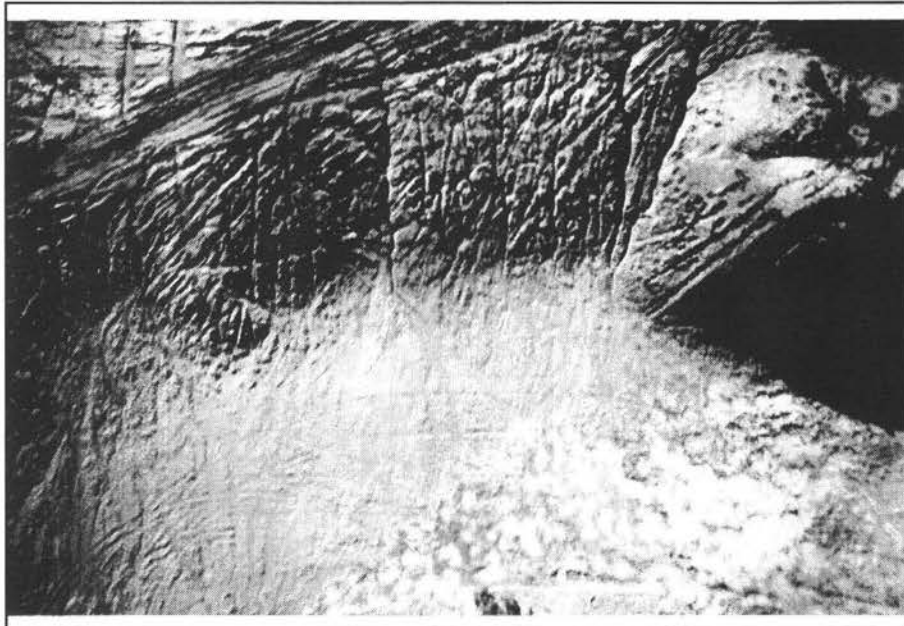


Figure 11: Intensive OHV impacts to part of South Mound/Dune Field complex. Low altitude (150 feet) aerial photo, 11/14/99. Photo courtesy of Chet Geyer/AeroPac.



Figure 12: Initial OHV impact to mound crust and vegetation, South Mound/Dune Field, view southwest. BLM photo, 11/14/99.



Figure 13: Cross-country OHV tracks near Trego Hot Spring, view north from Trego Springs access road. BLM photo, 7/4/99.



Figure 14: Mounds in Trego Mound/Dune Field showing broken mineral crust and accelerated erosion and extensive impact from OHV use, view southwest. BLM photo, 11/14/99.



Figure 15: Unauthorized one-time road into Calico Mountains Wilderness Study Area for petrified wood removal, view north. BLM photo 1/13/00.

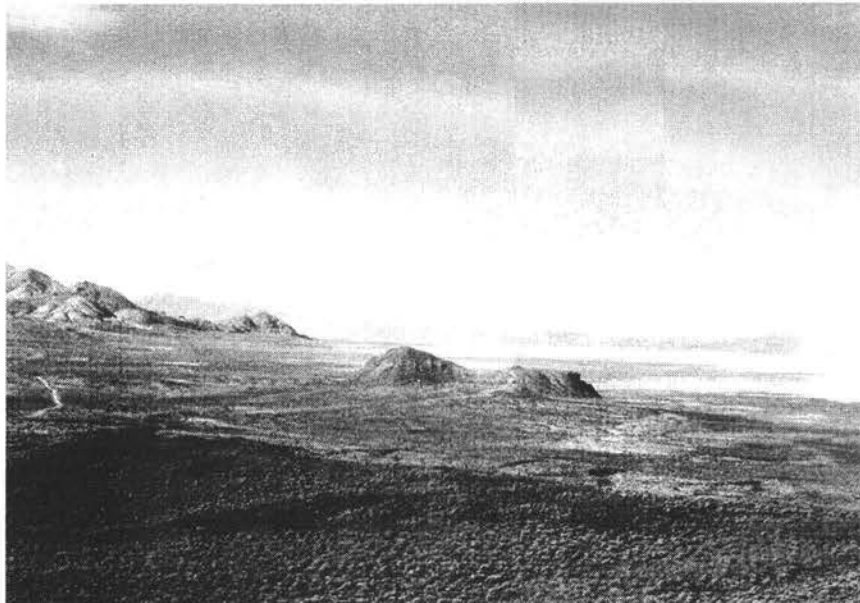


Figure 16: Steamboat Rock, a prominent Black Rock Desert landmark, view northeast with playa in background. BLM photo, 5/99.



Figure 17: Top of Steamboat Rock, showing nature of impact road and typical OHV activity, view west. BLM photo, 7/16/99.



Figure 18: New OHV road up the bar behind the Black Rock (just off the right edge of the photograph), which has appeared during the past four years. This road initially traversed pristine cryptobiotic crust, which is the darker soil on either side of the road. View southeast. BLM photo, 6/24/00.



Figure 19: Examples of dune interspaces of hard playa surface (arrows) for camping as opposed to soft clay silt deposits on and around linear and other mounds/dunes, view southwest. Gerlach is on playa horizon at the upper left. Photo courtesy of AeroPac, 11/14/99.

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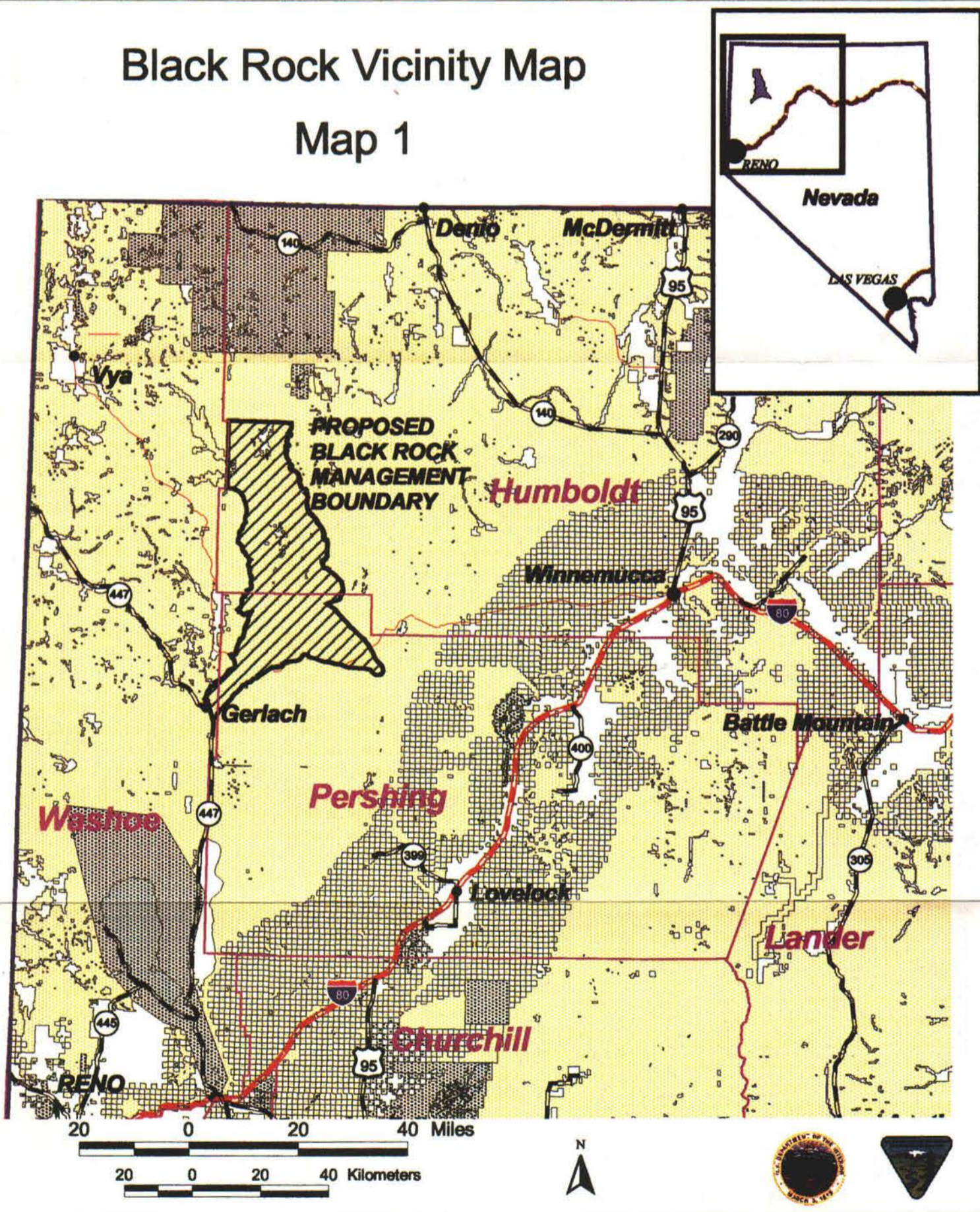
MAPS

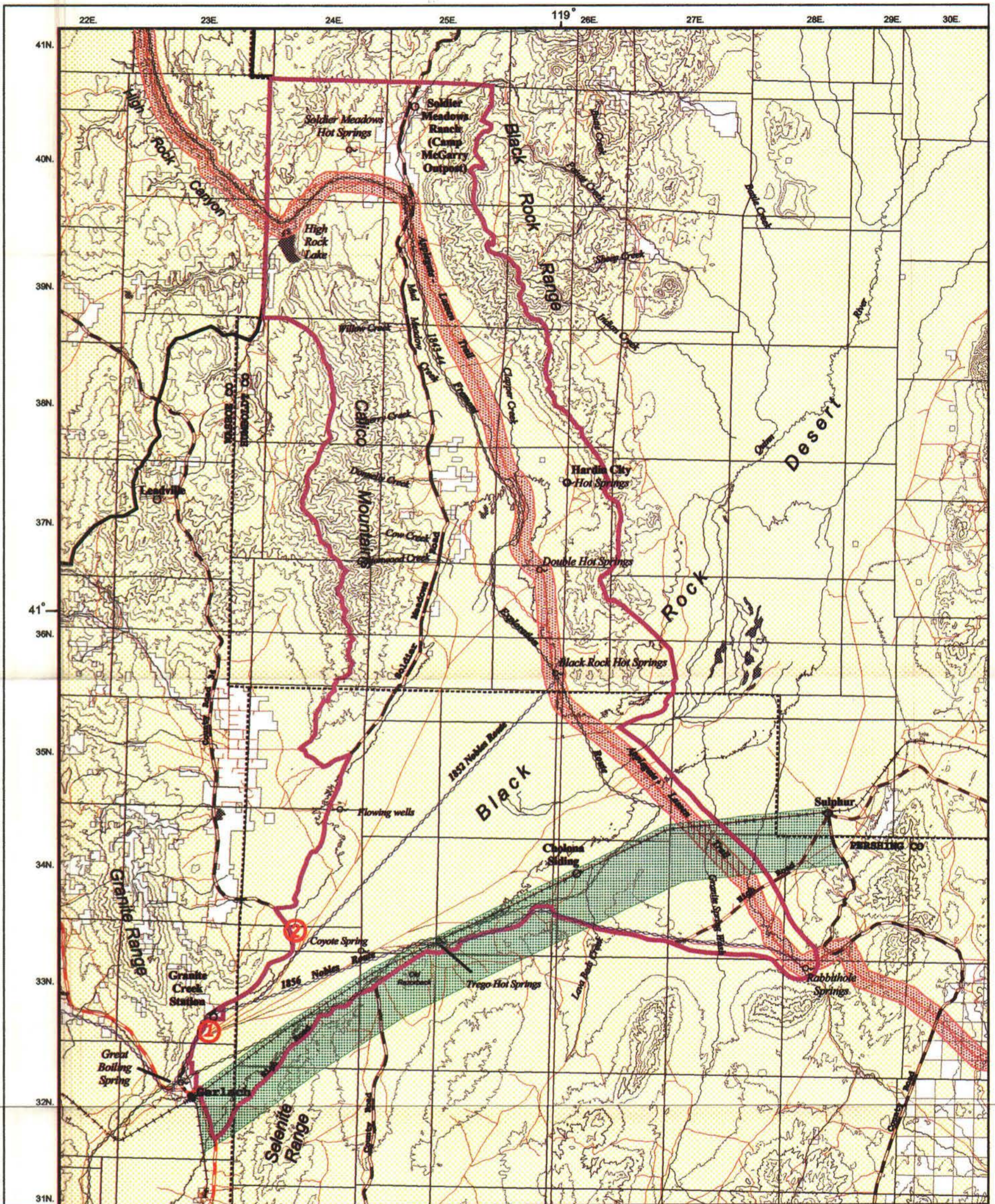
MAPS

- 1 Black Rock Vicinity
- 2A Proposed Management Area
- 2B Proposed Management Area
- 2C Playa Use Areas
- 3 Existing Roads and Ways
- 4A Proposed Off-Highway Vehicle (OHV) Designations
- 4B Soils
- 5 Existing Visual Resource Management (VRM) Designation Not Reflecting Wilderness Study Area (WSA) VRM Status
- 6 Visual Resource Management Alternative Proposals
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- 13 Grazing Allotments Herd Management Areas and Noxious Weeds
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Black Rock Vicinity Map

Map 1

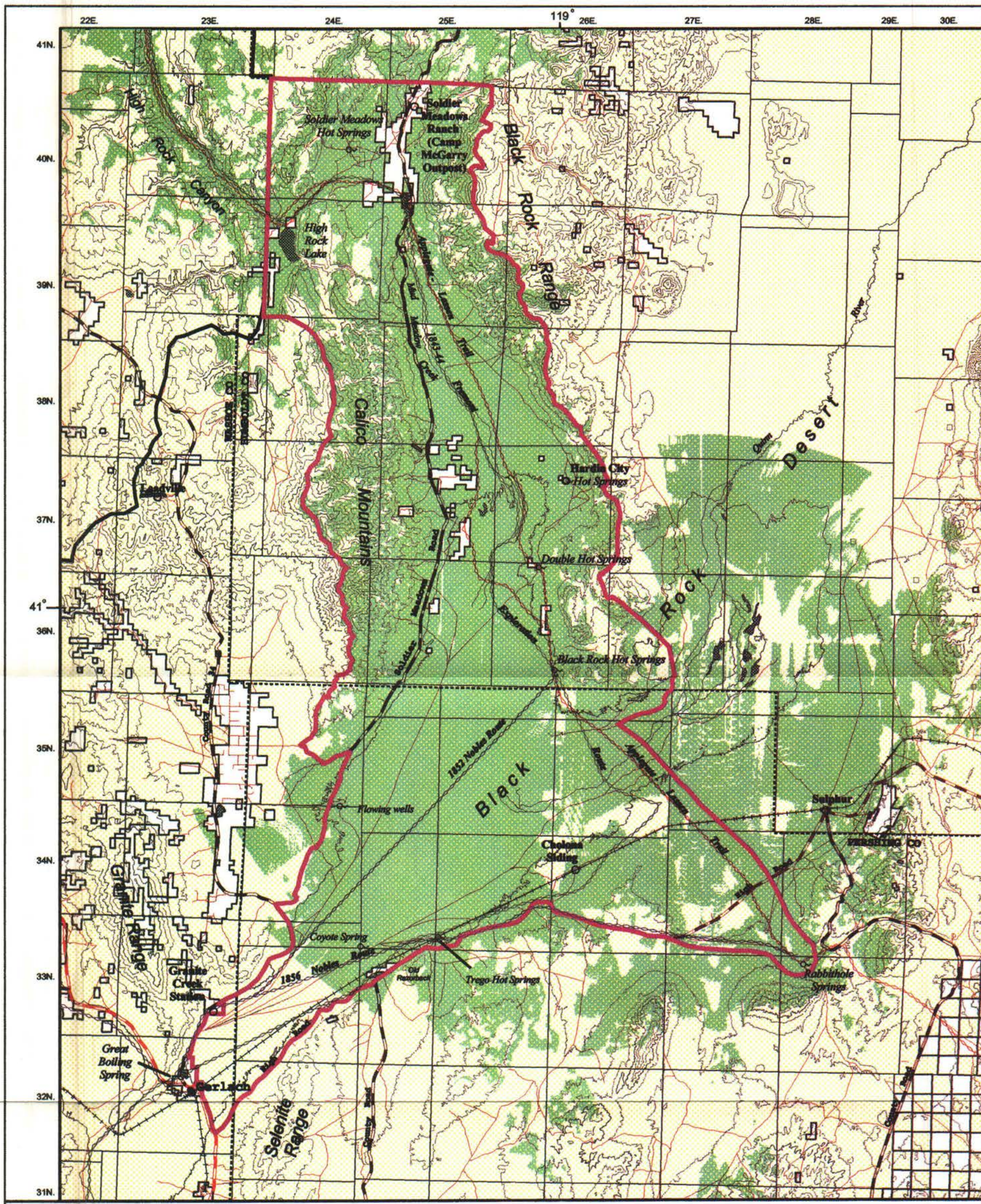




Map 2A
Proposed Management Area

<ul style="list-style-type: none"> Proposed Plan Boundary District Boundary BLM Private Ownership 	<ul style="list-style-type: none"> State Road 447 County Road Improved Road Unimproved Road Railroad Hot Spring 	<p>Contour Interval 100 Meters</p> <p>5 0 5 Miles</p> <p>5 0 5 Kilometers</p> <p> N</p>	<p>PLAN AREA</p> <table border="0"> <tr> <td>Square Miles</td> <td>727</td> </tr> <tr> <td>Public Land Acres</td> <td>454,157</td> </tr> <tr> <td>Private Acres</td> <td>10,620</td> </tr> </table>	Square Miles	727	Public Land Acres	454,157	Private Acres	10,620
Square Miles	727								
Public Land Acres	454,157								
Private Acres	10,620								

- Gerlach (Services Available)
- Historic Sites
- National Register Corridor
- Utility Rights-of-way
- Applegate-Lassen Trail
- 1843-44 Fremont Exploration Route
- 1856, 1852 Nobles Route
- 1st Main Access to the Playa (3-Mile)
- 2nd Main Access to the Playa (12-Mile)



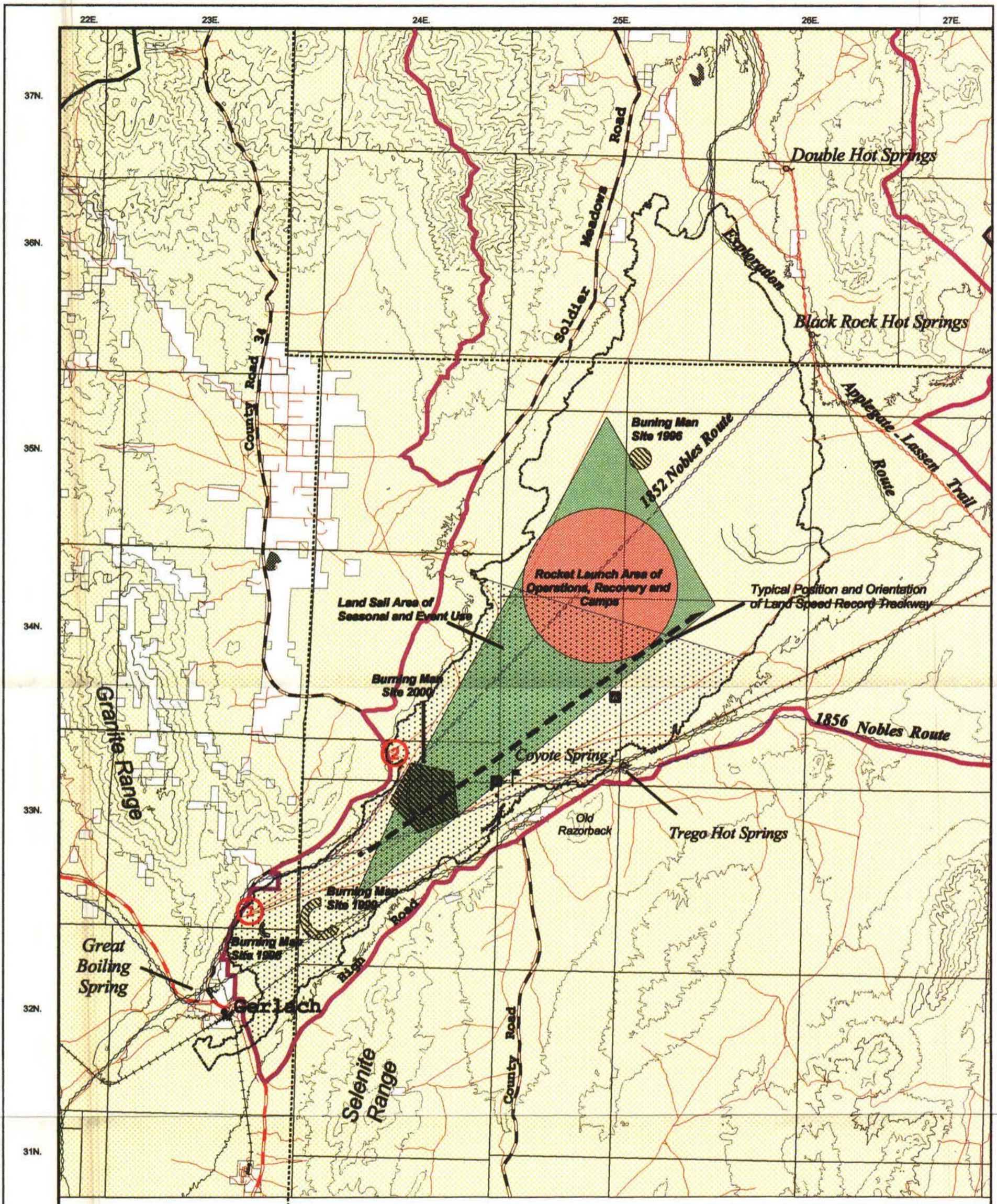
Proposed Plan Boundary	State Road 447	<p>Contour Interval 100 Meters</p>	<p>PLAN AREA</p> <table border="0"> <tr> <td>Square Miles</td> <td>727</td> </tr> <tr> <td>Public Land Acres</td> <td>454,157</td> </tr> <tr> <td>Private Acres</td> <td>10,620</td> </tr> </table>	Square Miles	727	Public Land Acres	454,157	Private Acres	10,620
Square Miles	727								
Public Land Acres	454,157								
Private Acres	10,620								
District Boundary	County Road	<p>5 0 5 Miles</p> <p>5 0 5 Kilometers</p> <p>N</p>							
BLM	Improved Road								
Private Ownership	Unimproved Road								
	Railroad								
	Hot Spring								

Map 2B

Proposed Management Area

- Gerlach (Services Available)
- Historic Sites
- Applegate-Lassen Trail Viewshed
- Applegate-Lassen Trail
- 1843-44 Fremont Exploration Route
- 1856, 1852 Nobles Route



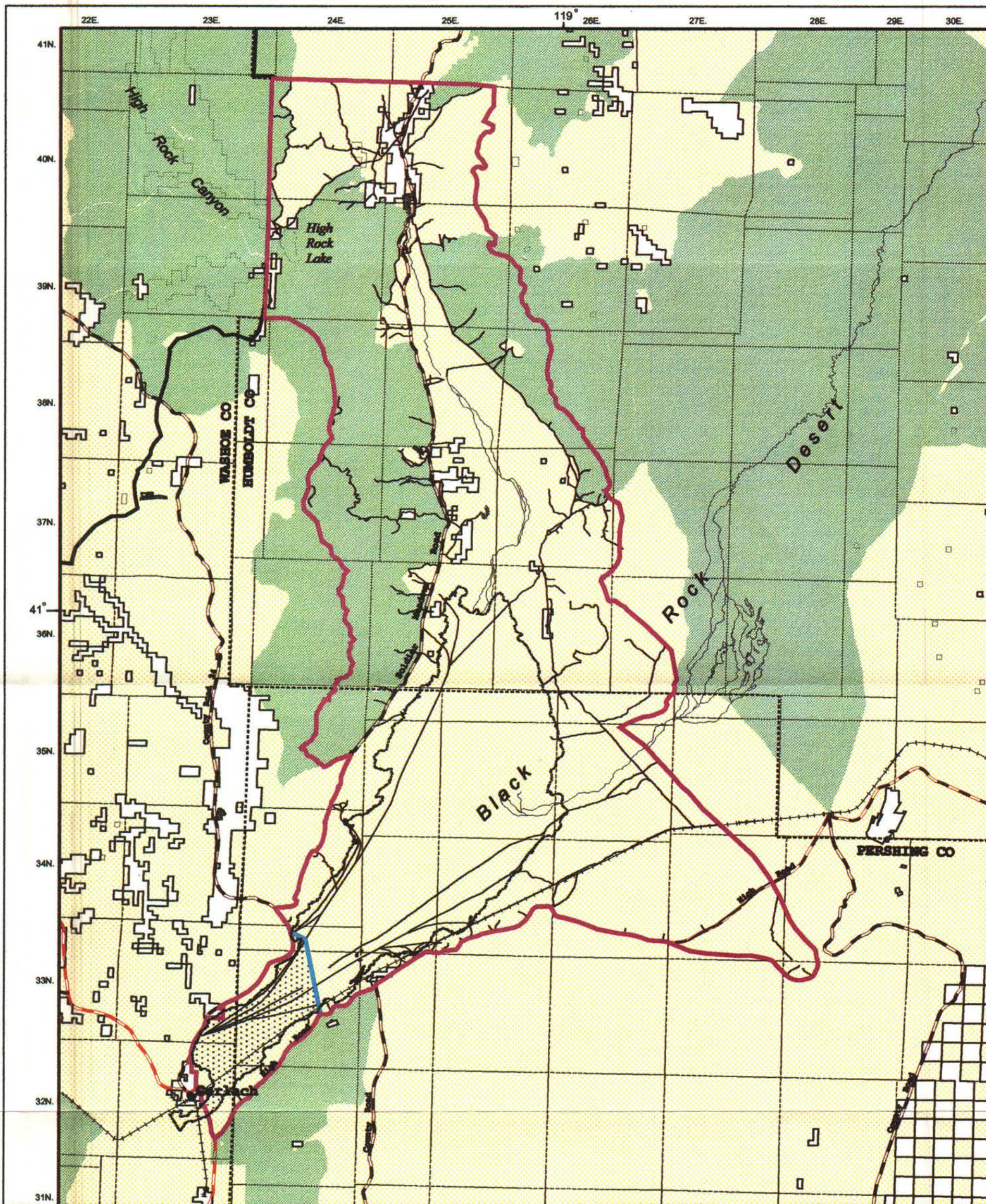


Proposed Plan Boundary	State Road 447	South Playa Area	Playa Area	Contour Interval 100 Meters
District Boundary	County Road	Burning Man Sites	Golf Tournament	
BLM	Improved Road	Rocket Launch Area	Land Sail Camp	
Private Ownership	Unimproved Road	Land Sail Area	Land Speed Track	
	Railroad			
	Hot Spring			

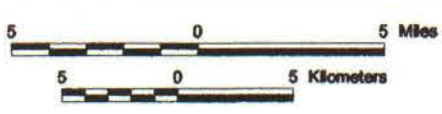
Map 2C

Playa Use Areas

- Applegate-Lassen Trail
- 1843-44 Fremont Exploration Route
- 1856, 1852 Nobles Route
- 1st Main Access to the Playa (3-Mile)
- 2nd Main Access to the Playa (12-Mile)



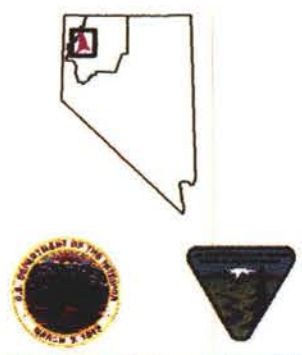
- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Railroad



- Roads Trails and Ways
- Playa
- Wilderness Study Areas
- OHV Area and Boundary

Map 3

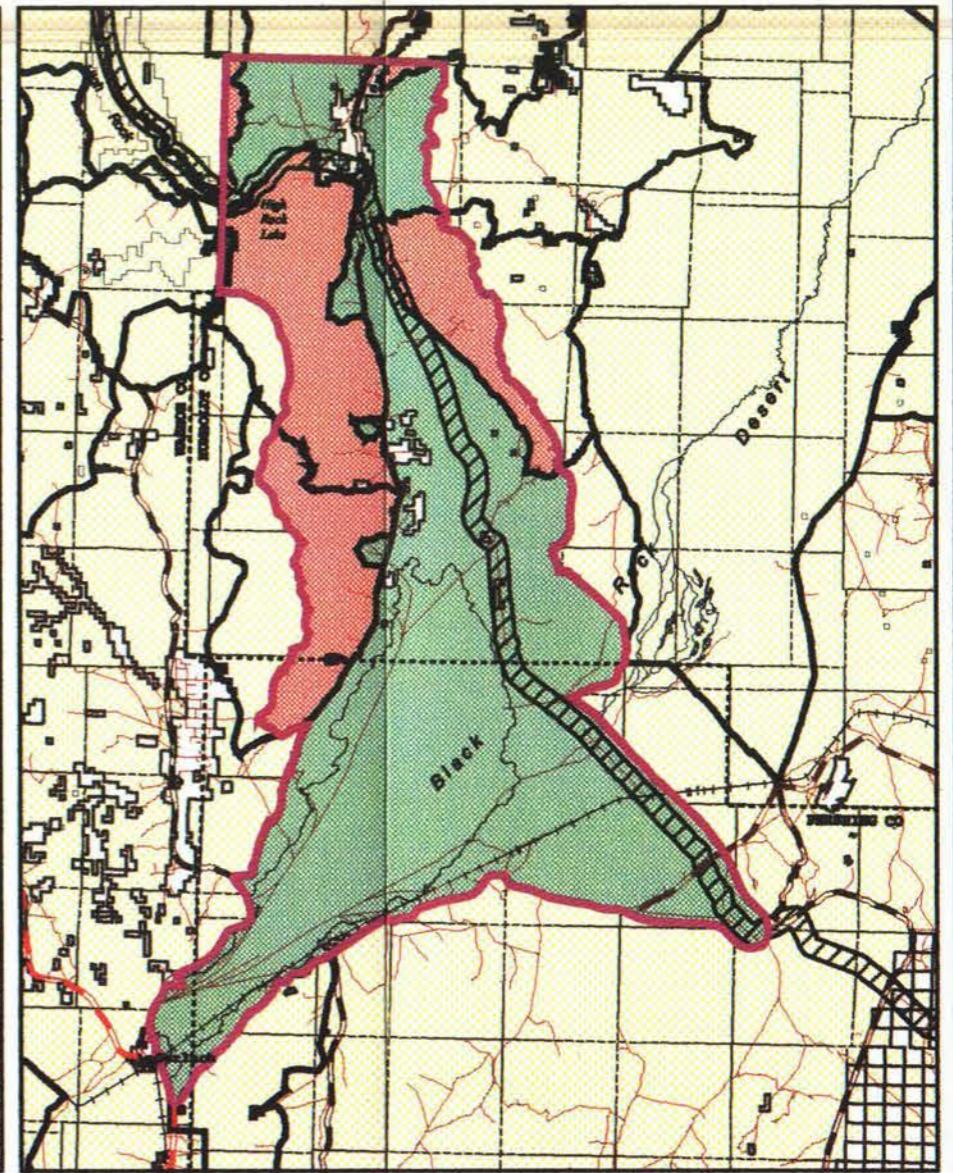
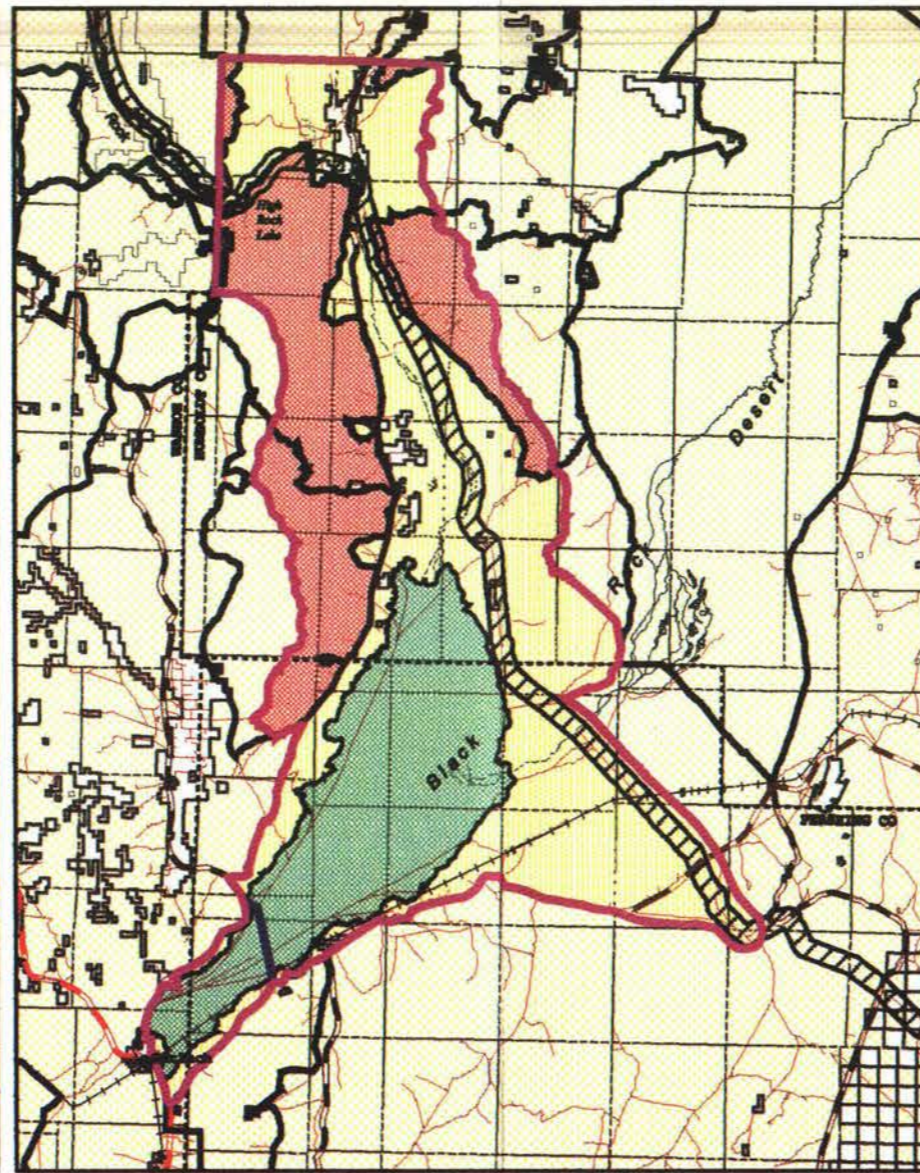
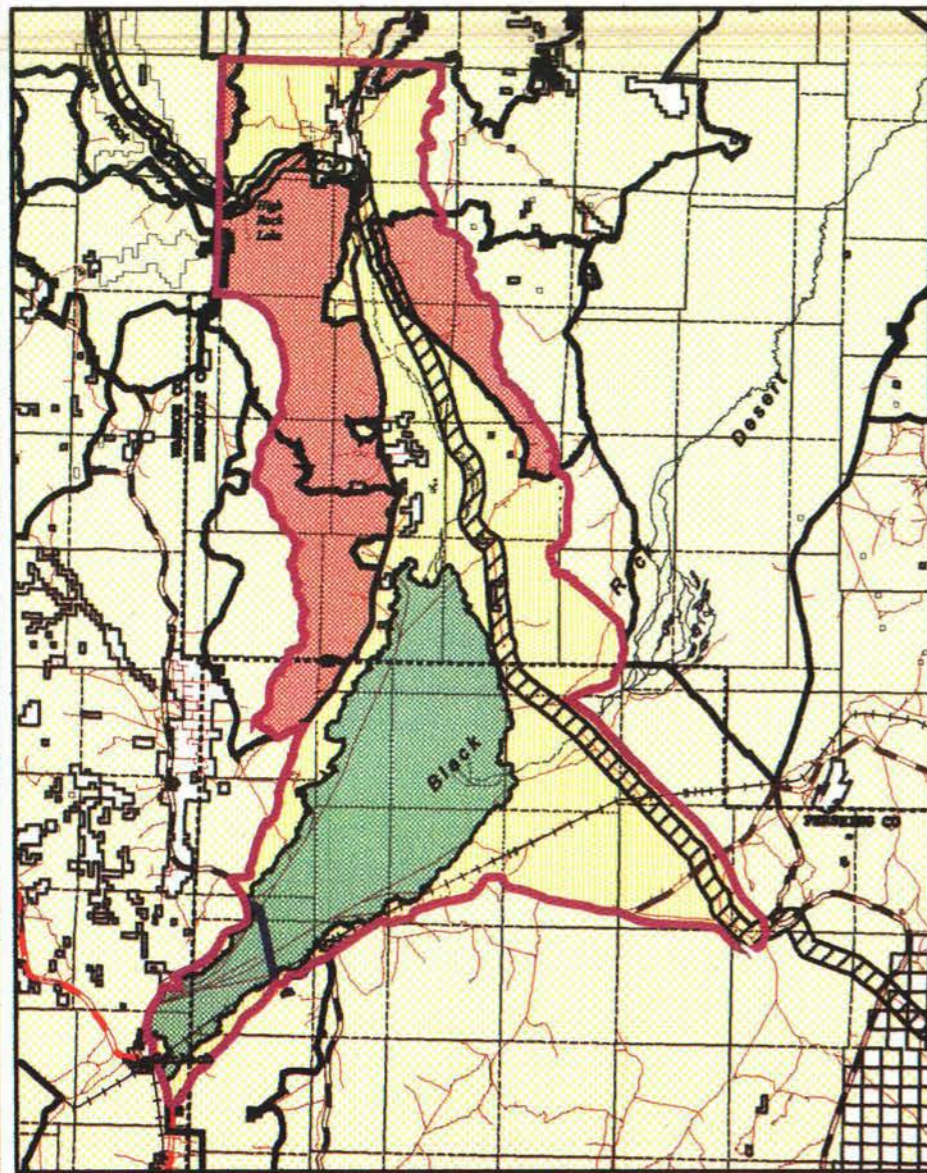
Designated Roads Trails and Ways



OHV Designations of the Proposed Action Alternative 1

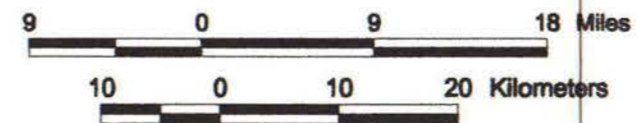
OHV Designations Alternative 2

OHV Designations No Action



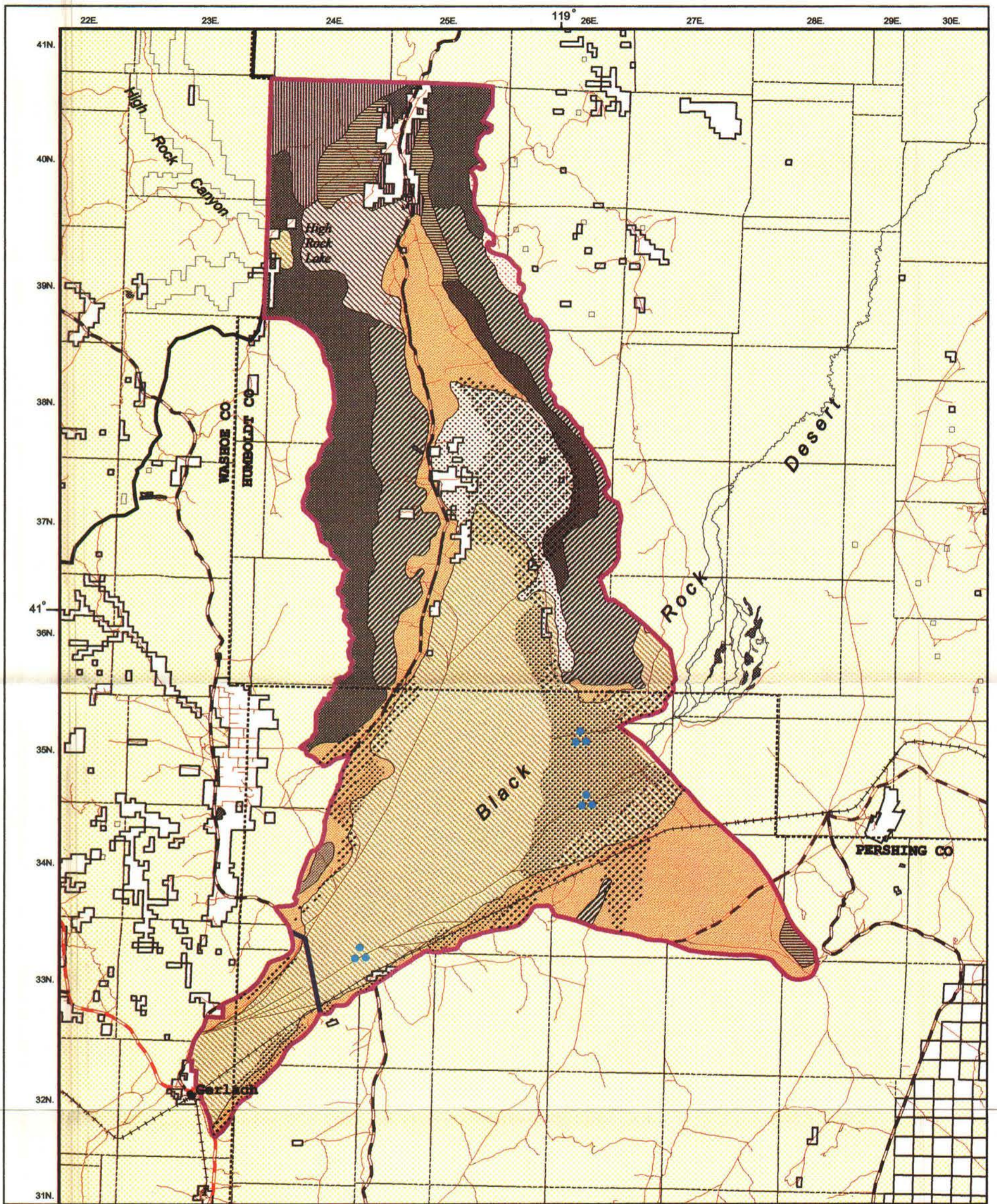
- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad

- OHV DESIGNATIONS**
- Closed
 - Limited to Designated Roads, Trails and Ways
 - Open
 - OHV Area Boundary
 - ▨ National Register Corridor
 - WSA Boundaries



Map 4A

Proposed OHV Designations



- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad



— OHV Area Boundary

Soils

- Bluewing - Juva
- Playa
- Boton - Mazuma - Juva
- Singatse - Grumblen - Sojur
- Devada - Tuffo
- Soughe - Hoot
- Harsany - Cleavage
- Toulon - Bluewing
- Hawsley (sand/clay/silt sheets)
- Wendane - Humboldt
- Oxcorel - Aboten
- Wylo - Bucklake - Pickup

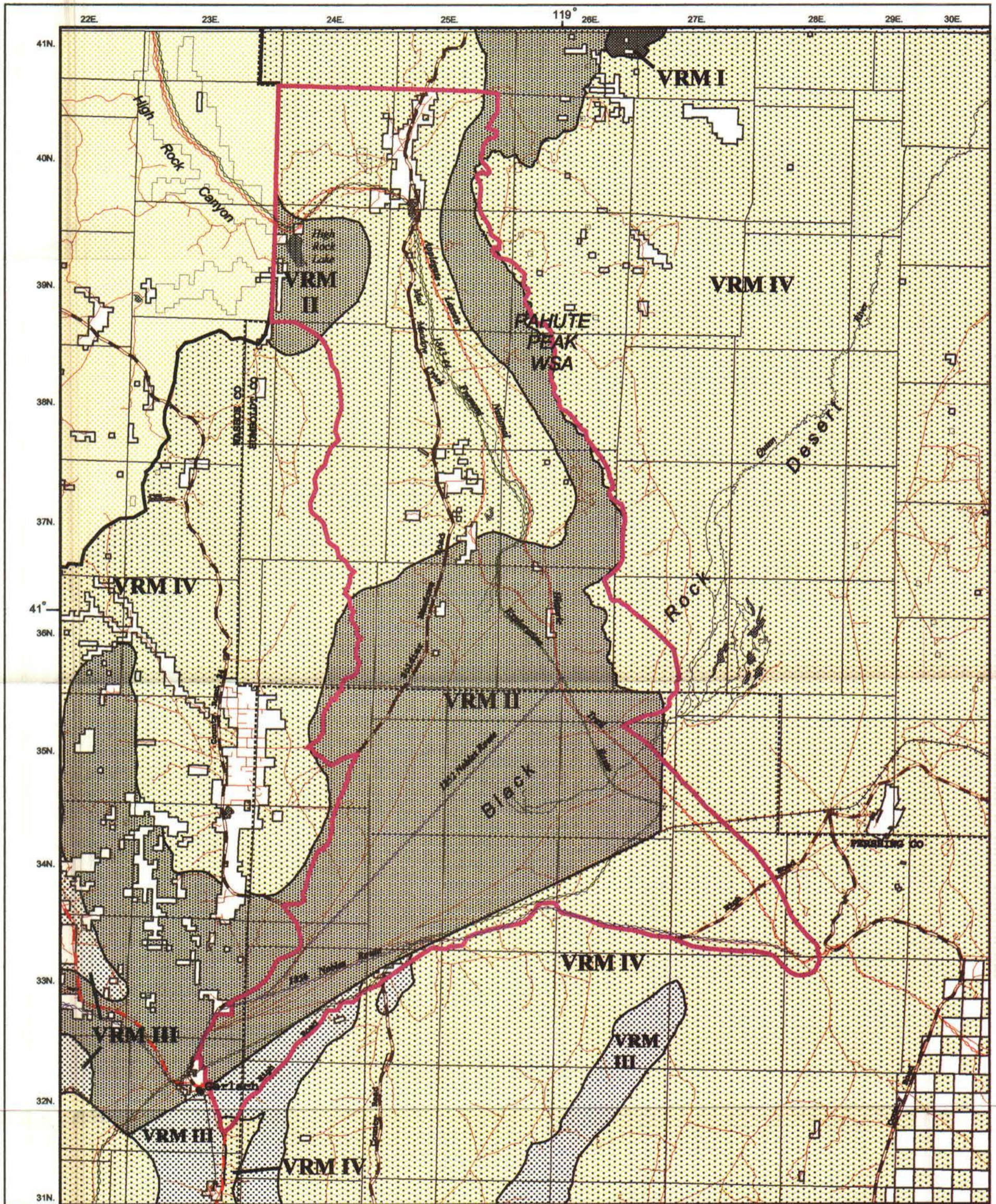
Other Features

- Spring Mounds
- Mounds
- Dunes

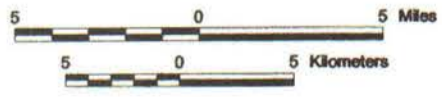
Map 4B

Soils / Other Features





- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad



Map 5

**Existing VRM Designation
not reflecting WSA VRM Status**

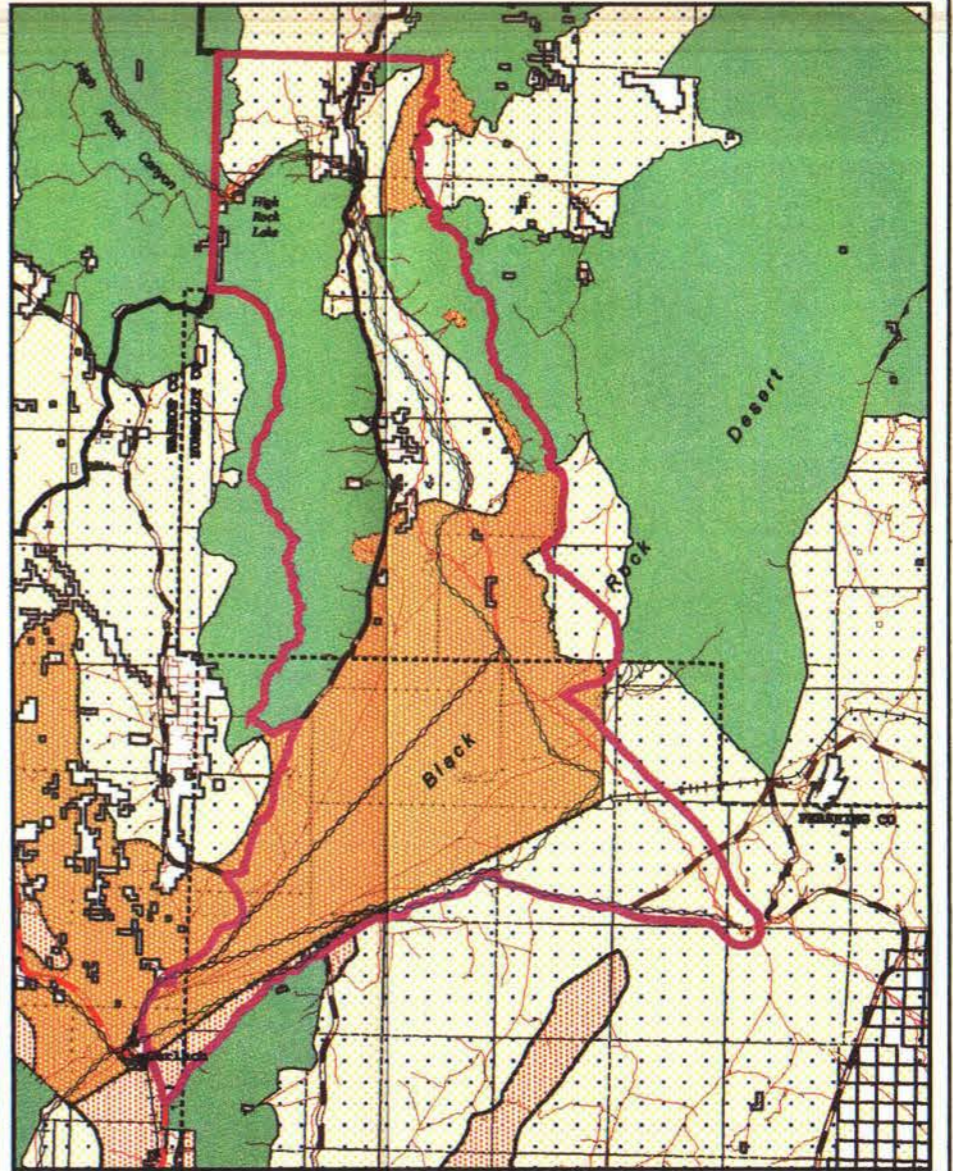
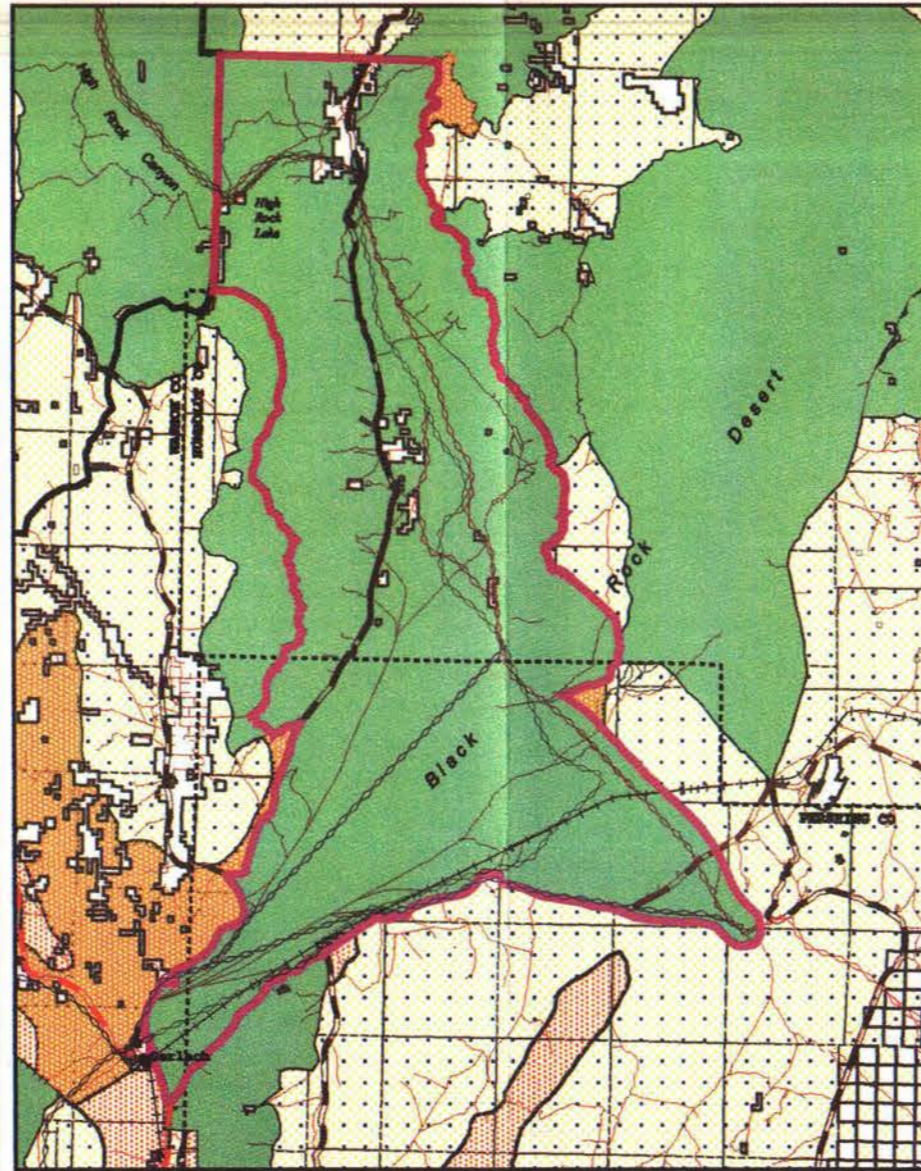
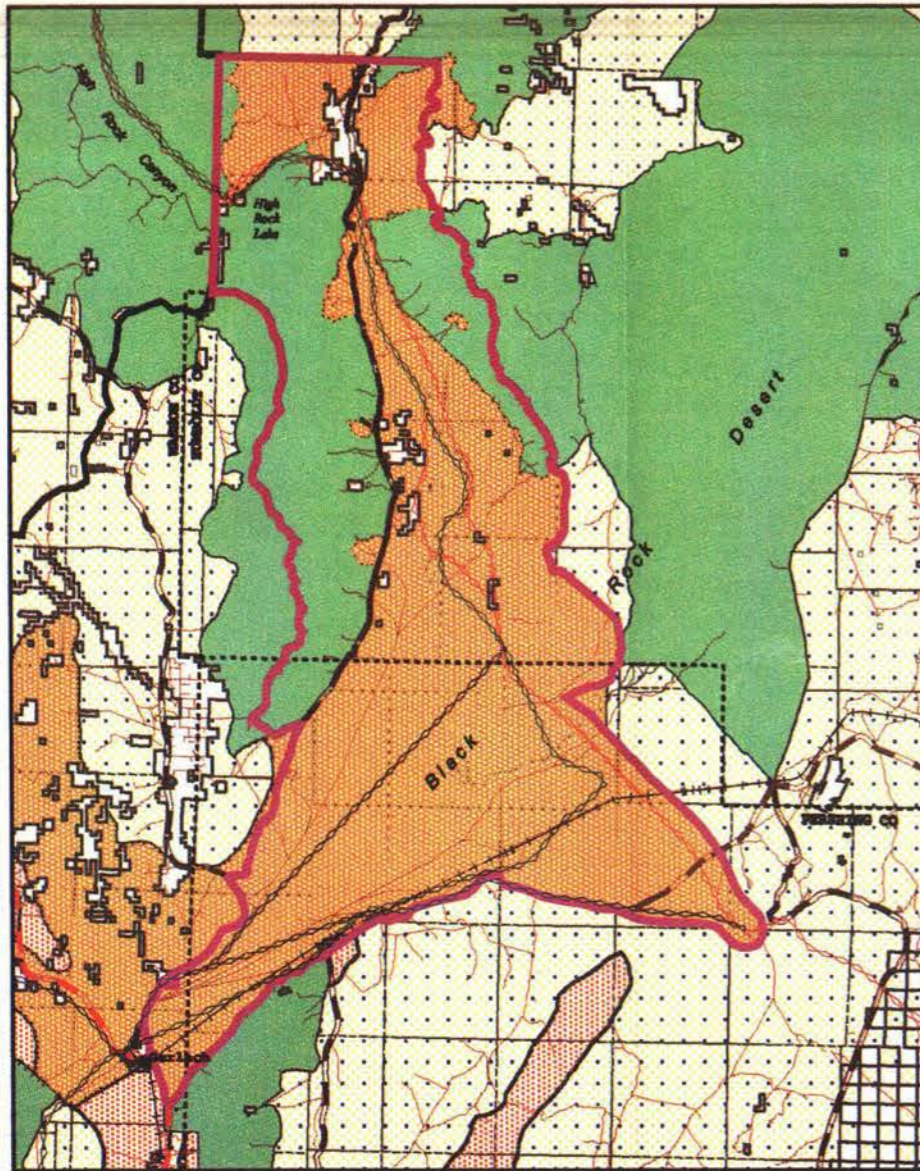
- VRM Class I
- VRM Class II
- VRM Class III
- VRM Class IV
- Applegate-Lassen National Historic Trail
- 1843-44 Fremont Exploration Route
- 1856, 1852 Nobles Route



Proposed Action Alternative 1

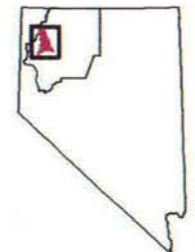
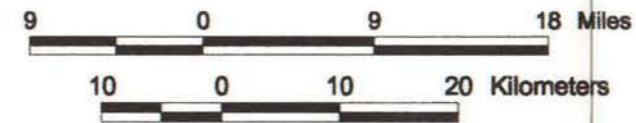
Proposed Action Alternative 2

No Action-Continue Existing Management



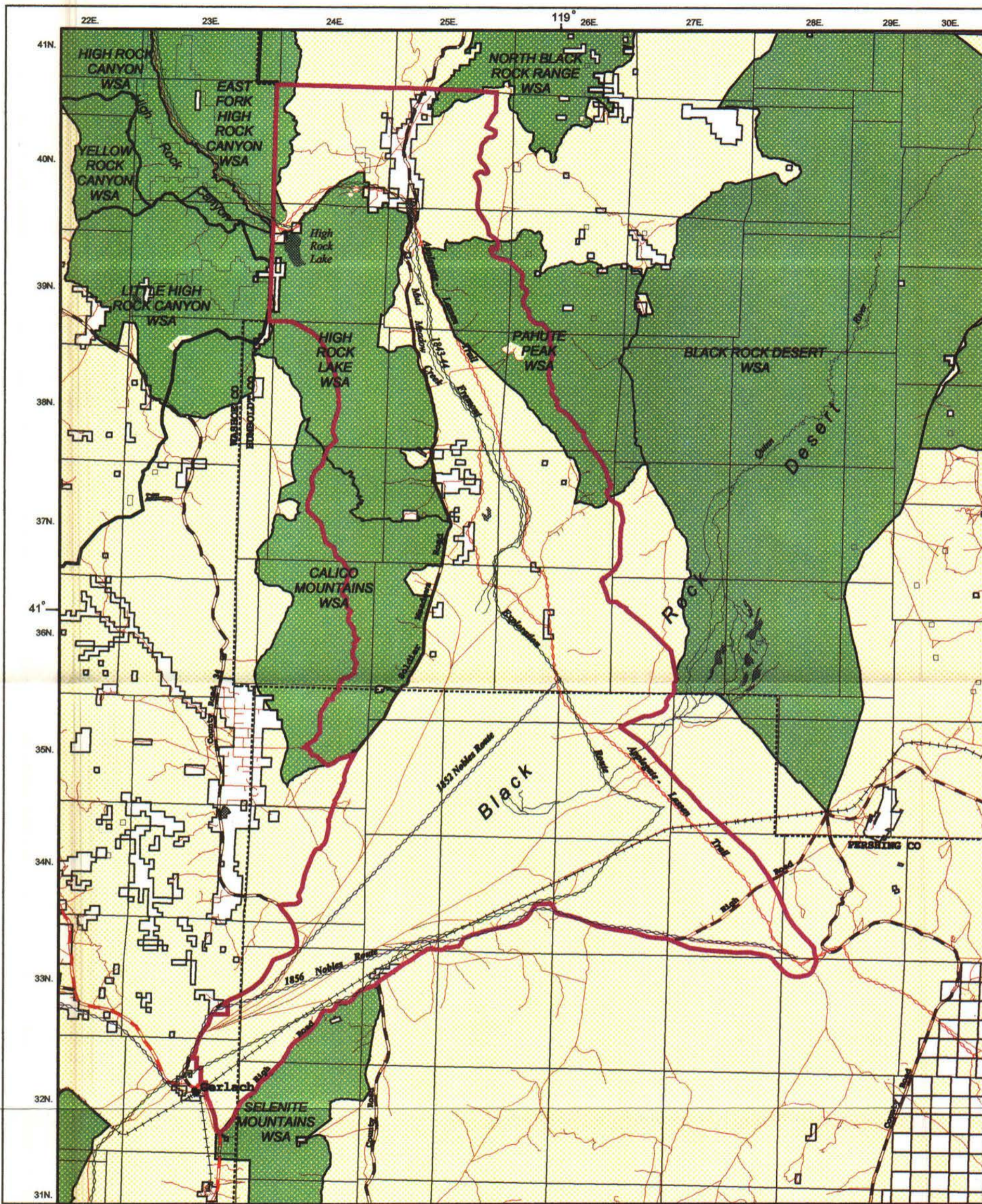
- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad

- VRM I
- VRM II
- VRM III
- VRM IV
- 1843-44 Fremont Exploration Route
- 1852 and 1856 Nobles Route
- Applegate-Lassen National Historic Trail



Map 6
Visual Resource Management
Alternative Proposals





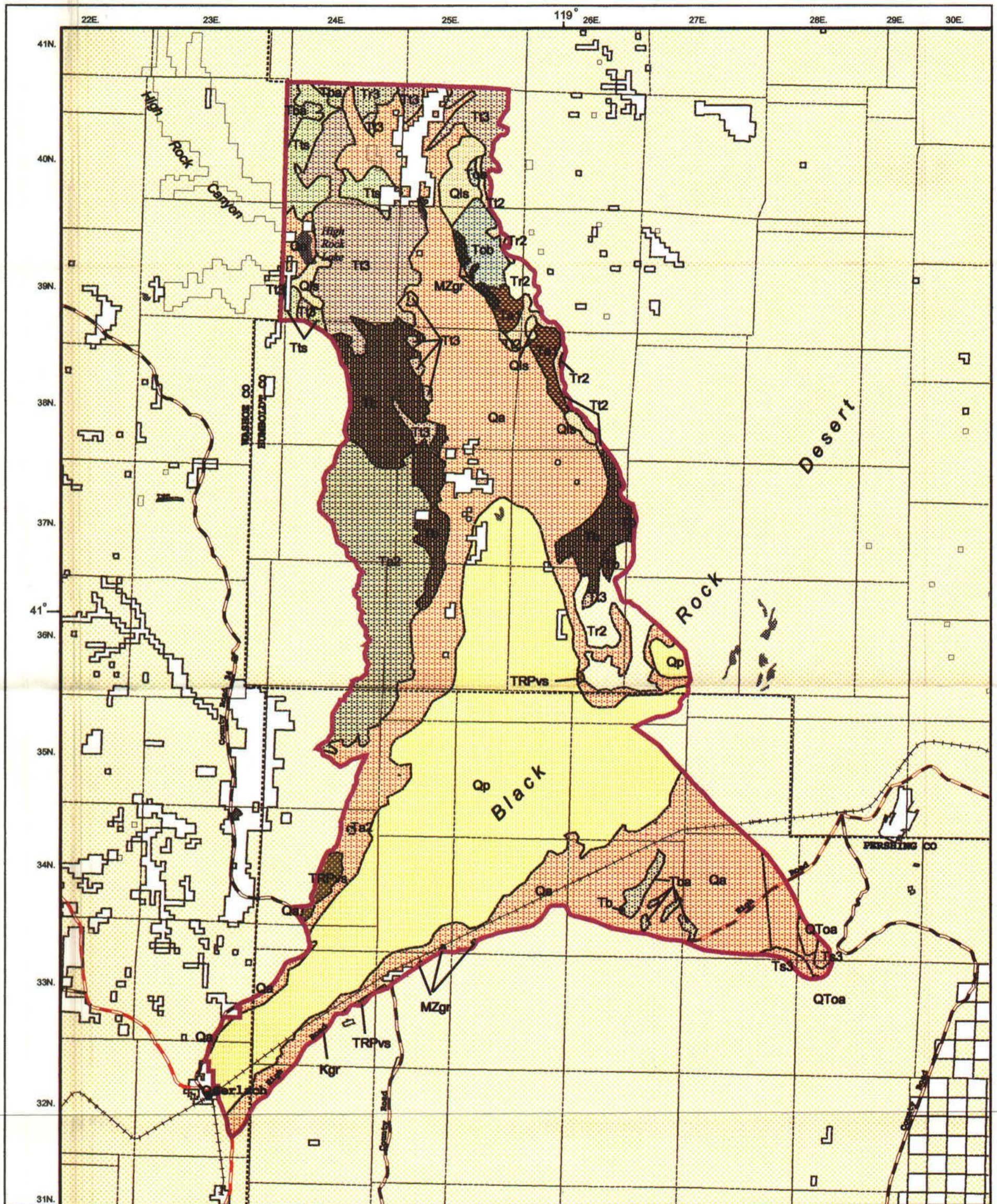
- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad



Map 7
Wilderness Study Areas

- Wilderness Study Area
- Applegate-Lassen Trail
- 1843-44 Fremont Exploration Route
- 1856, 1852 Nobles Route





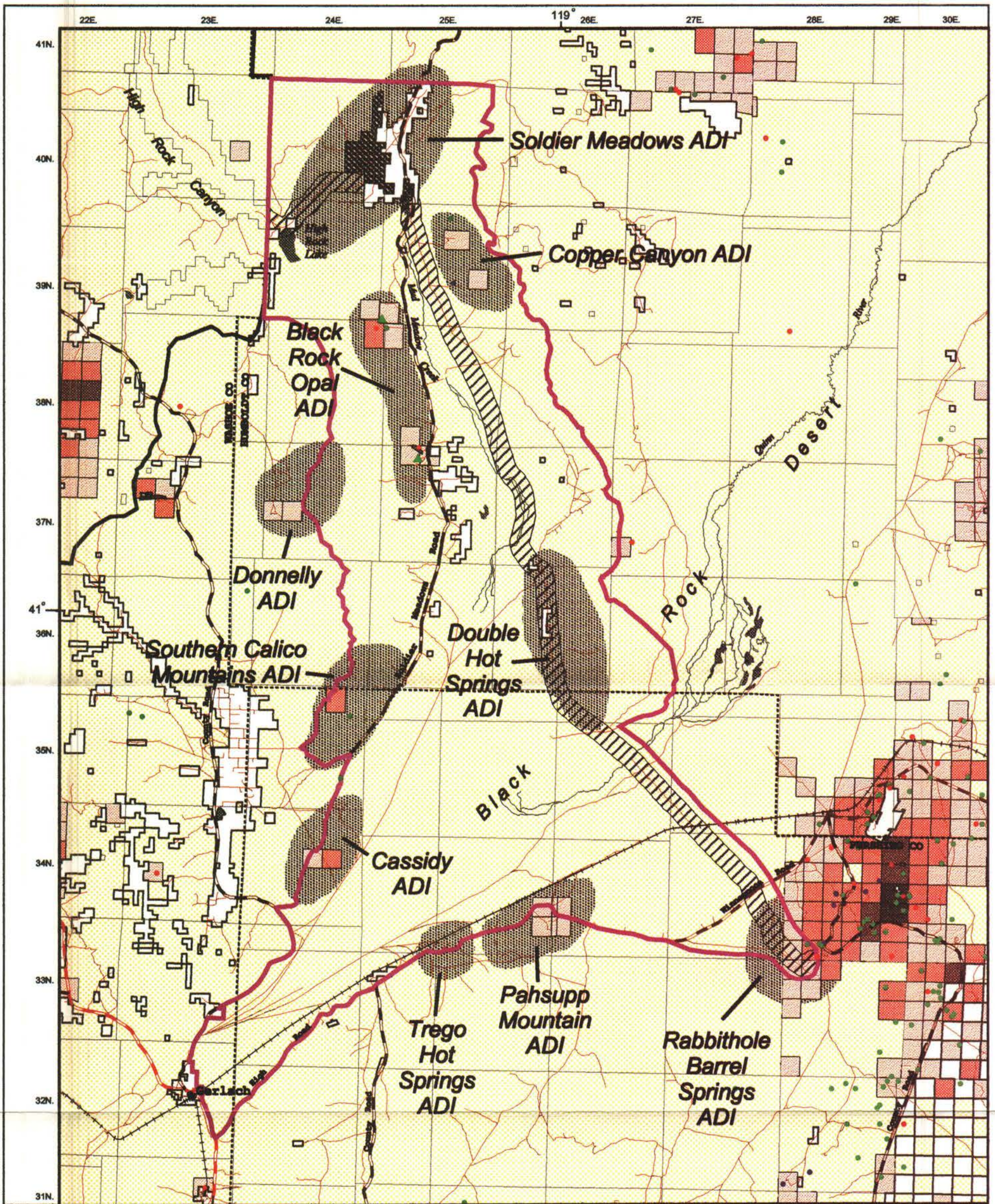
- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad

- Qa ALLUVIAL DEPOSITS
- Qp PLAYA, MARSH, AND ALLUVIAL-FLAT DEPOSITS
- Qls LANDSLIDE DEPOSITS
- QToa OLDER ALLUVIAL DEPOSITS
- T13 WELDED AND NONWELDED SILICIC ASH-FLOW TUFFS
- T12 RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS
- T11 ANDESITE AND BASALT FLOWS
- T10 BASALT FLOWS
- T9 ASH-FLOW TUFFS AND TUFFACEOUS SEDIMENTARY ROCKS
- T8 TUFFACEOUS SEDIMENTARY ROCKS
- T7 WELDED AND NONWELDED SILICIC ASH-FLOW TUFFS
- T6 RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS
- T5 ANDESITE AND RELATED ROCKS
- T4 OLDER BASALT ROCKS
- T3 ANDESITE AND RELATED ROCKS
- T2 GRANITIC ROCKS
- T1 GRANITIC ROCKS
- TRPvs VOLCANIC FLOWS AND FLOW BRECCIAS, CHIEFLY ANDESITIC

Modified after Stewart and Carlson (1978)



Map 8
Bedrock Geology



- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad

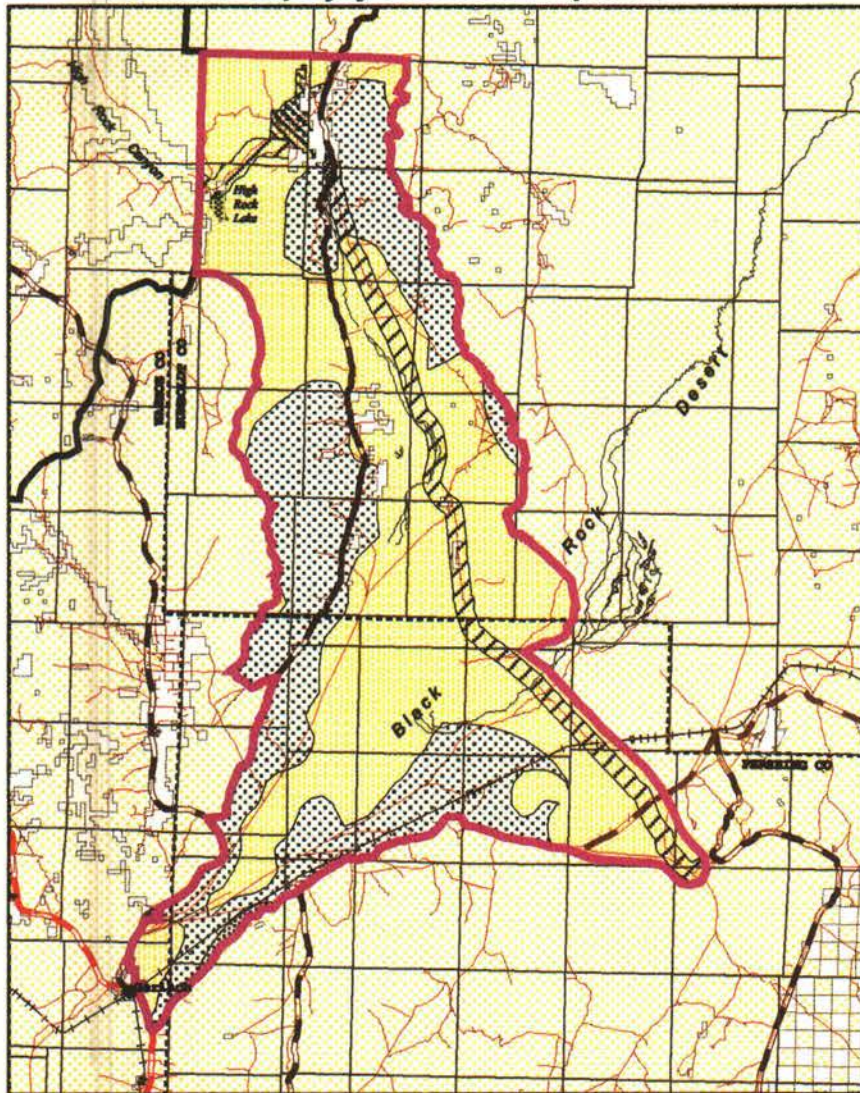


- Mine Notices and Plans**
 - Abandoned
 - Active
 - Closed
 - Inactive
- Total Mine Claims Recorded per Section (Based on BLM data 1997)**
 - 1 - 44
 - 45 - 87
 - 88 - 130
 - 131 - 173
- Area of Development Interest (ADI) (Modified after Miller 1993)
- Proposed Soldier Meadows Mineral Withdrawal
- Proposed Trail Corridor Mineral Withdrawal
- Active Opal Mines

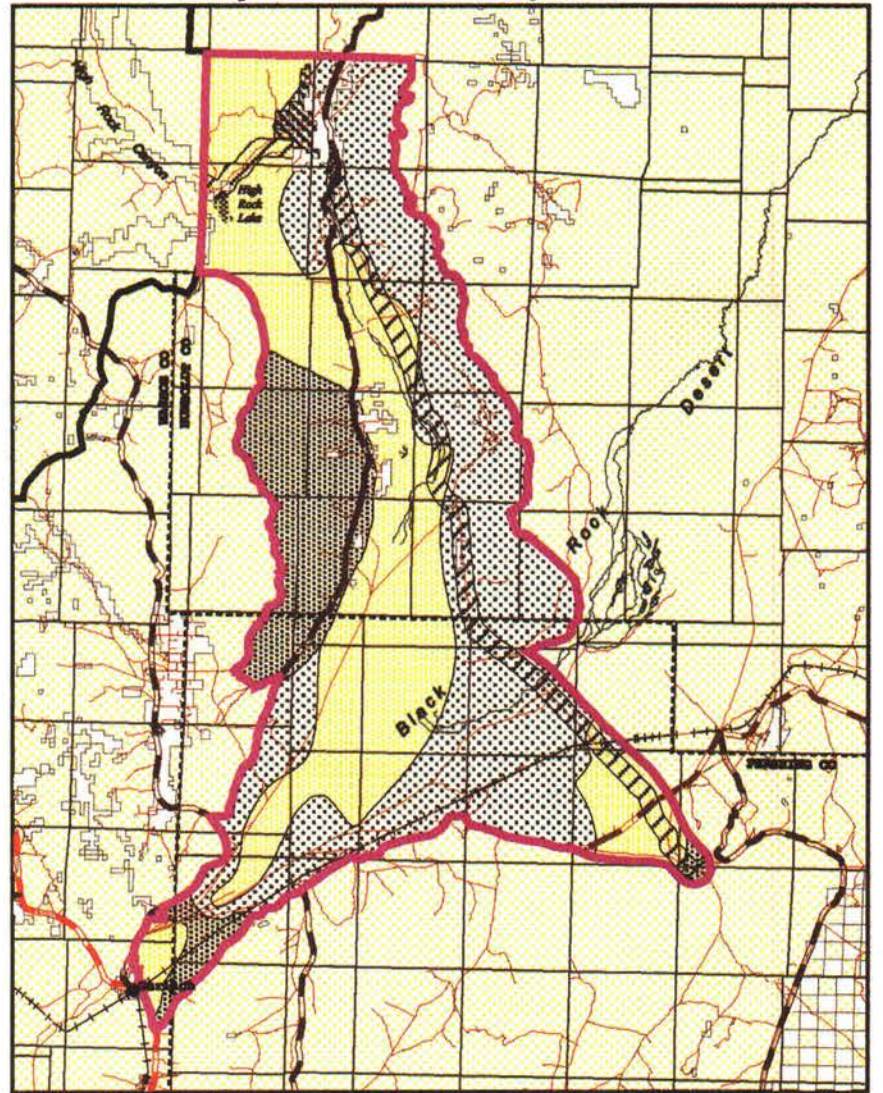
Map 9
Locatable Minerals



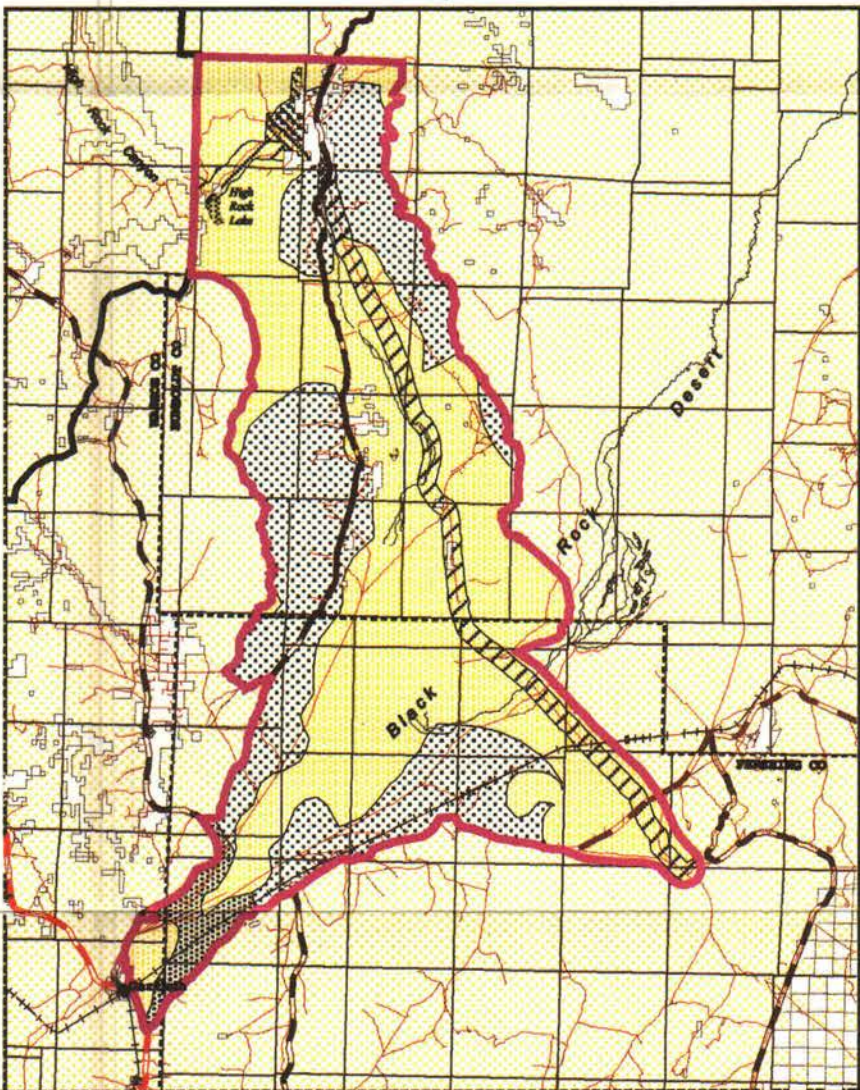
Pluton-Porphry Related Deposits



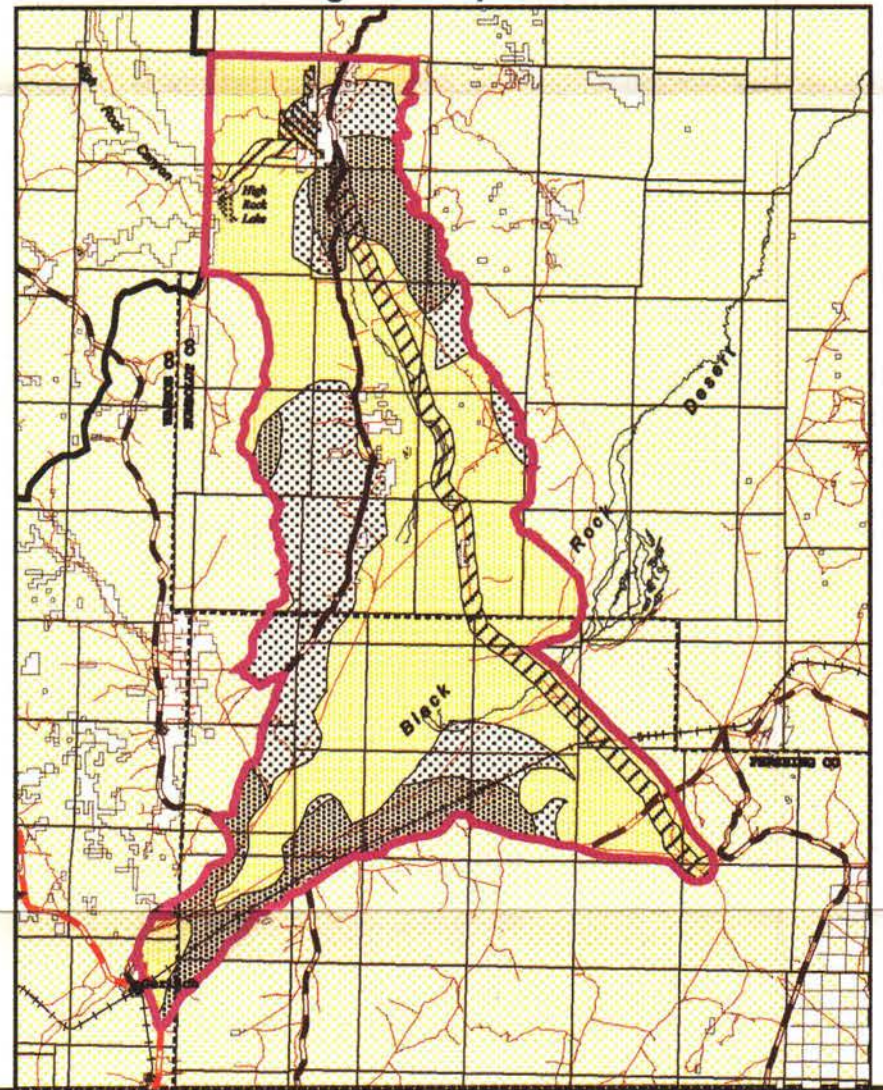
Polymetallic Vein Deposits



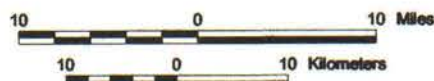
Skarn Deposits



Tungsten Deposits



- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad

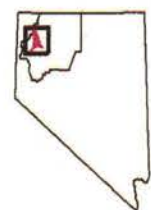


- High Potential (Prospective)
- Moderate Potential (Favorable)
- Low Potential (Permissive)
- No Potential (Non Permissive)

- Proposed Soldier Meadows Mineral Withdrawal
- Proposed Trail Corridor Mineral Withdrawal

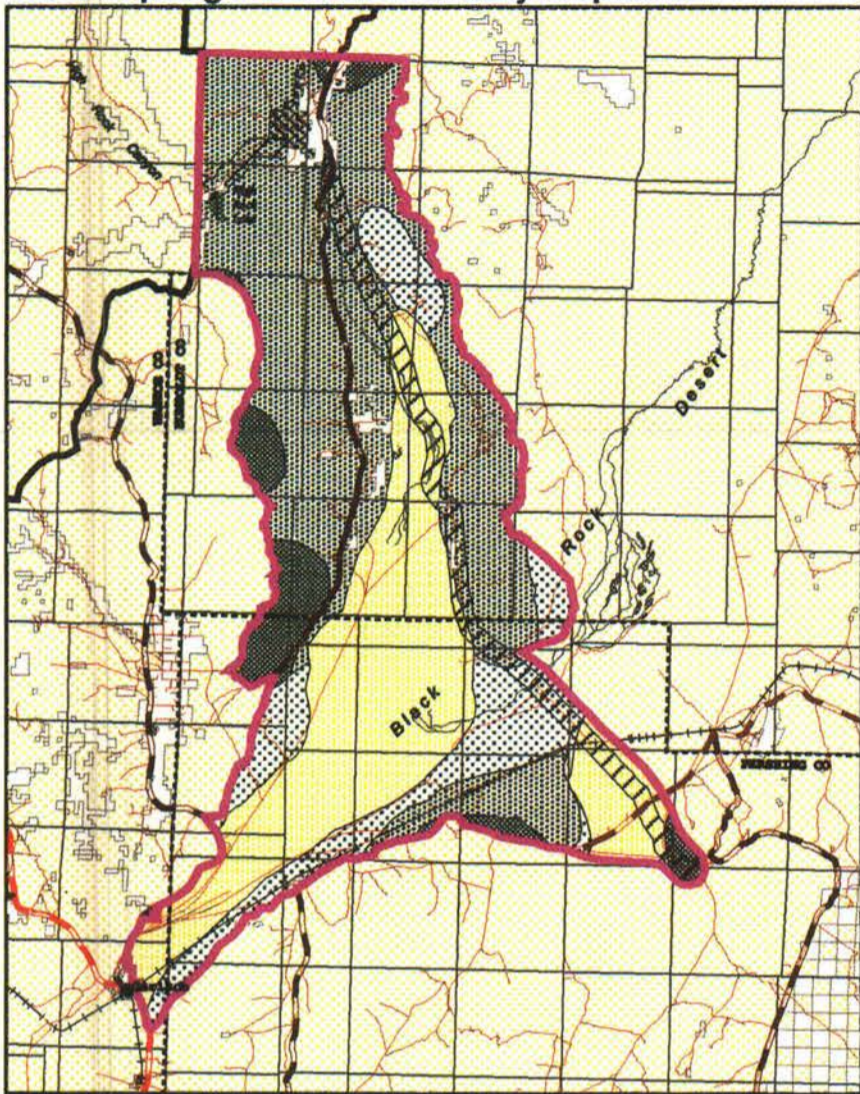
Map 10A

Metallic Mineral Potential

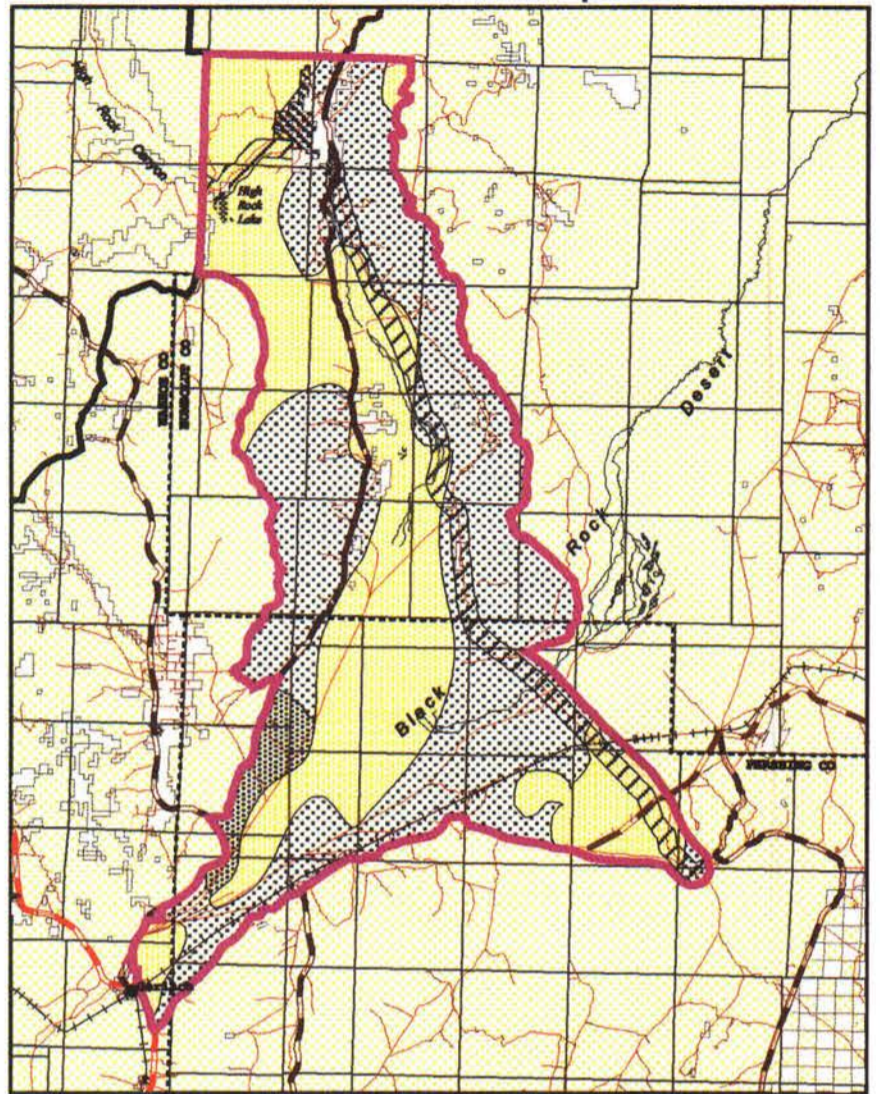


Source: Based on digital data from Koski (1998) and Peters (1996).

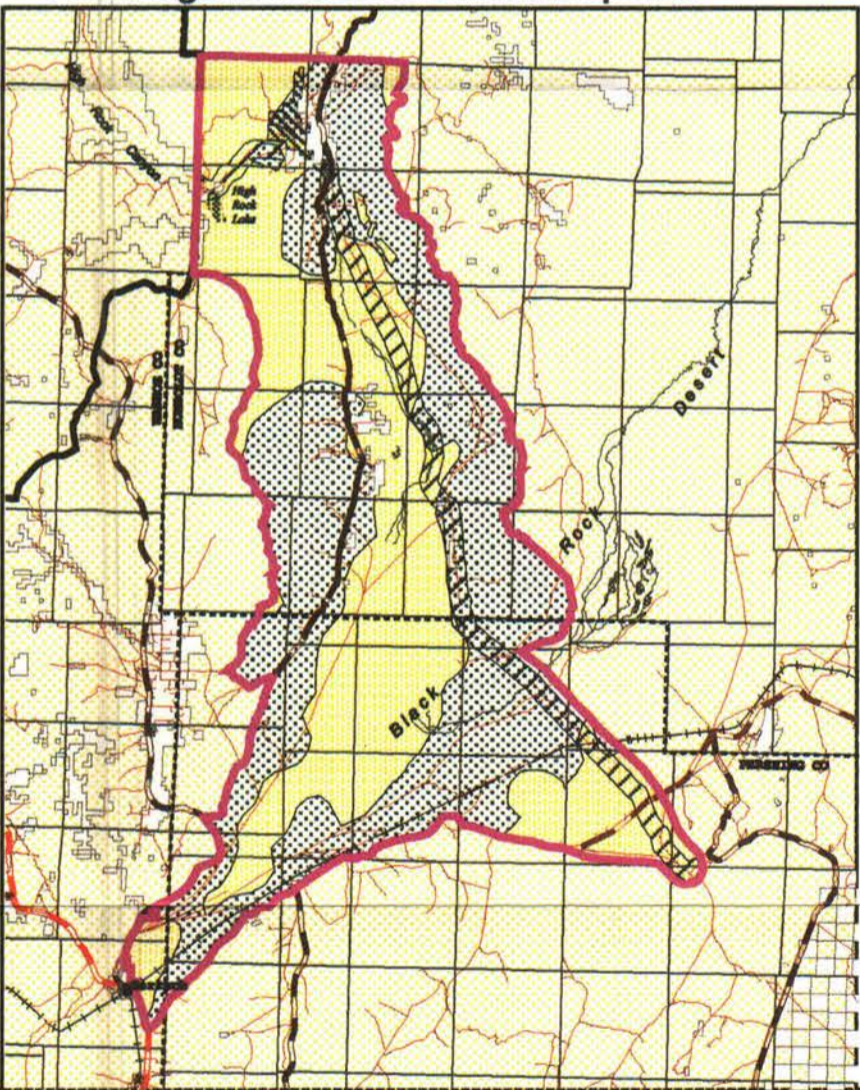
Hot Spring Gold and Mercury Deposits



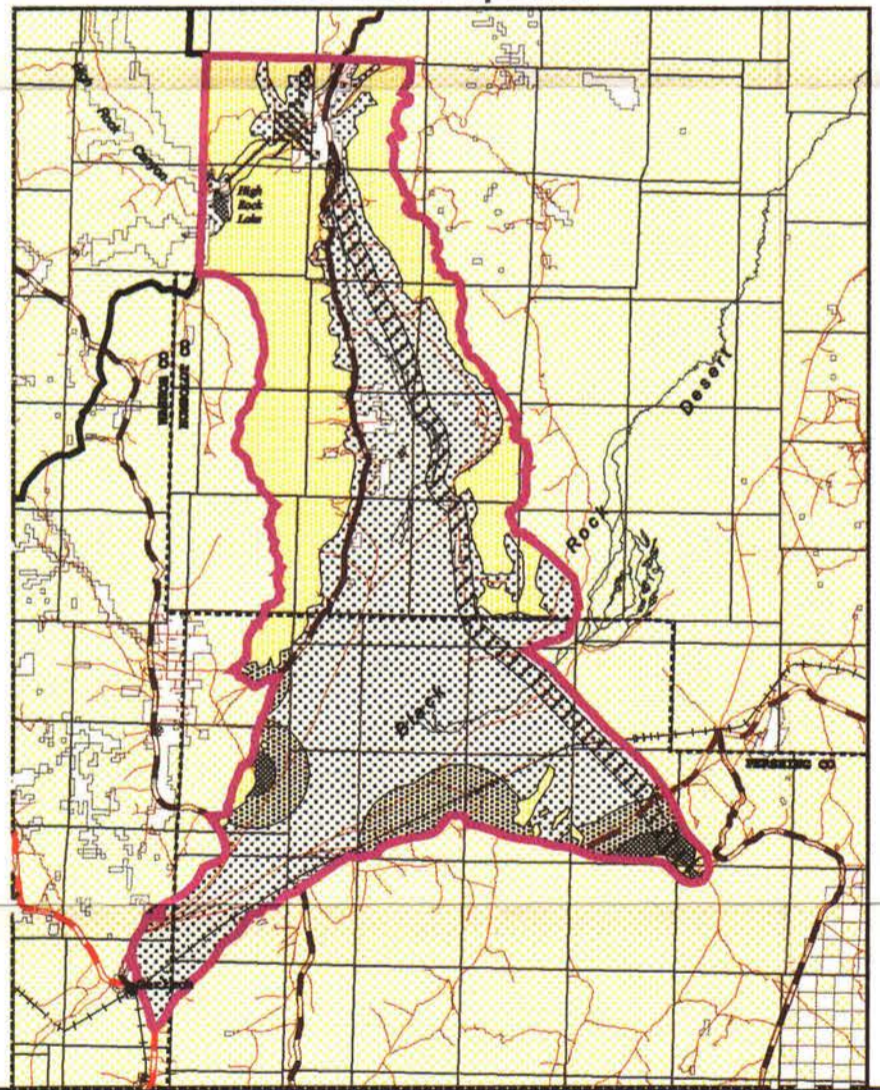
Low Sulfide Gold Quartz Deposits



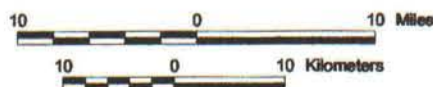
Volcanogenic Massive Sulfide Deposits



Placer Gold Deposits



- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad



- High Potential (Prospective)
- Moderate Potential (Favorable)
- Low Potential (Permissive)
- No Potential (Non Permissive)

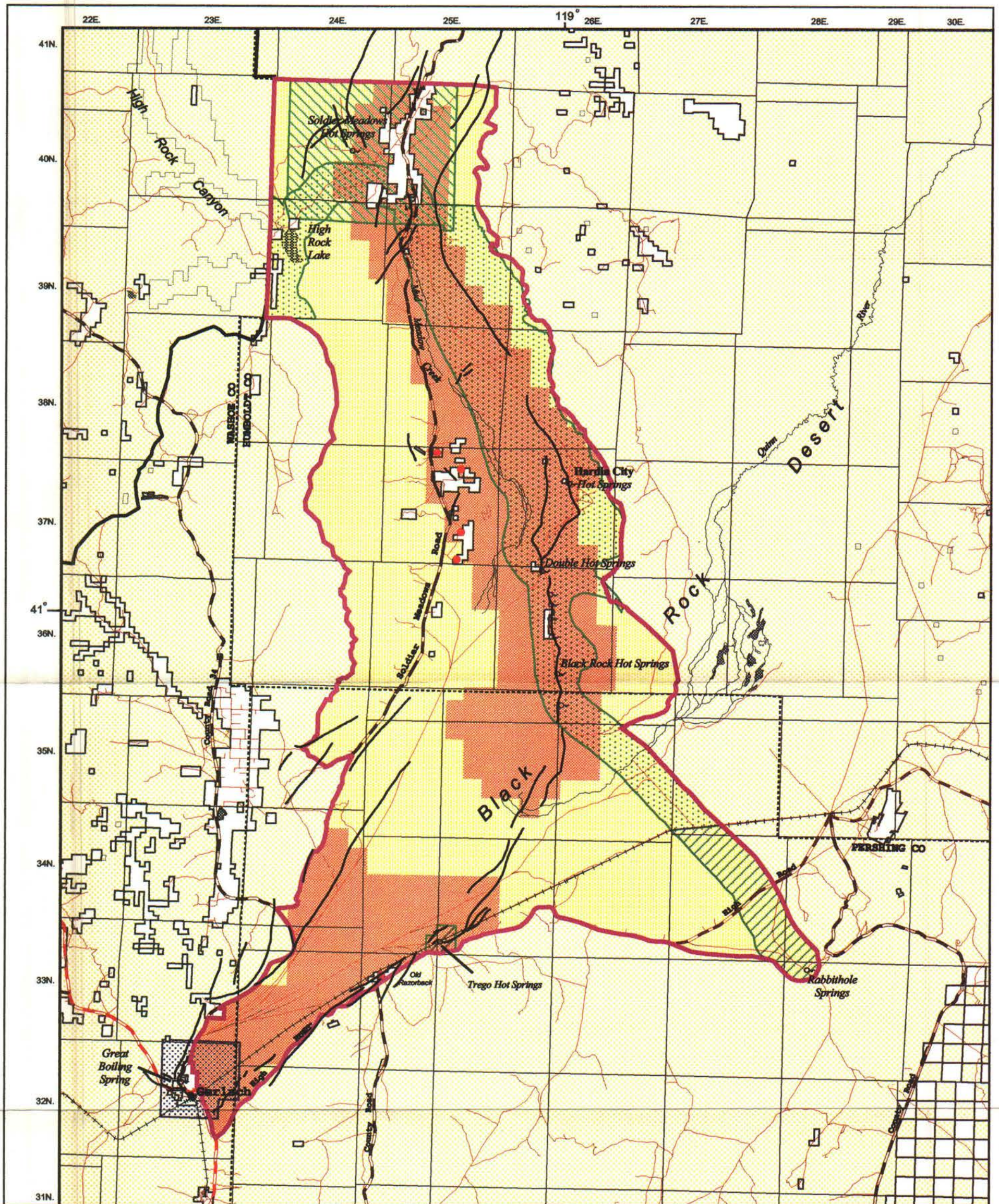
- Proposed Soldier Meadows Mineral Withdrawal
- Proposed Trail Corridor Mineral Withdrawal

Map 10B

Metallic Mineral Potential

Source: Based on digital data from Koski (1998) and Peters (1996).



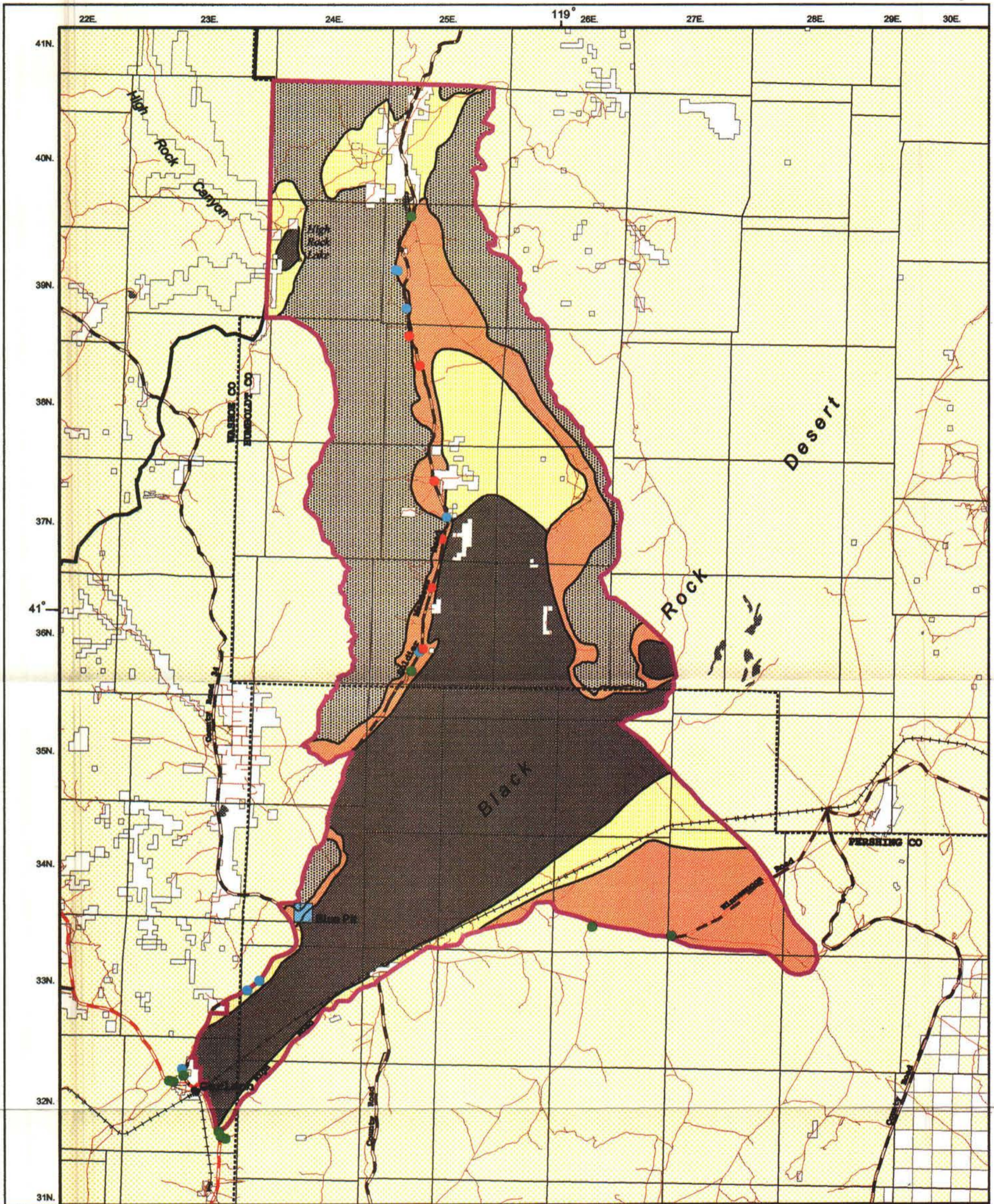


Proposed Plan Boundary	State Road 447	Faults (Only major important faults are shown)	5 0 5 Miles
District Boundary	County Road	Major Hot Spring	5 0 5 Kilometers
BLM	Improved Road	Thermal Well Areas	
Private Ownership	Unimproved Road	Known Geothermal Resource Area	
	Railroad	Geothermal Lease	
		Geothermal - High Potential (Prospectively Valuable)	
		Geothermal - Moderate Potential	
		Existing "No Surface Occupancy" Restrictions and Proposed No Leasing for Geothermal and Oil & Gas	
		Proposed No Leasing for Geothermal and Oil & Gas	
		Proposed No Leasing for Geothermal and Oil & Gas in the Soldier Meadows ACEC	

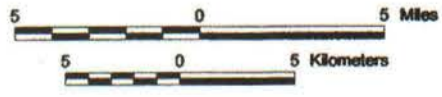
Map 11

Geothermal Resources





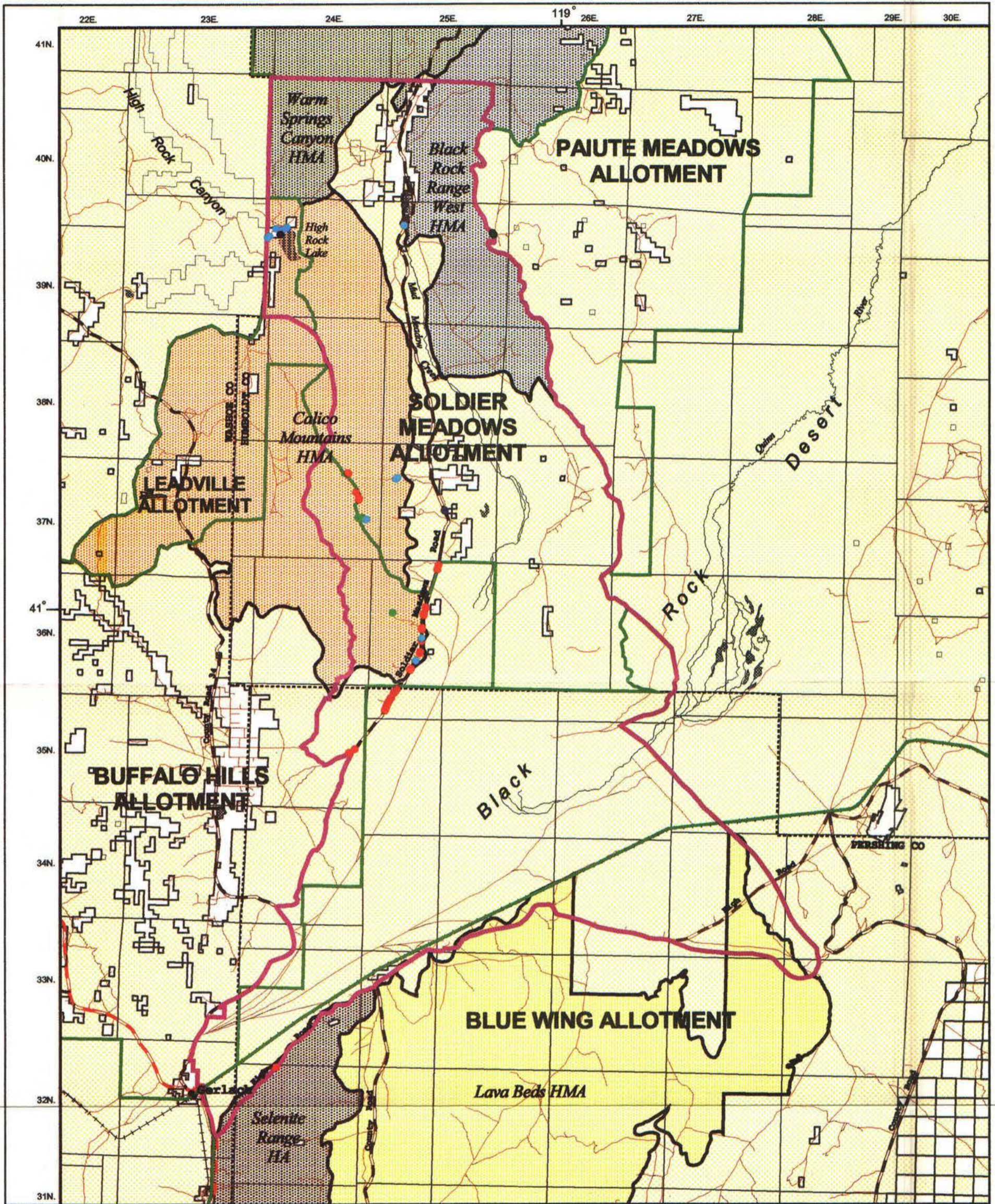
- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad



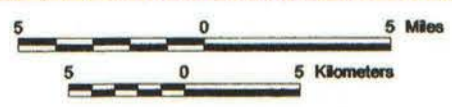
Map 12
Mineral Materials

- Gravel Pits Not Authorized or on Private Land
- Gravel Pits Authorized
- Gravel Pits Pending Authorization
- Blue Pit. Proposed Community Pit
- Rock - Moderate Potential
- Clay - High Potential
- Sand Gravel Borrow - High Potential
- Sand Gravel Borrow - Moderate Potential



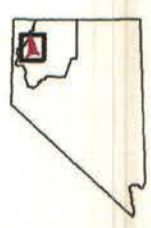


- Proposed Plan Boundary
- District Boundary
- BLM
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad

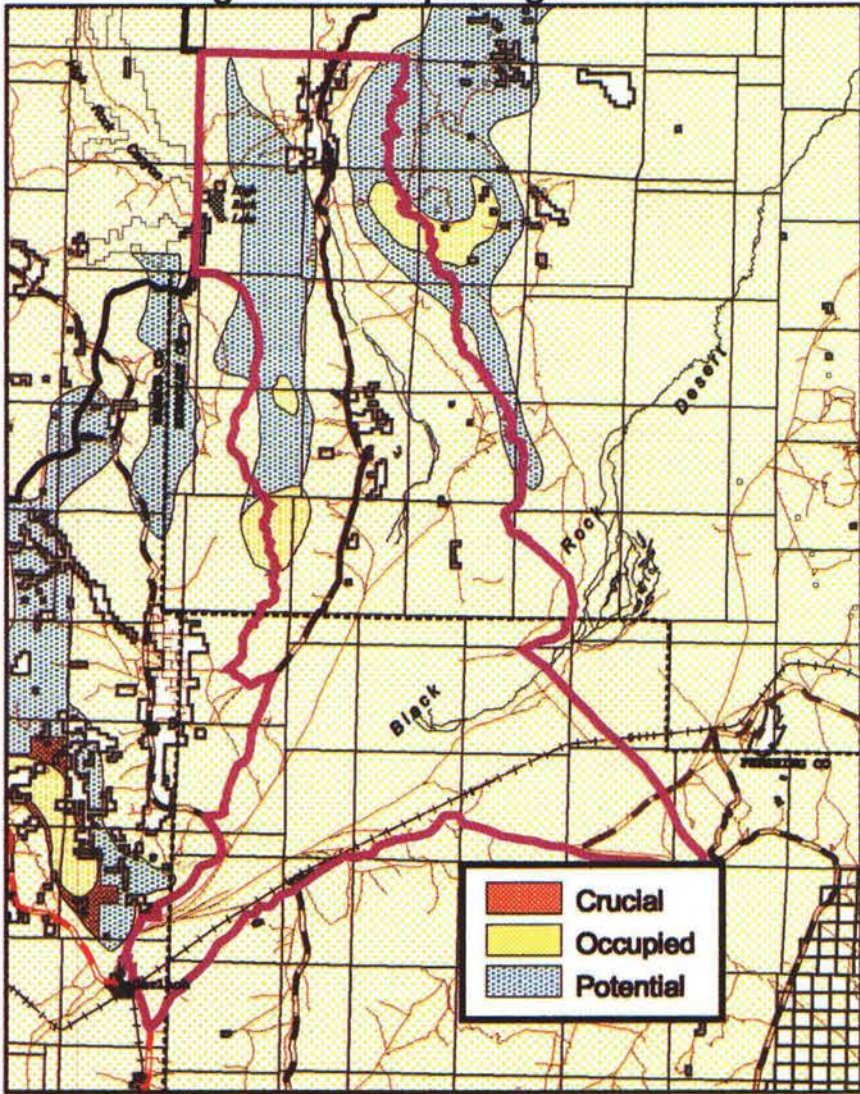


- Grazing Allotment Boundary
- Herd Management Area/Herd Area Boundary
- Bull Thistle
- Bull Thistle and Whitetop
- Bull Thistle and Canda Thistle
- Russian Knapweed
- Russian Knapweed and Whitetop
- Salt Cedar
- Whitetop

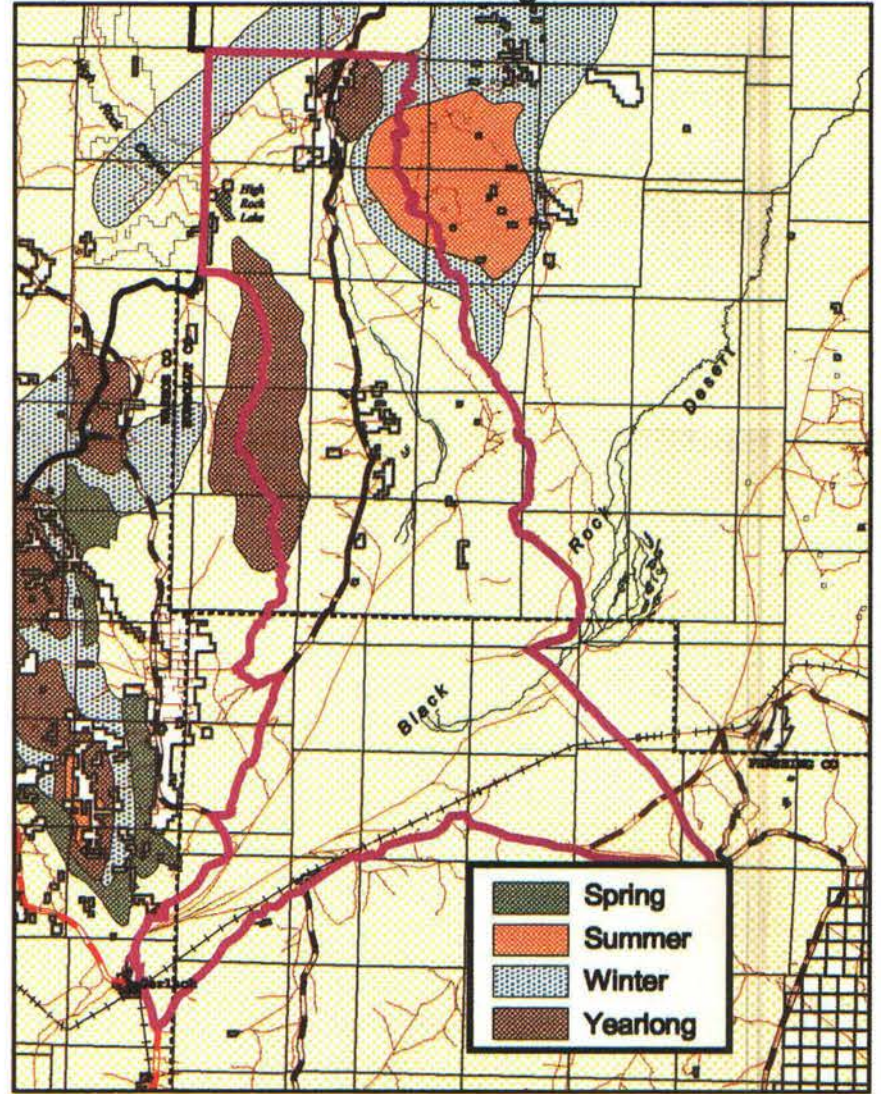
Map 13
Grazing Allotments
Herd Management Areas and
Noxious Weeds



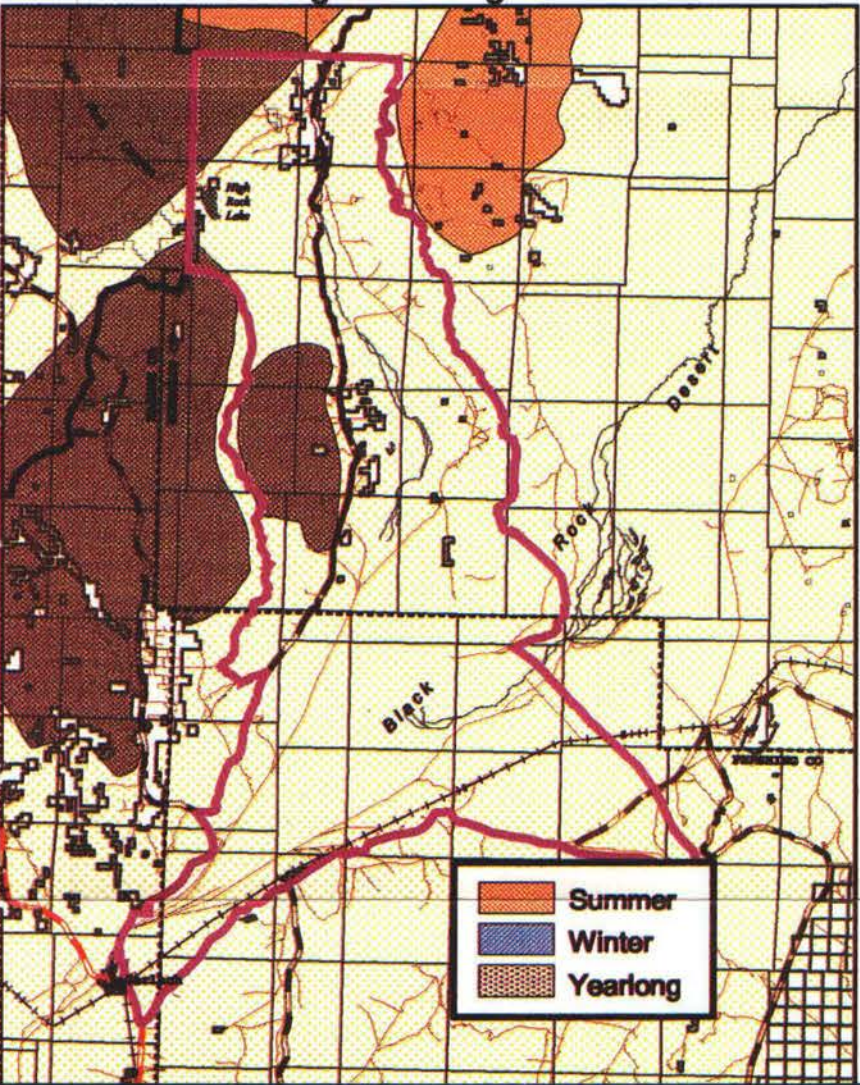
Big Horn Sheep Range



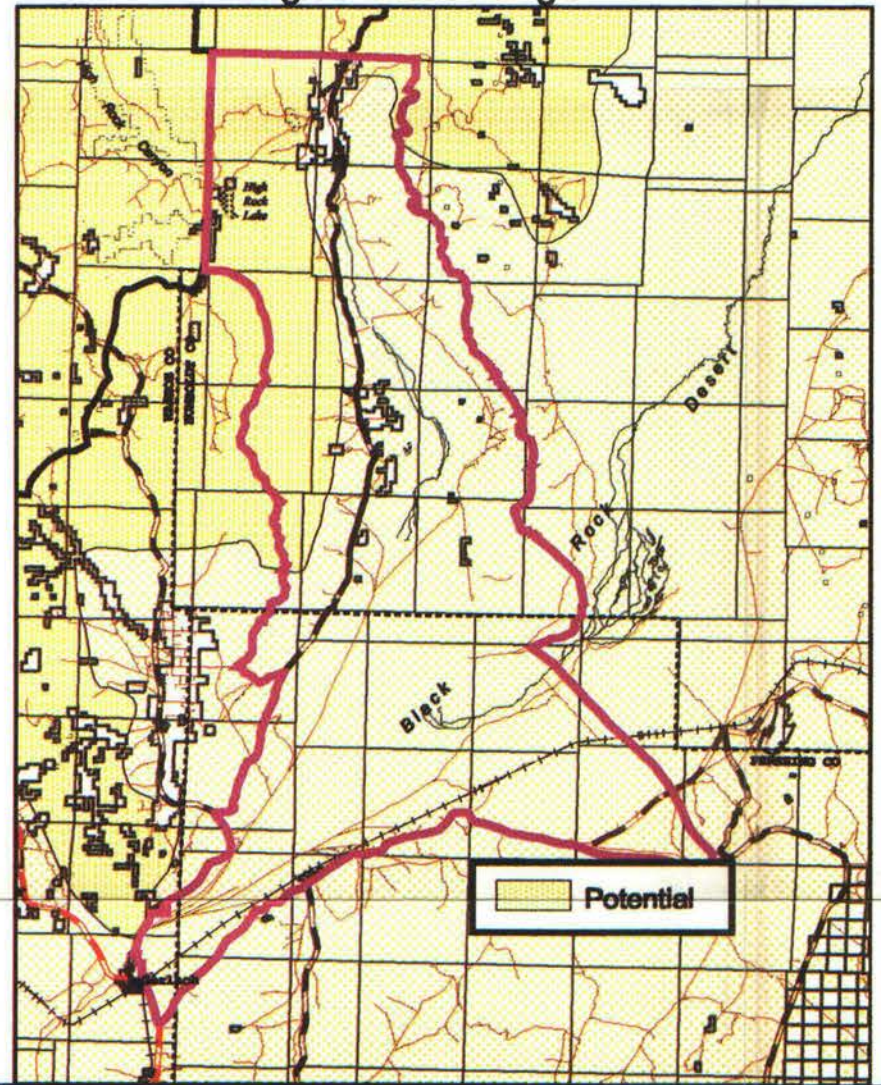
Mule Deer Range



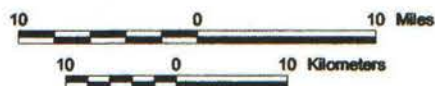
Pronghorn Range



Sage Grouse Range

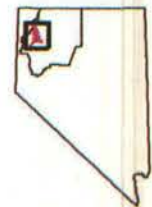


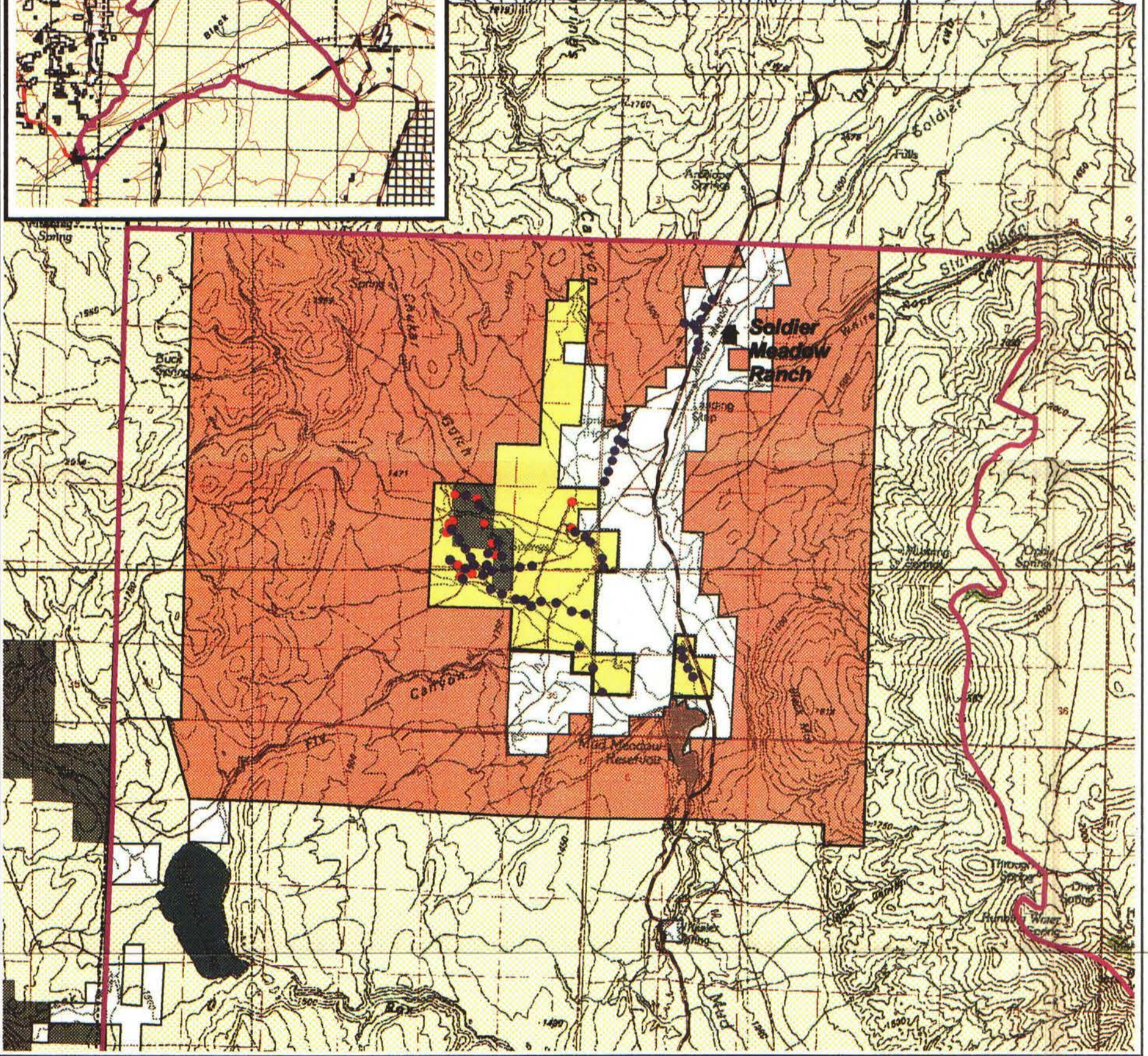
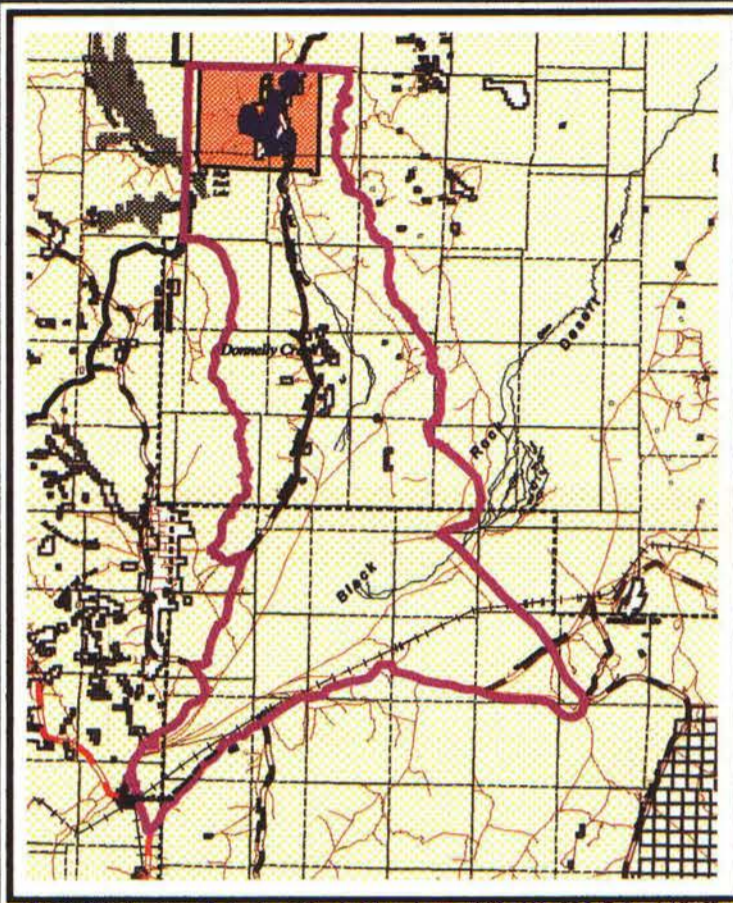
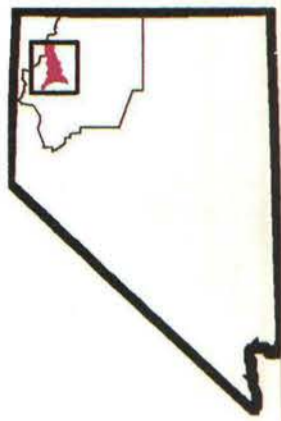
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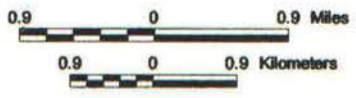
Map 14

Big Game and Sage Grouse Ranges





- Proposed Plan Boundary
- District Boundary
- BLM
- BLM-ACEC
- Private Ownership
- State Road 447
- County Road
- Improved Road
- Unimproved Road
- Railroad



Map 15
Proposed ACECs and Special Status Species

- Desert Dace
- Cinquefoil
- Proposed Soldier Meadow ACEC Expansion
- Proposed Mineral Withdrawal

