6-23-98

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Winnemucca Field Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445
702-623-1500

In Reply Refer To:
(NV-22.3)

06-26-98A09:17 RCVD

June 23, 1998

Dear Interested Party:

Enclosed is a copy of the Record of Decision and Finding of No Significant Impact for the Soldier Meadow Activity Plan. The decision is to implement the management actions in the Preferred Alternative of the plan. A copy of the Soldier Meadow Activity Plan and Environmental Assessment and instructions on appeal procedures are also included.

If you have any questions about the decision please feel free to call Arn Berglund at (702) 623-1500.

Sincerely yours,

Richard E. Adams, Acting
Colin P. Christensen
AFM- Renewable Resources

Soldier Meadow Activity Plan

Project Location: Portions of T. 39 N., R. 24 E.; T. 39 N., R. 25 E.; T. 40 N., R. 24 E., T. 40 N., R. 25 E. See attached map.

Decision

The decision is to implement the management actions in the Preferred Alternative of the Soldier Meadow Activity Plan and Environmental Assessment (SMAP).

Rationale for Recommendation

The preferred alternative of the SMAP will: 1) Address impacts to special status species and cultural resources from increased recreation, livestock, wild horse and burro grazing and potential geothermal and mineral development; 2) Implement management actions to provide favorable habitat conditions for the desert dace, that will enable the U.S. Fish and Wildlife Service (FWS) to delist the species in accordance with the ESA; 3) Implement management actions to protect habitat for basalt cinquefoil, so that the FWS will not need to list the species; and 4) Implement management actions to protect cultural resources in the area from further degradation.

The proposal is consistent with land use planning.

Finding of No Significant Impact

Based on the analysis in the environmental assessment, the Soldier Meadow Activity Plan would have no significant environmental impacts, therefore, an Environmental Impact Statement is not necessary according to section 102 (2) (c) of NEPA.

The project is in conformance with the Sonoma-Gerlach MFP. The proposed activity would not cause any undue or unnecessary environmental degradation.

If you wish to appeal this decision please follow the procedures on the following enclosure.

Colin Christensen
AFM-Renewable Resources

6/23/98
Date

SOLDIER MEADOW ACTIVITY PLAN
AND
ENVIRONMENTAL ASSESSMENT

Bureau of Land Management
Winnemucca District
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445

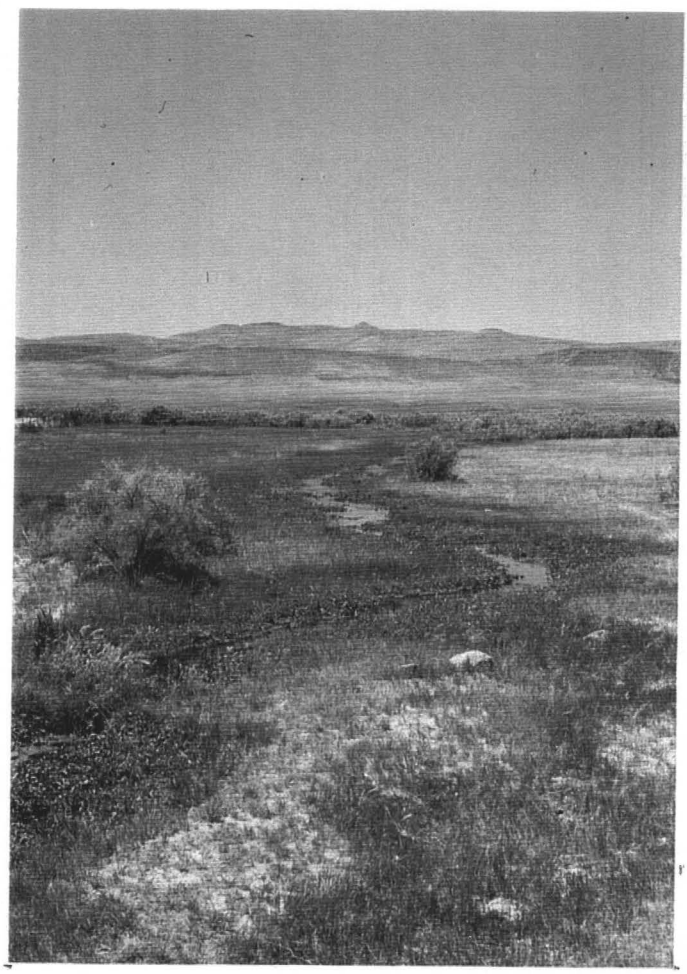


Table of Contents

Introduction

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 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.

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)(See Appendix E Biological Resources). 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 a 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 road 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 reenactments, 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 of the 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 1800's, and the study area lies within the Hot Springs Pasture which 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 (HMA's), Black Rock Range-West, Warm Springs Canyon and Calico Mountains. There have been no studies to assess the impact of livestock and wild horse and burro grazing 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 occurance and extraction of locatable and leasable minerals. Salable mineral resources are being extracted presently.

Purpose and Need

The purpose of this plan/environmental assessment is to: 1) Address impacts to special status species and cultural resources from increased recreation, livestock, wild horse and burro grazing and potential geothermal and mineral development; 2) To implement management actions to provide favorable habitat conditions for the desert dace, that will enable the U.S. Fish and Wildlife Service (FWS) to delist the species in accordance with the ESA; 3) To implement management actions to protect habitat for basalt cinquefoil, so that the FWS will not need to list the species; and 4) Implement management actions to protect cultural resources in the area from further degradation.

Scoping

Approximately 290 letters were mailed out to publics who had expressed an interest in public land management in the area. The letter included: 1) a short description of the area and purpose of the plan; 2) an explanation of the scoping process; 3) places, dates, and times of public scoping meetings; and 4) instruction on how to remain an interested public for the project.

Public scoping meetings were held in February 1997 in Reno, Gerlach, and Winnemucca. The major issues voiced at these meetings and in the written comments received were: 1) protection of the resources, 2) impacts of management on the undisturbed nature of the area, 3) concern for lack of "on site" BLM presence, 4) concern for further research needs in the area, and 5) restrictions on public use from management actions to protect the resources of the area. Another issue of concern was the lack of access to public lands in the Paiute Creek and Leonard Creek areas of Humboldt County. It was explained that these areas were outside the scope of concern for this project.

Alternatives for this plan/EA were developed based on the issues identified through scoping.

The draft plan/EA was released in May 1997. Public meetings on the draft plan/EA were held in Reno and Gerlach in June 1997. Comments received at these meetings and through written comments are addressed in the final plan/EA and were incorporated into the final alternatives.

Consultation with Native American Tribes was conducted through scoping letters, letters of invitation to scoping meetings, submission of draft document to pertinent tribes, telephone and face-to-face conversations, a meeting with the Summit Lake Tribal Council, and a field trip. Groups contacted include the Summit Lake Paiute Tribe, the Pyramid Lake Paiute Tribe (SLPT), and the Lovelock Paiute Tribe.

Alternatives

Preferred Alternative

The area would be managed with a moderate commitment of capital and labor by the BLM and its partners. Management actions would concentrate on providing a physical presence and law enforcement; visitor/recreation management; public access control; information/education program development; livestock management; special status species habitat management; cultural resource management; minerals management; and resource and management research. Specific actions are listed below:

1. Physical presence and law enforcement

1. Recruit and train volunteers. Volunteers would be used in conjunction with regular BLM employees to monitor visitor use, monitor resource impacts, provide information and education to members of the public using the area, provide staffing for projects in the area and report actions of visitors that adversely impact resources to the BLM.

2. Provide a full-time site host for the area. This position would provide information to the public and monitor visitor use. This would be a volunteer position with a stipend paid to cover per diem expenses.

3. Increase BLM law enforcement patrols in the area.

4. Develop or improve cooperative agreements with law enforcement agencies to provide greater law enforcement patrol of the area. Specific agreements with the BLM Surprise RA, Nevada Division of Wildlife, and the Humboldt and Washoe County Sheriff' Departments.

5. Develop a partnership program with the Soldier Meadows Ranch to obtain a commitment between the BLM, the private land owner and the public to mange the area for multiple uses while meeting the objectives for the area. This would also provide the public a contact year round and alert the BLM of problems in the area not identified through other forms of public contact.

6. Conduct aerial surveillance flights over the area during periods of high use such as Memorial Day, Fourth of July and Labor Day weekends to monitor use of Soldier Meadows and surrounding areas.

2. Visitor/recreation management

1. Develop designated visitor facilities in the area. These would include: camping areas, parking areas, toilets, trash receptacles and information kiosks.

2. Designate specific "bathing pools" for bathing and provide only walk in access.

3. Provide directional, informational, hazard and regulatory signing for the area.

4. Provide traffic control and road management for the area. This would include restricting vehicle access to some areas and developing maintenance schedules for some of the key area roads. Limit use of off-highway vehicles to designated established roads. This action would require an amendment to the Winnemucca District MFP.

5. Install traffic counters on the Fly Canyon Road, the road to the "bathing pools", at the culverts on the section of the Fly Canyon Road that was reconstructed, and on the county road north and south of Soldier Meadows.

6. Monitor the types, numbers and resource impacts of different recreational activities in the area.

7. Limit recreational special use permits to activities that are complementary to the unique qualities of the area.

8. Off-highway vehicle use: Designated *Limited* to existing roads within the Soldier Meadows boundaries. This action would require an amendment to the Wineemucca District Management Framework Plan (MFP).

9. Camping: Not exceed more than five consecutive days and nights.

10. Vehicle Parking: No vehicle parked within 200 feet (90 adult steps) of any water source.

11. Water Quality: No camping permitted within 200 feet (90 adult steps) of any water source.

12. Firearm/Visitor Safety: Firearms would not be discharged in the direction of the bathing pools, cabin or Soldier Meadows Ranch from any point within one half mile of these sites.

3. Public access control

1. Close roads directly impacting desert dace habitat, stands of basalt cinquefoil and major identified cultural sites to protect these sites from further degradation.

2. Prevent new unauthorized roads from being made.

3. Obtain road easement across private property in T. 40 N., R. 25 E., Sec. 19, N½, MDM.

4. Information/education program development

1. Provide comprehensive informational, regulatory, hazard and directional signing for the area.

2. Develop two interpretive panels which include an interpretive and resource protection message for resources in the area, and addresses the uniqueness of the area to special status species and cultural resources. One would be placed at the bathing pool area and one at the orientation site.

3. Discourage wide audience advertisement of the area (i.e., use of the internet).

4. Develop specialist directed field trips for the area. Call on expertise within and outside of the BLM.

5. Livestock management

Continue livestock grazing in accordance with the Soldier Meadows Multiple Use Decision (MUD). Adjust grazing if impacts, determined through studies and monitoring, are shown to be detrimental to special status species habitats or cultural resources.

6. Special status species habitat management

1. Expand the existing ACEC and RNA to include all public lands in the Soldier Meadows basin, approximately 35,340 acres (See Appendix A). This action would require an amendment to the MFP.

2. Acquire title to any private land within the habitat area that becomes available for exchange or purchase. Recommend a withdrawal for all locatable minerals on these lands after we have acquired title.

3. Remove non-natural materials from the occupied desert dace habitats.

4. Redivert the water in the irrigation ditch on the west side of the spring complex back into the natural channel.

5. Construct a fish barrier to prevent access by exotic species to the occupied dace habitat from Mud Meadow Reservoir.

6. Designate specific bathing pools and discourage using other hot spring pools for bathing. Dismantle manmade dams at recreating pools that are not being used at present. Encourage bathing pool users to breach dams, after bathing, during winter months (November to April)so as not to inhibit dace movement into warmer water during the colder months of the year.

7. Institute specific management actions for basalt cinquefoil based on inventory and monitoring data. Develop a conservation agreement for the species with the FWS.

7. Cultural resource management

1. Pursue opportunities to record, evaluate, and mitigate threatened sites through cooperative agreements with educational and research institutions, student projects or other volunteer efforts. Also attempt to accomplish the above by attempting to obtain funding for contract archeological work including a research design for the area.

2. Encourage interdisciplinary research in the area.

3. If possible, provide opportunities for the public to view and/or participate in archeological work undertaken in the area.

4. Increase monitoring of the area through use of volunteers, camp host, and interagency law enforcement agreements.

5. Incorporate into interpretive materials pertinent paleontological information and, in cooperation with interested Native Americans, relevant Paiute cultural information. At the request of the Summit Lake Paiute Tribe (SLPT), BLM will not refer to the Summit Lake Reservation in interpretive materials without prior consent of SLPT.

6. Expand the existing ACEC and RNA to include all public lands in the Soldier Meadows basin, approximately 35,340 acres. This action would require an amendment to the Winnemucca District MFP.

7. A one-mile corridor along the Applegate-Lassen Trail would continue to be on the National Register of Historic Places and a 2 mile corridor along the trail would continue to be protected from surface occupancy. Site CrNV-02-208 would continue to be National Register eligible.

8. Inventories, mitigation and consultation with the Nevada State Historic Preservation Office (SHPO) will be undertaken for surface disturbing actions prior to the implementation of specific projects proposed in the plan. The BLM will consider concerns expressed by Native Americans prior to project implementation and Native Americans will be consulted prior to implementation of any archeological mitigation projects.

8. Minerals management

1. Recommend a withdrawal for all locatable minerals on all public lands in the Soldier Meadows special status species habitat area, approximately 3545 acres (See Appendix A). This action would require an amendment to the MFP.

2. Permit no mineral leasing within the expanded ACEC/RNA (See Appendix A). This action would require an amendment to the MFP.

3. Permit development of mineral materials within the expanded ACEC/RNA for road maintenance or other uses by Soldier Meadows Ranch, BLM, and Humboldt County. Permit sales to other publics on a case by case basis as long as special status species and cultural resources will not be impacted.

9. Resource and management research

1. Identify specific resource and interdisciplinary research for resources in the area. Specific areas with research needs are:

-area geology
-geothermal reservoir extent and capacity and utilization affects on spring systems inhabited by special status species.
-cultural resources, prehistoric and historic
-paleontology of the area
-desert dace, hydrobiid snail and basalt cinquefoil life history, ecology and effect on populations and habitat by management actions.

2. Initiate research on impacts of recreational activities and grazing on special status species, natural, and cultural resources.

10. Wild horse and burro management

Wild horses and burros would be managed in the Black Rock Range- West, Calico Mountains, and Warm Springs Canyon Herd Management Areas in accordance with the Soldier Meadows MUD.

All physical improvements to the area proposed in this alternative would be unobtrusive, and completed with the most low impact methods possible to retain the unique integrity of the area. Specific activities to accomplish this would include low profile signing, complementary paint to blend in with surroundings, and keeping developments to a minimum while still meeting the objectives.

Alternative 1- No Action

Under this alternative, management of the area would continue as it exists today.

The presence of BLM personnel, including law enforcement personnel, in the area would be limited to law enforcement patrols, existing resource monitoring and observations of the area while driving to other sites in the west end of the district. Non-BLM law enforcement activities would be limited to user contacts by county law enforcement while on other duties in the area. Public education would include information obtained at the BLM Winnemucca office, limited signing and casual contacts in the field.

Recreation in the area would continue to be undeveloped with minimal regulation. Recreational use of the area will probably continue to increase. Limited additional development in the area would include: signing, motor vehicle controls and road maintenance. There would be no development of camping, sanitation, and trash facilities.

Access to the public lands in the area would continue to be unrestricted.

Information and education activities for the area would be limited to contacts at the BLM District Office in Winnemucca, the Gerlach kiosk and limited field contacts by BLM personnel in the area. The privately owned Soldier Meadows Ranch would continue to be a primary point of contact for visitors to the area.

Livestock grazing would continue in accordance with the terms and conditions of the Soldier Meadows MUD. Soldier Meadows Ranch would graze 1117 head of cattle each year from November 15 to December 31 in the Hot Springs Pasture of the allotment for a total of 1726 AUMs.

Conditions would exist that would continue the listing of the desert dace. Consultation with the FWS in accordance with Section 7 of the ESA would have be done for any future federal actions in the area that have the potential to impact the dace or its habitat. Basalt cinquefoil would continue to be a FWS species of concern and a Nevada BLM sensitive species, and the possibility of it being listed in accordance with the ESA would continue to exist. The status of the hydrobiid snail species would remain unchanged, and if further information warrants, listing may occur. Research on the dace, cinquefoil and snails would remain limited to outside independent research directed by funding not necessarily driven by BLM objectives. Monitoring of the dace population would be as outlined in the Soldier Meadows MUD. The BLM would continue to try to acquire title to any private land within the habitat area which becomes available for exchange or purchase.

Cultural resource management would continue to be limited to inventories, Native American consultation, and/or mitigation as needed for specific projects in compliance with the National Historic Preservation Act (NHPA), National Environmental Policy Act (NEPA), Federal Land Policy & Management Act (FLPMA), Native American Graves Protection and Repatriation Act (NAGPRA), Archeological Research and Protection Act (ARPA) and other federal laws and regulations. The area would continue to be a law enforcement priority for the District, but due to limited staffing and funding, protection of cultural resources would continue to be limited. Monitoring of the area for site vandalism would continue to be focused on holiday weekends and/or during special events. Public education efforts would continue to be undertaken in response to requests from specific user groups and as opportunities for public presentations and visitor contact arose. Effects to cultural resources from recreation use would continue to be controlled only by regulation of recreation special use permits and by limited signing. No additional recordation or mitigation of sites or interdisciplinary research efforts would occur.

A one mile corridor along the Applegate-Lassen Trail would continue to be on the National Register of Historic Places and a two mile corridor along the trail would continue to be protected from surface occupancy. Site CrNV-02-208 would continue to be National Register eligible. Within the existing ACEC a mining plan would be required for notice level and other mining activity, providing for consideration of cultural values. Outside the ACEC a mining plan would not be required for notice level activity.

Minerals management in the area would continue under the existing MFP. Entry for locatable minerals would remain open for the entire area. A plan of operations and environmental assessment would be required for activities within the existing ACEC (Appendix A) or any surface disturbance of over five acres. Activities of five acres or less located outside of the existing ACEC would be conducted under a mining notice. Mineral leasing would be allowed throughout the area with the following restriction: 1) No surface occupancy of leased lands would be allowed within the existing desert dace ACEC, and 2) No surface occupancy of leased lands would be allowed within one mile of the Applegate-Lassen Trail.

Wild horses and burros would be managed in the Black Rock Range -West, Calico Mountains, and Warm Springs Canyon HMA's in accordance with the Soldier Meadows MUD.

The present management actions are unobtrusive in nature, but impacts from lack of specific management are beginning to adversely affect the natural appearance and nature of the area.

Alternative 2 - Intensive Management

Under this alternative the area would be managed with a high commitment of capital and labor by the BLM and its partners. Management actions would concentrate on providing: a physical presence and law enforcement; visitor/recreation management; public access control; information/education program development; livestock management; special status species habitat management; cultural resource management; control of mineral entry; and resource and management research. Specific actions are listed below:

1. Physical presence and law enforcement

1. Recruit and train volunteers. Volunteers would be used in conjunction with regular BLM employees to monitor visitor use and resource impacts, to provide information and education to members of the public using the area, and report actions of visitors that adversely impact resources to the BLM.

2. Provide a full-time site host for the area. This position would provide information to the public and monitor visitor use. This would be a volunteer position with a stipend paid to cover per diem expenses.

3. Increase BLM law enforcement patrols in the area and partially fund another ranger position for the district.

4. Develop or improve cooperative agreements with law enforcement agencies to provide greater law enforcement patrol of the area. Specific agreements with the BLM Surprise RA, Nevada Division of Wildlife, and the Humboldt and Washoe County Sheriff Departments.

5. Develop a partnership program with the Soldier Meadows Ranch to obtain a commitment between the BLM, the private land owner and the public to mange the area for multiple uses while meeting the objectives for the area. This would also provide the public a contact year round and alert the BLM of problems in the area not identified through other forms of public contact.

6. Conduct aerial surveillance flights over the area during periods of high use such as Memorial Day, Fourth of July and Labor Day weekends to monitor use of Soldier Meadows and surrounding areas.

2. Visitor/recreation management

1. Develop designated visitor facilities in the area. These would include: camping areas, parking areas, toilets, trash receptacles and information kiosks.

2. Designate specific "bathing pools" for bathing and provide only walk in access.

3. Provide directional, informational, hazard and regulatory signing for the area.

4. Provide traffic control and road management for the area. This would include restricting vehicle access to some areas and developing maintenance schedules for some of the key area roads. Limit use of off-highway vehicles to designated established roads. This action would require an amendment to the Winnemucca District MFP.

5. Install traffic counters on the Fly Canyon Road, the road to the "bathing pools", at the culverts on the section of the Fly Canyon Road that was reconstructed, and on the county road north and south of Soldier Meadows.

6. Monitor the types, numbers and resource impacts of different recreational activities in the area.

7. Limit recreational special use permits to activities that are complementary to the unique qualities of the area.

8. Off-highway vehicle use: Designated *Limited* to existing roads within the Soldier Meadows boundaries. This action would require an amendment to the MFP.

9. Camping: Not exceed more than five consecutive days and nights.

10. Vehicle Parking: No vehicle parked within 200 feet (90 adult steps) of any water source.

11. Water Quality: No camping permitted within 200 feet (90 adult steps) of any water source.

12. Firearm/Visitor Safety: Firearms would not be discharged in the direction of the bathing pools, cabin or Soldier Meadows Ranch from any point within one half mile of these sites.

3. Public access control

1. Fence all occupied desert dace habitat, stands of basalt cinquefoil, and major identified cultural sites to prevent impacts from the public and grazing animals.

2. Close roads directly impacting the above areas.

4. Information/education program development

1. Provide comprehensive informational, regulatory, hazard and directional signing for the area.

2. Develop two interpretive panels which include an interpretive and resource protection message for resources in the area, and addresses the uniqueness of the area to special status species and cultural resources. One would be placed at the bathing pool area and one at the orientation site.

3. Discourage wide audience advertisement of the area (i.e., use of the internet).

4. Develop specialist directed field trips for the area. Call on expertise within and outside of the BLM.

5. Livestock management

Eliminate livestock grazing from occupied desert dace habitat, basalt cinquefoil stands, and identified cultural sites by fencing these areas.

6. Special status species habitat management

1. Expand the existing ACEC and RNA to include all public lands in the Soldier Meadows basin, approximately 35,340 acres (See Appendix A). This action would require an amendment to the MFP.

2. Remove the rock dams and non-natural materials from the occupied desert dace habitats that are not designated bathing pools.

3. Acquire title to any private land within the habitat area that becomes available for exchange or purchase. Recommend a withdrawal for all locatable minerals on these lands after we have acquired title.

4. Redivert the water in the irrigation ditch on the west side of the spring complex back into the natural channel.

5. Construct a fish barrier to prevent access by exotic species to the occupied dace habitat from Mud Meadow Reservoir.

7. Cultural resource management

1. Inventory and record all sites in the area

2. Mitigate all National Register eligible sites.

3. Expand the existing ACEC and RNA to include all public lands in the Soldier Meadows basin, approximately 35,340 acres (See Appendix A). This action would require an amendment to the MFP.

8. Minerals management

1. Recommend a withdrawal for all locatable minerals on all public lands within the expanded ACEC/RNA in the Soldier Meadows basin, approximately 35,340 acres (See Appendix A). This action would require an amendment to the MFP and, because the withdrawal is over 5,000 acres it would require Congressional review and approval of the Secretary of the Interior.

2. Permit no mineral leasing within the expanded ACEC/RNA. This action would require an amendment to the MFP.

3. Permit no mineral material disposals in the expanded ACEC/RNA. This action would require an amendment to the MFP.

9. Resource and management research

1. Identify specific resource and interdisciplinary research for resources in the area. Specific areas with research needs are:

-area geology
-geothermal reservoir extent and capacity and utilization affects on spring systems inhabited by special status species.
-cultural resources, prehistoric and historic
-paleontology of the area

-desert dace, hydrobiid snail and basalt cinquefoil life history, ecology and effect on populations and habitat by management actions.

2. Initiate research on impacts of recreational activities and grazing on the areas special status species, natural, and cultural resources.

10. Wild horse and burro management

Eliminate wild horse and burro grazing from occupied desert dace habitat, basalt cinquefoil stands, and identified cultural sites.

All physical improvements to the area proposed in this alternative would be unobtrusive, and completed with the most low impact methods possible to retain the unique integrity of the area. Specific activities to accomplish this would include low profile signing, complementary paint to blend in with surroundings, and keeping developments to a minimum while still meeting the objectives.

Affected Environment

Geologic Setting

Soldier Meadows is situated in the northern basin and range physiographic province. This area transitions from basin-range, block-faulted, elongated mountain ranges in the south, to a volcanic highland plateau in the north. Recent tectonic activity is evidenced by visible fault scarps and relatively recent landslides throughout the region, as well as very recent earthquake activity.

Rhyolitic and basaltic volcanic rocks of approximately 15 million years in age dominate the immediate vicinity of Soldier Meadows (Korringa, 1973; Noble, et al; 1970). Rhyolitic volcanic rocks are very high in silica, and are excellent sources of obsidian which have been utilized by Native Americans for various tools. Basalts of the region have also been utilized by the Native Americans.

The Soldier Meadows basin, and hot spring system, lies at the intersection of two major regional structural trends (Hose and Taylor, 1974; Thelin and Pike, 1991; Rowan and Wetlaufer, 1981). Ore deposits, mines and geothermal systems occur along both of these lineaments in Nevada, Idaho, California, and Oregon. The hot springs at Soldier Meadows occur as a cluster array, probably because the structural interaction of the two trends has created a broad zone of rock fractures in the sub-surface (Hose and Taylor, 1974).

Vegetation

The dominant upland vegetation are salt desert shrub and sagebrush/bunchgrass communities. The warm springs are found scattered throughout the sagebrush community, but each is surrounded by varying sizes of riparian or meadow zones. These riparian/meadow zones contain such vegetation as black greasewood, willow, saltgrass, spikerush, monkeyflower, basalt cinquefoil, sedges, and rushes.

The warm springs themselves support a variety of aquatic algae (Nyquist,1963). These algae form the principal food source for the desert dace.

Animals

Mammals include pronghorn antelope, mule deer, black-tail jackrabbit, coyote, badger and numerous species of rodents. Bird species include chukar, long-billed curlew, killdeer, snipe and numerous species of passerine birds, raptors and waterfowl.

There are four endemic aquatic vertebrate species found in the area. They are the desert dace, speckled dace (*Rhinichthys osculus*), Tui chub (*Gila bicolor*) and the Tahoe sucker (*Catostomus tahoensis*). Neither the speckled dace, the Tahoe sucker nor the Tui chub shares the desert dace's unique status of occurring only in Soldier Meadow; all are common in other water systems.

Two reservoirs exist in the Soldier Meadows area approximately three miles from springs and outflows inhabited by desert dace. Channel catfish (*Ictalurus punctatus*), goldfish (*Carassius auratus*) and largemouth bass (*Micropterus salmoides*) have been introduced into the larger of the two, Mud Meadow Reservoir.

Water Resources

There are numerous warm or hot springs in Soldier Meadow. Flows are extremely variable among the springs, ranging from less than 1 gpm to over 100 gpm. Nyquist (1963) did not find any chemical factor in the water that would prohibit fish from occurring, though he did find several springs to be too hot for fish to survive. Water quality is impacted by introduction of sediment from the banks and chemical pollutants, soaps and shampoo, from grazing and recreation activities.

The Soldier Meadows Ranch has the water rights to the springs in the area. In June of 1992 a conservation easement was instituted with the Soldier Meadows Ranch. Within the conservation easement was a water management plan which outlines agreed upon stockwater use, diversion points and prohibits the introduction of any exotic aquatic vertebrates and/or invertebrates in the area.

Special Status Species

Basalt Cinquefoil

Basalt cinquefoil (*Potentillia basaltica*) is a Federal species of concern and a Nevada BLM sensitive species which occurs in moist or wet habitat created by perennial flowing thermal springs. Its occurrence is limited to the moist meadow ecosystem in the northwest portion of Mud Meadows at the north end of the Calico Range and a small population of several thousand individuals located on private lands in the Ash Valley, Lassen County, California.

Potentilla is a low growing, perennial from a stout taproot; the crown is simple or with a few short branches, hidden in dark reddish-brown remnants of previous years' leaf bases; stems are up to 50 cm long becoming purple with age. Basal leaves are numerous. Stem leaves are similar to basal leaves. Flowering begins in May and continues through the summer. Flowers are bright yellow. A total population is estimated at 85,000 individuals in ten subpopulations within Mud Meadows.

Potentilla basaltica populations seem stable and resilient to historic land uses. A number of threats to the species have occurred in the vicinity of populations including:

1. channelizing spring outflow for livestock and recreational uses
2. burning meadows to improve grazing
3. cattle trampling
4. elimination of habitat for agriculture, livestock, recreation uses
5. development of hot springs and camping areas
6. geothermal exploration
7. introduction of exotic species.

Potentilla basaltica populations seem stable and resilient to historic land uses.

Sites used for recreational bathing are highly disturbed. Baseline data are needed to determine if an impact is being made on the local Potentilla populations in areas of high recreational use.

Desert Dace

The desert dace (*Eremichthys acros*) is a small minnow (Cyprinidae), 2 1/2 inches maximum length. All known populations and habitat of the desert dace lie within 8 hot spring pools and channels within the area.

Information on this species and it's habitat requirements is limited. This species is the only member of the genus *Eremichthys*. The species has apparently survived in the Soldier Meadows area for at least tens of thousands of years. The species and genus is identified by the presence of prominent horny sheaths on the jaws. No other minnow possesses such a remarkable feeding adaptation.

The species is notable for its high and broad temperature tolerance. Desert dace in the field prefer water 23-29° C (73-84° F), but have been observed in water as hot as 40.5° C(105° F)

and as cold as 18° C(64° F) (Nyquist, 1963). In the lab desert dace have been able to survive in water temperatures from 2-37° C(36-99° F). Maximum densities of desert dace were found at 23° C(73° F) but were found inhabiting spring and outflow water from 13-37° C(55-99° F)(Vinyard, 1988). Water temperature appears to be a major factor controlling the distribution of desert dace within a spring system. When temperature at a springhead exceeds 100° F, desert dace are restricted to the somewhat cooler outflow downstream from the springs and as the outflow water cools to below 70° F the dace move into warmer water closer to the spring source. Range of the desert dace within each of these pool and outflow systems expands during the summer and contracts during the winter.

Spawning by desert dace has been observed in both the spring and the fall of the year at approximately 72°F. water temperature.

Algae form the principal food source for the desert dace. The crustaceans *Daphnia*, *Cyclops*, and *Cypris*, and the snail, *Amnicolidae*, are important dace prey species. The diving beetle, Dytiscidae, is a dace predator (Nyquist, 1963).

Actual population data for the desert dace is non-existent. In 1973, the FWS estimated that approximately 100,000 individuals existed.

The desert dace was listed as threatened and critical habitat was determined in December of 1985 (Federal Register, Vol. 50, p. 50304). Reasons for it's listing of the desert dace as threatened were: 1) the diversion of water from the hot springs and their outflows for irrigation purposes, 2) potential predation and competition from introduced exotic fish species in Mud Meadow Reservoir, and 3) and the possibility of geothermal exploration and development disrupting flows in the springs and outflows inhabited by the dace.

Mud Meadow Reservoir is inhabited by channel catfish, goldfish and largemouth bass. If these exotics are introduced or move into nearby habitats occupied by the desert dace through water level changes, they would probably compete with and/or prey upon the desert dace. Exotic species may also introduce disease or parasites to which the native species have not been previously exposed.

Most of the thermal springs and their outflow creeks inhabited by the desert dace occur on lands obtained by the BLM from The Nature Conservancy in 1993. Prior to The Nature Conservancy purchasing this land in 1992 the springs were on private land that was part of the Soldier Meadows Ranch. Much of the species' habitat had been modified by diverting water away from natural channels into manmade ditches. The diversion of the outflow water away from the natural channels was harmful in spring systems where the headpool temperature exceeds 100° F and the species can only occupy the outflow channels.

Desert dace populations seem to be at relatively stable levels (Vinyard, 1988). Adequate areas of suitable habitat have been retained and populations seem to have been tolerant of the character and magnitude of disturbances to which they have been subjected.

Hydrobiid Snails

Hershler (1998) has identified four hydrobiid snails species of the genus *Pyrgulopsis* in Soldier Meadows. *P. umbilicata*, *P. limaria* and *P. notidicola* are known from one to three sites each and only occur in Soldier Meadows. *P. miitaris* occurs at one site Soldier Meadows and in a spring to the north, near Summit Lake.

These snails inhabit the outflows and pools associated with the springs in Soldier Meadows and in the case of P. notidicola the moistened zone around the margins of the spring. Snails have been reported inhabiting spring systems with the following physical and chemical characteristics at the spring sources: Water depths of 20-28 cm (8-11 in); substrates of alluvium, sand, gravel, and rock; dissolved oxygen levels of 0.4-7.2 parts per million; pH 7.1-9.0; and temperatures between 19-57° C (66-135° F) (Nyquist, 1963).

Pyrgulopsis often decline dramatically in density downflow from the spring sources, presumably reflecting their requirement for well-known stable temperature, chemistry and flow regime characterizing headsprings (Deacon and Minckley, 1974). *Pyrgulopsis* are most commonly found among aquatic vegetation including Cress (*Rorippa*) and Bladderwort (*Utricularia*) or on base of riparian Spike rush (*Eleocharis*) and Tule (*Scirpus*). Snails are also found on hard substrates such as bedrock or pieces of travertine but rarely on or in soft sediments.

Through out the range of the genus *Pyrgulopsis* the major threat to these species has been disturbance of their habitats. Livestock grazing in particular has modified habitats both physically and chemically by trampling, removing aquatic and riparian vegetation, and depositing urine and feces. The resulting habitat often is largely unsuitable for *Pyrgulopsis*, although snails may persist in small, upflow refuges of clean, flowing water which cows cannot reach. Additional, but less prevalent sources of disturbance include diverision and withdrawl of water from spring systems. Exotic species introduced to spring systems inhabited by *Pyrgulopsis* also pose a serious threat to these species (Hershler, 1998).

Geothermal Resources

Temperature of springs in Soldiers Meadows range from 11-58 °C (52-137° F) (Cordero Mining Company, 1969). Geochemical studies of the thermal springs of the Soldier Meadows area indicate that the thermal spring have the lowest reservoir temperatures of any in the western Black Rock Desert. Results based on two different geothermometry methods indicate possible source temperatures of 60-85° C and 111-114°C (140-185°F and 232-237 °F) (Welch and Preissler, 1990). In spite of its relatively low reservoir temperature, the Soldier Meadow geothermal system is estimated to contain approximately 3.00×10^{18} Joules of energy because of the volume of the system. In the western Black Rock Desert this is second only to the Double Hot Springs system and is approximately three times the amount the Black Rock

Point, Fly Ranch, Trego and Gerlach systems each are estimated to contain (Miller, 1993, after White and Williams, 1975).

Due to the remoteness of the location and the relatively low temperature of the thermal system, potential exploitation of the geothermal system would probably be limited to non-electrical application such as space-heating, greenhousing, vegetable dehydration or other agricultural uses. Increased technological developments in the future, however, could permit cost effective electrical power generation.

Based on the available hydrologic and geologic information of the Soldier Meadows area, it is assumed that development and production of geothermal resources in the basin could degrade the habitat of the desert dace by reducing, interrupting, or diminishing the flow of the hot springs (Chaing et al., 1975).

Other Mineral Resources

There are no known occurrences of metallic deposits in the Soldier Meadows basin. There has been no recent exploration activity in this area. There is medium to high potential for the occurrence of hot spring related mineralization, and high potential for uranium occurrences (USGS, 1994). There are two likely places to look for metallic deposits in this region. One is an area of moderate potential in the Pahute Peak WSA, about 5 miles southeast of the basin (Noble, et al., 1987). The other is a volcanic eruptive center located approximately 5 miles north of the Soldier Meadows basin, near Trough Mountain. That area has high potential for the occurrence of a hot spring related deposit similar to Hog Ranch Mine (USGS, 1994; Dunn, 1995). However, both of these localities lie outside the basin. Much of the areas southeast, south, southwest, and west of Soldier Meadows have been under wilderness review since the late 1970's. Consequently very little exploration has been done, and new information has not been generated.

The highest quality sand and gravel occurring in the basin is located at the south end of Mud Meadow Reservoir. This deposit lies at approximately 4,340 feet and is a beach deposit of Lake Lahontan. It has been used to maintain the county road through Soldier Meadows. The BLM is using this gravel for maintenance of the Fly Canyon Road.

Cultural Resources

Although only a few project related Class III inventories have been undertaken in the area, numerous cultural resource sites have been noted as antiquities observations by volunteers. The area includes a rich array of prehistoric and historic sites. It is believed that humans have used this area for at least the last 10,000 to 12,000 years. The prehistoric sites appear to be linked to the exploitation of marsh resources, toolstone procurement and manufacture, and hunting. Prehistoric sites in the area include quarry sites, hunting blinds, lithic reduction sites, and temporary occupation sites with plant processing loci. Basalt occurs naturally in the area and is the primary toolstone type. Obsidian, cryptocrystalline silicate and rhyolite also

occur naturally in the area and exploitation of these materials is also reflected in the artifact assemblages.

Historic sites in the area include the 1843-44 John C. Fremont Exploration Route, the 1848 Applegate-Lassen Emigrant Trail, the 1862 outpost of Fort McGarry at present-day Soldier Meadows Ranch, and sites associated with historic ranching. Historic and prehistoric sites in the area are currently threatened by unauthorized collection, excavation and vandalism as well as by recreation and livestock use of the area. Some monitoring of the area has been taken in the past, particularly on holiday weekends. Soldier Meadows is a law enforcement priority for the District, but due to limited law enforcement and cultural resource staff, as well as the remoteness of the area, monitoring has been limited. Public education efforts in the past have taken place at the request of Soldier Meadows Ranch to guests and through visitor contact with BLM personnel.

A one-mile wide corridor along the Applegate-Lassen Trail is on the National Register of Historic Places. Also, surface occupancy is prohibited along a two-mile corridor along the trail in this area. A lithic scatter in Soldier Meadows, CrNV-02-208, is also eligible to the National Register of Historic Places. The outpost of Fort McGarry at Soldier Meadows Ranch is on the National Register as well.

Native American Concerns

Soldier Meadows lies within the area traditionally used by the Northern Paiute. Ethnographer O.C. Stewart (1939, 1941) identified this area as being utilized by the Aga'ipanadokado ("fish lake eaters") or Moadokado ("wild onion eaters") of Summit Lake. Paiutes from other areas may have travelled through the area en route to Summit Lake to hunt, fish, and visit (Helen Williams, personal communication, Fowler 1989:7). No ethnographic accounts of traditional use of the Soldier Meadows area itself have been found. Nor has contact with contemporary Native Americans yielded information on use of the area. However, hot springs in other areas were and are considered sacred by the Paiutes (Fowler 1992:178). Both the hot water and mud were considered to have healing powers (Helen and Judy Williams, Anita Collins, personal communication). Water babies were also believed to live in some springs. Contact with water babies was considered to be an essential source of power for Paiute doctors (Fowler 1992:180).

The meadow also likely provided a wealth of plant foods, including possibly medicinal plants. Mid-1800's emigrants travelling through the area noted "rabbit fences" in the general area indicating that communal rabbit hunts probably occurred. It is likely that other small mammals as well as antelope and deer were hunted in the vicinity.

The Summit Lake Reservation is located at Summit Lake, approximately 10 miles north of Soldier Meadows. The reservation was established in 1913 and consists of approximately 11,000 acres, including the historical site of Fort McGarry.

Native American concerns were requested through the scoping letters and public meetings regarding the plan. The Pyramid Lake Paiute Tribe, Summit Lake Paiute Tribe and the Lovelock Paiute Colony were contacted. Specific concerns were also solicited from the Summit Lake Paiute Tribe in numerous phone calls to the Summit Lake Tribal Office and in conversations with the Tribal Chairman. No comments from Native American Tribes were received as a result of the initial scoping efforts. However, the Summit Lake Tribe requested that a presentation be given to their Tribal Council. This was done in September of 1997. Verbal comments from the council included concerns that the plan would attract additional visitation and associated impacts both to the Summit Lake Reservation and Soldier Meadows. Tribal members requested that SMAP include a discussion of the Summit Lake Reservation and the Tribe's concerns but asked that no reference to Summit Lake Reservation be included in any educational/informational signs/materials associated with the project. No traditional cultural properties or sacred sites were identified by the Tribe. During consultation Tribal members stated that since elders bearing knowledge of this sort were no longer living, this knowledge had been lost. However, the Tribe did express concerns about the archeological sites and natural resources discussed in the plan. They felt that the cultural artifacts were remnants of their ancestry and that Soldier Meadows was part of their ancestral territory. During consultation Tribal members also commented that it would be important to impart to Soldier Meadows visitors respect for the land and it's cultural and natural resources.

Written comments were also received from the SLPT and the Nevada Indian Environmental Coalition (NIEC). The letter expressed concern that the plan's impacts were not analyzed in sufficient detail and that an environmental impact statement was needed. In particular it was felt that the plan would increase use in the Soldier Meadows area and that increased traffic would occur on the Summit Lake Reservation resulting from this increase in use. The Tribe expressed apprehension that this increased use would tax the Tribe's law enforcement and fire control resources. Other comments communicated by NIEC and SLPT included concerns that the plan would result in adverse impacts to natural and cultural resources, and inadequate consultation with the Nevada SHPO office.

In December of 1997 representatives of the Lovelock Paiute Colony, Pyramid Lake Paiute Reservation, Walker Lake Paiute Reservation and Summit Lake Paiute Reservation accompanied BLM personnel on a field trip to the Black Rock Desert and Soldier Meadows areas to allow Native American concerns to be addressed in the Soldier Meadows Activity Plan and the Black Rock Desert Plan. Concerns about impacts to archeological sites in the Soldier Meadows area were again voiced. The Summit Lake Tribe requested access to archeological site records and subsequently were shown cultural resource reports and site information for the area SLPT also requested copies of archeological site records for the Soldier Meadows area. Archeological site information is considered confidential under the Archeological Resource Protection Act (ARPA). However, the BLM has agreed to provide the site records to SLPT, provided a cooperative agreement which insures the confidentiality of site location data is signed. A draft of this agreement has been sent to SLPT for their review.. SLPT also stated that they may be able to obtain funding to provide financial assistance for cultural inventory of the Soldier Meadows area.

Recreation Use

Recreation uses of the study area, listed by amount of use, are: bathing in area hot springs, camping, ATV travel and four wheel driving, hunting, wild horse and wildlife viewing, target shooting, and traveling on the Applegate-Lassen Emigrant trail. The study area has some of the most desirable campsites in the entire Black Rock Desert/High Rock Canyon area.

The resources which draw people to the area are the hot springs, several of which are at an ideal temperature for bathing, and the quiet and solitude of the area. Most visitors to the area have little or no knowledge of the occurrence of either the desert dace or the basalt cinquefoil.

The only special recreation permit which covers the area is a day use permit for the Soldier Meadows guest ranch, for horseback riding, and jeep tours throughout the Black Rock High Rock area. Hunting guides, also under special recreation permits camp at the springs with their clients. Over the last four years, there have been several inquiries about using the area as a base for recreation events, however no permit applications have been received yet.

Between 1994 and 1995 visitor use had increased by approximately 3,000 to 4,000 12 hour visitor days. Visitor use, whether short or long term, is a concern for the general health of the area and may be a specific threat to both the desert dace and basalt cinquefoil. The increase of use of the bathing pool areas is of particular concern. Trampling of basalt cinquefoil by foot and vehicle traffic, vehicular impacts and introduction of chemical pollutants to the hot springs complexes, lack of adequate human sanitation facilities, infrequency of law enforcement patrols and the general lack of knowledge by the public as to the status of the desert dace, basalt cinquefoil and cultural resources are particular concerns that need to be addressed by recreation management for the area. The absence of appropriate sanitary facilities is evidenced by human waste on surrounding ground surfaces, wind-blown toilet paper and unsanitary homemade commodes currently evident in the area. Leave No Trace/minimum impact camping techniques are not necessarily being observed.

Wilderness

The southwest corner of the project area includes a portion of the High Rock Lake Wilderness Study Area. The northeast corner of the study area includes a small portion of the North Black Rock Range WSA.

Floodplains and Wetlands/Riparian Zones

Portions of the project area lie within floodplains of the thermal and cold spring outflows. Wetlands and riparian areas in the project are found associated with these same springs and

outflows. They are categorized by primarily grass and forb communities with little or no riparian shrub or tree species. These areas are the primary habitat for basalt cinquefoil. Most of the recreation impacts to the area are within the floodplains of the springs and the associated wetland/riparian areas.

Livestock Grazing Use

The grazing system in the Soldier Meadow Multiple Use Decision (MUD) allows 1,117 head of cattle to be grazed in the Hot Springs Pasture from November 16th until December 31st each year for a total of 1,726 AUMs. This grazing system was established to allow forage to be consumed after all growth had ceased and soils were frozen or dry and least susceptible to hoof damage.

Sediment introduction from banks may be an impact caused by livestock grazing. This should be minimized by the 6 inch residual stubble height objective and the winter season of use when streambanks are more likely to freeze.

Grazing the Hot Springs Pasture at the prescribed stocking rate, time and duration, and grazing to a stubble height of 6 inches should have no adverse effects on the desert dace populations found in the springs and their outlets in the pasture.

No studies have been done that specifically address livestock grazing effects on desert dace. Grazing has taken place in the immediate vicinity of the hot spring pools and their outlets inhabited by desert dace for the last 100 years with no apparent negative impacts to the dace population. However, recent unpublished data collected by the University of Nevada-Reno has questioned whether there may be impacts to dace populations by grazing. Monitoring of these pools and outlets for effects of cattle grazing is provided for in the proposed action. Ranching efforts in the area including the dace habitat have been reduced and the level of disturbance to which desert dace are subjected to now is probably somewhat less than was historically the case. The current population status may be most indicative of the dace's ability to recover from disturbance when habitats are allowed to recover.

Wild Horses & Burros

The planning area encompasses part of the Black Rock Range-West, Calico Mountains, and Warm Springs Canyon Herd Management Areas. The area is used by wild horses and burros yearlong. Horses in the Calico Mountains and Warm Springs Canyon HMA's are primarily found on the upland areas adjacent to the hot spring complex, except for the winter months when there is some movement to the valley floor. The southeast spring in the hot spring complex is used by horses from the Black Rock Range-West primarily during the winter months. The majority of burros are found in the vicinity of the hot springs complex, from Fly Canyon north to the mouth of Warm Springs Canyon. There have been no studies that specifically address grazing impacts to desert dace, however there have been no apparent negative impacts to the dace population by wild horses or burros.

The following table lists the management range for wild horses and burros in each HMA by allotment, and the January 1997 estimated wild horse and burro population for each HMA.

Herd Management Area Allotment	Management Range # below AML to AML	Estimated population January 1997
Black Rock Range-West Soldier Meadows	Horses 60 to 93	Horses 180
Calico Mountains Buffalo Hills Leadville Soldier Meadows	 Horses 106 to 142 Horses 95 to 126 Horses 49 to 65 Total 250 to 333	 Horses 350
Warm Springs Canyon Soldier Meadows	 Horses 131 to 175 Burros 18 to 24	 Horses 300 Burros 24

Land and Management Actions

Livestock grazing has been the dominant use of both the public and private lands in the area since white settlement. Agricultural development of private lands was non-intensive until recently. In the past, use consisted mainly of haying of native meadows to support livestock in the winter.

Effective February 1, 1975, 5,966 acres in Soldier Meadows were classified as a Known Geothermal Resource Area (KGRA). The classification resulted from competitive leasing interest. The area was the subject of geothermal exploration in the 1970's, but no development followed, possibly because geothermal heat in the area was insufficient for then existing technology. Declining interest could also be due to the fact that management plans forbid surface occupancy of any leased areas. If geothermal exploration were resumed and subsequently followed by development, these activities could impact the desert dace by interfering with flow of thermal springs in the area. Due to lack of competitive leasing interest in the area, the KGRA was declassified, effective July 1, 1989. The entire basin is currently classified as "Prospectively Valuable for Geothermal Resources".

In September 1982, 307.22 acres of public land was designated the Soldier Meadow Desert Dace Area of Critical Environmental Concern. Later that same year the first Desert Dace Habitat Management Plan was completed. In 1984 the area was designated as a Research Natural Area. This area was designated an ACEC to highlight this area where special management attention was needed to protect and prevent irreparable damage to, important

biological, cultural and historic resources. The ACEC designation indicates to the public that the BLM recognizes that an area has significant values. In addition designation also serves as a reminder that significant values or resources exist which must be accommodated when future management actions and land use proposals ar considered near or within an ACEC. Designation may also support a funding priority. 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 appropriate management level (AML) for wild horses and burros in the Black Rock Range-West, Warm Springs Canyon and portion of the Calico Mountains HMA contained within the Soldier Meadows Allotment were established by the Soldier Meadows Allotment MUD, January 24, 1994. The AML for the Calico Mountains HMA contained within the Buffalo Hills and Leadville Allotments were established by MUD's for the Buffalo Hills and Leadville Allotments, dated February 9, 1993 and January 19, 1994, respectively.

In 1988 the BLM conducted its first interdisciplinary evaluation of the Soldier Meadows Allotment as prescribed by BLM Nevada State Office policy. In 1994 the allotment reevaluation and MUD were released. Objectives were set for forage production and utilization by livestock, wild horses and wildlife; riparian condition; stream condition; water quality; and wildlife and fisheries habitat suitability. The area including the existing ACEC is within the Hot Springs Pasture of the Soldier Meadows Allotment.

In 1992 The Nature Conservancy purchased 1,818.44 acres of the Soldier Meadows Ranch to protect habitat for the desert dace. This land was obtained by the BLM in January of 1993. In addition, a conservation easement was obtained on another 4,066 acres of private land interspersed within the scope of the project area belonging to Soldier Meadow Ranch. Within the conservation easement was a water management plan that stipulated points of diversion, use of water for stock watering and places of use.

In the fall of 1995 the BLM did a reconstruction project on the road to Fly Canyon to protect public safety and decrease sediment loading to the desert dace habitat.

All lands in the area, including the newly acquired lands are managed in accordance with Winnemucca District MFP. Specific MFP decisions for the Soldier Meadows area can be found in Appendix D.

There are no valid mining claims in the area, nor are there any geothermal leases in effect at this time. There is one free use permit of mineral materials currently in effect at the south end of Mud Meadow Reservoir. The BLM is the permittee. The district Management Framework Plan does not allow surface occupancy for mineral leases within one mile of the Applegate-Lassen Trail nor does it allow mineral leasing within the existing ACEC/RNA.

At this time there are 262.76 acres of desert dace habitat in private ownership west of the ranch compound. There were negotiations with the previous owner of the Soldier Meadow

Ranch for a land exchange in which 483.96 acres of public lands around Mud Meadow Reservoir would be offered in exchange for the desert dace habitat in private ownership. The new owners of the ranch have not expressed an interest in this exchange.

Environmental Consequences

Resources Not Affected or Not Present

Paleontology
Hazardous or Solid Wastes
Wild and Scenic Rivers
Air Quality

Preferred Alternative

Special Status Species

Desert dace

The identified and perceived threats to desert dace populations would be addressed in this alternative.

Water availability and quality for the dace would be secured by the existing water management plan within the conservation easement, withdrawal for all locatable minerals within the 3,545 acre dace habitat area, and the stipulation that there would be no geothermal leasing in the 35,340 acre project area. Water availability and quality for dace populations could be impacted by locatable mineral entry outside of the immediate 3,545 acre dace habitat area.

With the construction of fish barriers, exotic fish species living in Mud Meadow Reservoir would not be able to come in contact with the dace. This would limit the possibility for competition, predation and spread of disease to the dace population by these exotic species.

Exclosures would be constructed in dace habitats and impacts to dace populations from livestock, wild horse and burro grazing could be determined and appropriate management actions taken to protect the dace.

Road impacts to dace populations would be addressed by the present Fly Canyon road reconstruction and closure of roads directly impacting dace habitat areas.

Recreation impacts to dace populations would be addressed by visitor management actions including: development of designated camping, bathing and parking areas away from occupied dace habitats; construction of toilets and trash receptacles; providing species awareness information to visitors; removal of nonnative materials from occupied dace habitats and monitoring visitor use to further mitigate impacts.

Reintroduction of water from the existing irrigation ditch to the original spring outflow channel would improve dace habitat conditions.

Hydrobiid Snails

The same benefits this alternative has for desert dace populations would be seen for the snail populations because both organisms are dependent on the quality and quantity of this aquatic environment.

Basalt Cinquefoil

Under the proposed alternative *Potentilla basaltica* would most likely maintain its current health and habitat or improve in health and expand its habitat. Increased BLM presence and signing may help to inform visitors about basalt cinquefoil and to decrease their impact on the cinquefoil by letting them know what it is and where it occurs so they could view it without impacting it. Designating specific areas for walk in access only, closing roads that directly impact basalt cinquefoil, and eliminating development of new unauthorized roads would prevent vehicular damage to cinquefoil populations. Specifying specific bathing pools and discouraging use at other pools may decrease visitor impacts in areas with high populations of cinquefoil.

Cultural Resources

Increased presence of volunteers (including site host) and law enforcement, traffic and recreation use management and public education efforts would greatly reduce impacts to cultural sites from vandalism and recreation use and would also increase public appreciation of these resources. Cultural resource inventories of the area, mitigation of threatened sites and interdisciplinary research projects would enhance scientific and public understanding of the prehistory, history, and ethnohistory of the area. Providing the public opportunities to participate in cultural resource fieldwork as volunteers would also increase public appreciation of the area's cultural resource values. Grazing would continue, but impacts to cultural sites would be monitored and grazing would be adjusted in areas where adverse impacts are identified. A one-mile corridor along the Applegate-Lassen Trail would continue to be on the National Register of Historic Places. Effects of Federally authorized actions on National Register values of the trail and other National Register eligible sites would continue to be considered as required by Section 106 of the National Historic Preservation Act. This would include impacts on the integrity of setting of the trail. Surface occupancy would continue to be prohibited along a one-mile corridor of the Applegate-Lassen Trail. Expanding the ACEC

would result in greater consideration of cultural resource sites and Native American values in the area since a mining plan would be required for even notice level mining. A minerals withdrawal would protect cultural resource sites and Native American values from mineral entry.

Since signing would be limited and non-intrusive no adverse effects to the integrity of setting of the Applegate-Lassen Trail would occur.

Native American Concerns

Native American Tribes contacted have not identified any traditional cultural properties or sacred sites in the Soldier Meadows Area. However, the Nevada Indian Environmental Coalition (NIEC) and the Summit Lake Paiute Tribe (SLPT) have expressed concern that archeological sites in the area would be impacted by the proposed plan. As noted in the Introduction, archeological sites in the Soldier Meadows area have been heavily impacted in the past by illegal collection activities. Part of the stated purpose of the plan (see Purpose and Need) is to "Implement management actions to protect cultural resources in the area from further degradation". The plan proposes a number of protective measures (see Preferred Alternative and Environmental Consequences--Cultural Resources) for this purpose.

SLPT has verbally requested archeological site records for the Soldier Meadows area. Archeological site information is considered confidential under the Archeological Resource Protection Act (ARPA). However, the BLM has agreed to provide the site records to SLPT, provided a cooperative agreement which insures the confidentiality of site location data is signed. A draft agreement has been sent to SLPT. Summit Lake has also stated that they may be able to obtain funding to provide financial assistance for cultural inventory of the Soldier Meadows area. The BLM would welcome a cooperative effort of this nature.

NIEC and SLPT feel that adverse impacts to natural resources will also occur as a consequence of the proposed action. These groups are concerned that use of the Soldier Meadows and Summit Lake areas will increase as a result of the proposed action. The main purpose of the plan, as stated in the Purpose and Need, is to provide favorable habitat conditions for the desert dace and to protect habitat for basalt cinquefoil. Recreation use of the Soldier Meadows area and associated impacts have increased in recent years as our publics discover the area (see Introduction,). One of the main purposes of the plan is to protect natural and cultural resources from increased recreation use (See Purpose and Need). The plan does not proposed to advertise or otherwise attract visitors to the area, but merely to manage the increasing use of the area. Since SLPT is concerned about increased awareness of the Summit Lake Reservation, the BLM, as requested, will not reference the Summit Lake Reservation in any educational/informational materials without the consent of the Summit Lake Tribe. Native Americans will be invited to provide input on their culture into educational/informational materials.

Concerns were also expressed that brochures would identify cultural resources to would be looters. Site locations would not be revealed in brochures or signs. As stated previously,

illegal surface collecting has already heavily damaged archeological sites in the area. The purpose of these educational materials would be to inform users of the value of the cultural resources present and the illegality of collection and/or excavation. Many members of the public are unaware of the illegality of collecting artifacts and the adverse impacts of their actions. The Archaeological Resources Protection Act (ARPA) requires Federal land managers to increase public awareness concerning the significance and protection of archeological resources. The fact that cultural and natural resources in Soldier Meadows are also valued by Native Americans, makes imparting respectful behavior to Soldier Meadows users additionally important.

NIEC and SLPT were critical that an Environmental Assessment (EA) was prepared rather than an Environmental Impact Statement (EIS). One of the purposes of preparing an EA is to determine whether impacts are sufficiently significant to merit an EIS. If this EA determines that any actions set forth in this plan produce significant impacts an EIS will be prepared.

Concerns were voiced by NIEC and SLPT that the Nevada SHPO was not consulted. The SHPO's comments on the plan were requested in scoping letters and public meetings. A copy of the plan was also submitted to the SHPO's office. A response sent from the Nevada SHPO (Baldrica 1-6-97) was supportive of the plan. The BLM has consulted with SHPO on all past undertakings in the Soldier Meadows area and will do so in the future. Concerns expressed by Native Americans will be taken into account and Native Americans will be consulted prior to implementation of any data recovery projects.

Mineral Resources

A withdrawal of the dace habitat from locatable mineral entry would allow mineral development within the remaining areas of the basin. Since there are no known economic mineral deposits within the dace habitat it is expected that a mineral withdrawal would not affect potential mineral development.

Locatable minerals would be remain open to location and development within the proposed ACEC/RNA (except for desert dace habitat). For proposed mineral exploration or development, a plan of operations and environmental asessment would be required. This includes operations of 5 acres or less, which would normally be conducted under a mining notice. Impacts to dace habitat, cultural and other resources would be mitigated through NEPA.

Allowing no leasing of leasable minerals (especially geothermal resources) within the proposed ACEC/RNA would discourage geothermal exploration and utilization companies from conducting geological investigations in the area and thus additional information about the local geology and geothermal reservoir would probably not be developed. Any economic benefits that could be gained by development of the geothermal resources would not be gained.

Authorizing disposal of mineral materials for use by Humboldt County, BLM and Soldier Meadows Ranch (currently the three main users of mineral materials) for road construction and maintenance and other projects within the basin would allow those entities to obtain raw materials for projects within a short hauling distance.

There is currently no interest by other public land users for mineral materials in this area. However, allowing sales to other publics on a case by case basis at the discretion of the authorized officer would ensure that habitats of special status species and cultural resources would be protected, while ensuring that mineral materials are available to the public.

Wild Horses and Burros

The management of wild horses and burros would continue as outlined in the MUDs for the Buffalo Hills, Leadville, and Soldier Meadows Allotments. Wild horse and burro census and distribution flights indicate that even at population levels in excess of AML, few wild horses and burros are found using the desert dace or basalt cinquefoil habitat but are found using the areas adjacent to the hot springs complex. There have been no studies that specifically address grazing impacts to desert dace or basalt cinquefoil habitat, however there have been no apparent negative impacts to desert dace or basalt cinquefoil populations by wild horses or burros. When the AML for wild horses and burros is achieved within the 3 HMA's contained in the planning area, impacts to desert dace and basalt cinquefoil habitat should not occur.

Implementation of this alternative may lead to an increase in recreational use that could result in the displacement of some wild horses and burros, and increase the potential for harassment of the animals. However, by educating the public through interpretive signs, increased patrols by law enforcement personnel, development and implementation of visitor/recreation management facilities, and the use of volunteers to monitor recreation use and provide information to the public should mitigate potential impacts from increased recreational use and could result in a positive impact to wild horses and burros.

Recreation

Behavior modification to protect threatened habitat would impact existing recreational patterns and possibly cause visitor concern that BLM was infringing on personal freedoms. The public might perceive the BLM as being unfair in an area that has historically enjoyed no controls over camping, indiscriminate off-highway vehicle use, bathing in hot spring pools and artifact collecting. The public would agree with grazing exclosure efforts as these would serve to remove livestock manure from popular recreational sites within the overall area.

Under this alternative recreational behavior would be modified to protect threatened habitats. This would be accomplished through various visitor management means, such as backcountry-use literature and other educational materials, increased BLM presence (staff and volunteers), visitor orientation, signing, limited, non-invasive facilities and proper sanitary conditions related to human use (Appendix B, Visitor Management). It is anticipated that current

impacting behavior would be reduced up to 85% or more, although some unethical or vandalistic behavior would occur due to site isolation. A continual presence through a host site would nearly eliminate unethical behavior. The result of recreation behavior modification would insure public participation in management to protect the threatened habitats.

Wilderness

Wilderness values would be protected in this alternative. None of the physical improvements for the area, addressed in this alternative, would be within portions of either the High Rock Lake WSA or the North Black Rock Range WSA.

Floodplains and Wetlands/Riparian Zones

Management actions proposed in this alterative for the protection of habitats for the desert dace, hydrobiid snails and basalt cinquefoil would also benefit the overall health of riparian communities in the area and improve or maintain the functionality of floodplains.

Water Quality

Water quality would improve with implementation of the management actions in this alternative. Decrease in sediment, elimination of human fecal material and the elimination of pollutants, such as soap and shampoo, entering the spring system would all be benefits of this alternative.

Alternative 1 - No Action

Special Status Species

Desert dace

Some of the identified and perceived threats to desert dace populations would be addressed in this alternative.

Water availability and quality for the dace would be secured by the water management plan within the conservation easement, and the stipulation that there would be no geothermal leasing in the existing 307 acre ACEC. Water availability and quality for dace populations could be impacted by geothermal leasing outside of the existing ACEC and by locatable mineral exploitation within the entire area.

Exotic fish species living in Mud Meadow Reservoir would be able to come in contact with the dace. This would pose a threat for predation and spread of disease to the dace population by these exotic species.

Exclosures would be constructed in dace habitats and impacts to dace populations from livestock, wild horse and burro grazing could be determined and appropriate management actions taken to protect the dace.

Road impacts to dace populations would be addressed by the present Fly Canyon road reconstruction.

Recreation impacts to dace populations would be addressed by monitoring visitor use to further mitigate impacts.

Hydrobiid Snails

The same benefits this alternative has for desert dace populations would be seen for the snail populations. Both organisms are dependent on the quality and quantity of this aquatic environment.

Basalt Cinquefoil

Under the no action alternative there is a possibility that basalt cinquefoil would not maintain its present population and could be impacted to the point that it may be listed in accordance with the ESA.

Cultural Resources

Under the no action alternative, the presence of BLM volunteers in the area would provide moderate reduction in impacts to cultural resources and moderate enhancement of public appreciation of the resources in the area. Although this area is considered a law enforcement priority for the Winnemucca District, due to limited law enforcement staffing and funding, the effects on impacts from vandalism and recreation use would only be moderately decreased. Public education efforts would continue to be undertaken in response to requests from specific user groups and as opportunities for public presentations arise. Informal public education would also occur during visitor contact sessions with volunteers and BLM employees. These efforts would moderately increase public appreciation and respect of resources and moderately decrease impacts to cultural resource sites. Impacts from grazing would continue to degrade cultural sites. Traffic controls and recreation use management would be limited to regulation of recreation special use permits, public contact by BLM employees and volunteers and some signing, all of which would moderately decrease impacts to cultural resource sites. Cultural resource inventories would be undertaken as needed for specific projects. No additional recordation or mitigation of sites or interdisciplinary research efforts would be pursued. A one-mile corridor along the Applegate-Lassen Trail would continue to be on the National Register of Historic Places. Effects of federally authorized actions on National Register values of these sites would continue to be considered as required by Section 106 of the

National Historic Preservation Act. This would include impacts to the integrity of setting of the trail. Surface occupancy would continue to be prohibited along a one-mile corridor of the Applegate-Lassen Trail.

Within the current ACEC, a mining plan would be required for notice level and other mining activity, providing for consideration of cultural resource and Native American values. Outside of the ACEC notice level mining could affect unknown cultural and Native American values. No mineral withdrawal would occur resulting in potential adverse affects to cultural and Native American values including the integrity of setting of the Applegate-Lassen Trail.

Mineral Resources

Management of mineral resources would continue under the existing MFP.

Locatable minerals are open to location and development in the entire basin. For proposed mineral exploration or mineral development within the existing ACEC, a plan of operations is required, even operations which would normally be conducted under a mining notice. Impacts to dace habitat and cultural resources would be mitigated through NEPA.

Geothermal or oil and gas leasing is currently allowed within the existing ACEC with a special stipulation of no surface occupancy. Leasing is allowed with a stipulation of no surface occupancy one mile on either side of the Applegate Lassen trail through the basin. Immediately south of Soldier Meadows the no surface occupancy stipulation is extended to the crest of the Black Rock Range.

Mineral material disposal is allowed on a case by case basis in the entire area.

Wild Horses and Burros

The management of wild horses and burros would continue as outlined in the MUDs for the Buffalo Hills, Leadville, and Soldier Meadows Allotments. Wild horse and burro census and distribution flights indicate that even at population levels in excess of AML, few wild horses and burros are found using the desert dace or basalt cinquefoil habitat but are found using the uplands adjacent to the hot springs complex. There have been no studies that specifically address grazing impacts to desert dace or basalt cinquefoil habitat, however there have been no apparent negative impacts to desert dace or basalt cinquefoil populations by wild horses or burros. When the AML for wild horses and burros is achieved within the 3 HMA's contained within the planning area, impacts to desert dace and basalt cinquefoil habitat should not occur.

Implementation of this alternative could result in the displacement of some wild horses and burros in the uplands adjacent to the hot springs complex by recreational users of the area, as recreation use continues to increase under the current level of recreation and off road vehicle

management. There would be no interpretive signs that would educate the public about wild horses and burros or other resource values in the area.

Recreation

Under this alternative recreational behavior would continue under the historical use pattern, that is, no controls on camping, indiscriminate off-highway vehicle use, bathing in hot spring pools and related vehicle parking, and artifact collecting. The existing situation would continue including lack of toilet facilities and visitor orientation to area resources. The current situation, however, would allow for ongoing environmental education efforts and BLM presence through volunteers who would be making personal contacts, passing out literature and collecting visitor use data.

Under this alternative continued recreational impacts to all desert dace and basalt cinquefoil habitats would occur. This scenario, would be counter-productive to the proposed action and interagency cooperative public education and management effort.

Wilderness

Wilderness values have the greatest potential to be compromised in this alternative. Reasons for this are explained in the discussion of recreation for this alternative.

Floodplains and Wetlands/Riparian Zones

Floodplains and riparian areas could be more heavily impacted with management actions stipulated under this alternative.

Water Quality

Water quality could decrease with the continued introduction of sediment, human fecal material and pollutants, such as soap and shampoo, entering the spring system.

Alternative 2 - Intensive Management

Special Status Species

Desert dace

Identified and perceived threats to desert dace populations would be addressed in this alternative.

Water availability and quality for the dace would be secured by the water management plan within the conservation easement, withdrawal for all locatable minerals within the 35,340 acre

project area, and the stipulation that there would be no geothermal leasing in the 35,340 acre project area.

With the construction of fish barriers, exotic fish species living in Mud Meadow Reservoir would not be able to come in contact with the dace. This would limit the possibility for competition, predation and spread of disease to the dace population by these exotic species.

Exclosures would be constructed in dace habitats and impacts to dace populations from livestock, wild horse and burro grazing could be determined and appropriate management actions taken to protect the dace.

Road impacts to dace populations would be addressed by the present Fly Canyon road reconstruction and closure of roads directly impacting dace habitat areas.

Recreation impacts to dace populations would be addressed by visitor management actions including: development of designated camping, bathing and parking areas away from occupied dace habitats; construction of toilets and trash receptacles; providing species awareness information to visitors; removal of nonnative materials from occupied dace habitats and monitoring visitor use to further mitigate impacts.

Reintroduction of water from the existing irrigation ditch to the original spring outflow channel would improve dace habitat conditions.

Hydrobiid Snails

The same benefits this alternative has for desert dace populations would seen for the snail populations because both organisms are dependent on the quality and quantity of this aquatic environment.

Basalt Cinquefoil

Under the intensive management alternative, all populations of basalt cinquefoil in the Soldier Meadows area would be fenced off to prevent impacts from visitors and grazing animals. This may help the health of the current populations unless this plant species relies on the present disturbances for some portion of it's lifecycle.

Cultural Resources

Effects on cultural resources would be similar to those which would occur under the proposed alternative except that greater protection to cultural resources would be provided by fencing cultural sites impacted by livestock.

Mineral Resources

If the basin were withdrawn from locatable mineral entry, any potential mineral resources would not be developed, and the economic benefits that could be gained by development would not be gained. There are no deposits known to exist at this time so it is expected that a mineral withdrawal would not affect future mineral development. However, once a mineral withdrawal is implemented it would also decrease the chances that the mineral exploration industry would conduct geologic studies in the area and thus would minimize the opportunities for gaining a more thorough understanding of the geologic resources of the basin. This would include minimizing the chances of finding an economic mineral deposit should it exist.

Allowing no leasing of leasable minerals (especially geothermal resources) within the entire basin would ensure the geothermal reservoir would not be impacted or depleted by development. Geothermal exploration and utilization companies would probably not conduct geological investigations in the area and thus additional information about the local geology and geothermal reservoir would not be developed. Any economic benefits that would be gained by development of the geothermal resources would not be gained.

Allowing no mineral material disposal of any kind to anyone would force the BLM, Humboldt County, and the Soldier Meadows Ranch to bring mineral materials in from other areas or develop those sources on the private lands within the basin. The cost of maintaining roads or completing other proposed projects requiring mineral materials would increase if hauling distances of construction materials increase. The general public would be impacted very little as we currently have no evidence of interest in mineral materials in this area.

Wild Horses and Burros

The management of wild horses and burros would continue as outlined in the Multiple Use Decisions for the Buffalo Hills, Leadville, and Soldier Meadows Allotments. Wild horse and burro census and distribution flights indicate that even at population levels in excess of AML, few wild horses and burros are found using the desert dace or basalt cinquefoil habitat but are found using the areas adjacent to the hot springs complex. There have been no studies that specifically address grazing impacts to desert dace or basalt cinquefoil habitat, however there have been no apparent negative impacts to desert dace or basalt cinquefoil populations by wild horses or burros. When the AML for wild horses and burros is achieved within the 3 HMA's contained within the planning area, impacts to desert dace and basalt cinquefoil habitat should not occur.

Implementation of this alternative may lead to an increase in recreational use that could result in the displacement of some wild horses and burros, and increase the potential for harassment of the animals. However, by educating the public through interpretive signs, increased patrols by law enforcement personnel, development and implementation of visitor/recreation management facilities, and the use of volunteers to monitor recreation use and provide information to the public should mitigate potential impacts from increased recreational use and could result in a positive impact to wild horses and burros.

Recreation

Essentially recreation under this alternative would either enjoy or cause impacts similar to those under the proposed action. At district management discretion, however, the entire area could be closed to allow resting and recovery of any and all resources for long-term, short-term or seasonal durations, or, perhaps, permanently, due to unforeseen future situations.

Intensive management might also call for more facilities than in the proposed action or for facilities that are invasive and do not blend with the flat nature and color of the surrounding terrain. Behavior modification may be taken to a point of restricting the site to day-use only and no bathing in hot pools. Ultimately, intensive recreation management may warrant such a site for fee-collection. Such intensive management would severely restrict recreation opportunities as opposed to those found under the No Action or the Proposed Action alternatives.

Wilderness

Wilderness values would be protected in this alternative. None of the physical improvements for the area addressed in this alternative would be within portions of either the High Rock Lake WSA or the North Black Rock Range WSA.

Floodplains and Wetlands/Riparian Zones

Management actions proposed in this alterative for the protection of habitats for the desert dace, hydrobiid snails and basalt cinquefoil would also benefit the overall health of riparian communities in the areas and improve or maintain the functionality of floodplains.

Water Quality

Water quality would improve with implementation of management action in this alternative. Decrease in sediment; elimination of human, livestock, wild horse and burro fecal material and elimination of pollutants such, as soap and shampoo, from entering the spring system would all be benefits of this alternative.

Bibliography

Cordero Mining Company, 1969, unpublished map of the Soldier Meadows Area, Humboldt County, Nevada.

Curry, B.B., 1984, Age of High Rock and Summit Lake Landslides, and overflow history of their associated basins, Humboldt County, Nevada: Master Thesis, Purdue University.

Culture Element Distributions, XIV,1941, Northern Records 4(3):361-446, Berkeley, CA.

Chaing, Sie Ling, Dauterive, L.J., Hose, R.K., Johnson, E.A., Kent, R.C., Reed, M., and Sorey, M.L., June, 1975, "Geologic-Hydrologic study of Soldiers Meadows Hot Springs Area, Nevada," : United States Geological Survey Offices of the Area Geothermal Supervisor and the Pacific Area Geologist, Menlo Park, California.

Deacon, J. E., G. Kobetich, J. D. Williams, and S. Contreras. 1979. Fishes of North America endangered, threatened, or of special concern: 1979. Fisheries. 4(2):29-44.

Deacon, J.E. and W.L. Minckley, 1974. Desert Fishes. Pp. 385-487 in G.W. Brown, Jr.(ed). Desert Biology, Special Topics on the Physical and Biological Aspects of Arid Regions. Volume II. Academic Press: New York.

Fowler, C.S., 1986, Subsistence. In Great Basin, edited by Warren L. d' Azevedo, Handbook of North American Indians, vol. 11, W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C., pp. 64-97.

Garside, L.J., and Schilling, J.H., 1979, Thermal waters of Nevada, Bulletin 91, Nevada Bureau of Mines and Geology.

Hershler, R. 1998. A Systematic Review of the Hydrobiid Snails (Gatropoda: Rissooidea) of the Great Basin, Western United States. Part I Genus *Pyrgulopsis*, The Veliger 41(1):1-132

Hoops, R., 1991, Geothermal Resources Classification Map, Nevada: unpublished Bureau of Land Management Map, 1:500,00 scale

Hose, R.K. and Taylor, B.E., 1974, Geothermal Systems of Northern Nevada, U. S. Geological Survey Open-File Report 74-271.

Hubbs, C. L. and R. R. Miller. 1948. Two new, relict genera of cyprinid fishes from Nevada. Occas. Papers of the Museum of Zoology, No. 507. University of Michigan, Ann Arbor.

Kartesz, J. T. 1987. A flora of Nevada. University of Nevada, Reno.

Knight, Teri 1990. Status Report on *Potentilla basaltica.* Nevada Natural Heritage Program, University of Nevada, Las Vegas.

Korringa, M.K., 1973, Linear vent area of the Soldier Meadow Tuff, an ash-flow sheet in northwestern Nevada: Geol. Soc. Am. Bull., v. 84, p. 3849-3866.

Landye, Jerry. Bio-Geo Southwest, Inc., Flagstaff, Arizona. Personal Communication, March 29, 1982.

Miller, M.S., 1993, Minerals in the Emigrant Trail Study Area (Black Rock/High Rock National Conservation Area Proposal) Humboldt, Pershing, and Washoe Counties, Nevada: USDI, Bureau of Mines, Mineral Land Assessment. Open-File Report

Noble, D.C., McKee, E.H., Smith, J.G., and Korringa, M.K., 1970, Stratigraphy and geochronology of Miocene volcanic rocks in northwestern Nevada: U.S. Geol. Survey Prof. Paper 700-D, P. D-23-D32.

Noble, D.C., Plouff, D., Berquist, J.R., Barton, H.N., Olson, J.E.,1987, Mineral Resources of the Pahute Peak Wilderness Study Area, Humboldt County, Nevada: U.S. Geol. Survey Bulletin 1726-C.

Nyquist, D. 1963. The ecology of *Eremichthys acros*, an endemic thermal species of cyprinid fish from northwestern Nevada. M.S. Thesis. University of Nevada, Reno. 247 pp.

Park, S.L., 1983, Geology of the Badger Mountain area, northwestern Nevada, Masters Thesis, University of Nevada Reno.

Park,W.Z.,1989, Ethnographic Notes on the Northern Paiute Of Western Nevada, 1933-1940, University of Utah Press, Salt Lake City.

Rowan, L.C., and Wetlaufer, P.H., 1981, Relation between regional lineament systems and structural zones in Nevada:American Association Petroleum Geologists Bull., V. 65 no. 8

Schaefer, D.H., Welch, A.H., and Maurer, D.K., 1983, Geothermal Resources of the western arm of the Black Rock Desert,

Stewart, O.C.,1939, The Northern Paiute Bands. University of California Anthropological Records, 2(3):127-149, Berkeley.

Thelin, G.P., and Pike, R.J., 1991, Landforms of the Conterminous United States - A digital shaded relief portrayal: U.S. Geol. Survey, Misc. Inves. Series Map I-2206.

Tiehm, A. and B. Ertter. 1984. *Potentilla basaltica* (Rosaceae), a new species from Nevada. Brittonia 36(3): 228-31.

USFWS, 1992, In the Shadow of Fox Peak, an Ethnography of the Cattail-eater Northern Paiute People of Stillwater Marsh. Stillwater National Wildlife Refuge, Cultural Resource Series 5, Portland.

USFWS, 1997, Recovery Plan for the Rare Species of Soldier Meadows, Portland, OR. 50pp.

USGS, 1994, "Mineral deposits and tracts for undiscovered metallic resources in the BLM Winnemucca District, draft.

Vinyard, G.L. 1988. Population status survey of soldier Meadow desert dace (*Eremicthys acros*). Unpubl. rep., Dept. of Biol., Univ. Nevada, Reno, NV.

Welch A.H., and Preissler A.M., 1990, Geothermal Resources of the Western Arm of the Black Rock Desert, Northwestern Nevada, Part II Aqueous Geochemistry and Hydrology: USGS Water-Resources Investigations Report 87-4062.

White, D.E., and Williams, D.L., editors, 1975, Assessment of geothermal resources of the United States--1975: U.S. Geological Survey Circular 726, 57p.

APPENDIX A - *PROPOSED ACEC ADDITIONS AND MINERAL WITHDRAWALS*

Existing Soldier Meadows Desert Dace ACEC:

T. 40 N., R. 24 E., Sec. 23	
Lot 2	44.38 acres
Lot 3	43.86 acres
Lot 5	43.61 acres
Lot 6	44.39 acres
Lot 8	43.37 acres
Lot 9	43.66 acres
Lot 12	43.95 acres
	307.22 acres

Proposed ACEC (Preferred Alternative and Alternative 2)
Mineral Withdrawal (Alternative 2)

T. 39 N., R. 24 E.,	
Sec. 1 S½NW¼,E½,SW¼	558.59 acres
Sec. 2	644.27 acres
Sec. 3	644.35 acres
Sec. 4	642.78 acres
Sec. 5	641.98 acres
T. 39 N., R. 25 E.,	890 acres*
Sec. 5 SW¼NW¼,NW¼SW¼,S½SW¼,S½NE¼,SE¼	400 acres
Sec. 6	624.24 acres
T. 40 N., R. 24 E.,	
Sec. 1	675 acres*
Sec. 2	900 acres*
Sec. 3	779 acres*
Sec. 4	778 acres*
Sec. 5	778 acres*
Sec. 8	640 acres*
Sec. 9	640 acres*
Sec. 10	640 acres*

Sec. 11	730 acres*
Sec. 12 W½,N½NE¼,SW¼NE¼,W½SE¼	560.38 acres
Sec. 13 W½,NW¼NE¼	398.04 acres
Sec. 14	650 acres*
Sec. 15	640 acres*
Sec. 16	640 acres*
Sec. 17	640 acres*
Sec. 20	640 acres*
Sec. 21	640 acres*
Sec. 22	678 acres
Sec. 23	684.79 acres
Sec. 24	662.75 acres
Sec. 25	640.00 acres
Sec. 26	647.85 acres
Sec. 27	663.08 acres
Sec. 28	640 acres*
Sec. 29	640 acres*
Sec. 32	604.85 acres
Sec. 33	606.33 acres
Sec. 34	635.08 acres
Sec. 35	646.72 acres
Sec. 36 NE¼NE¼,SE¼SE¼	83.93 acres

T. 40 N., R. 25 E.,

Sec. 4 E½,SW¼,E½NW¼	803.92 acres**
Sec. 5 N½NW¼,SW¼NW¼,NW¼NW¼,SE¼SE¼	229.51 acres
Sec. 6	619.26 acres
Sec. 7 N½,SW¼,NW¼SE¼	539.02 acres
Sec. 8 NW¼,N½NE¼,SE¼NE¼,N½SW¼, SW¼SW¼,N½SE¼	180.09 acres
Sec. 9	840 acres*
Sec. 16	856 acres*
Sec. 17 E½,SW¼,E½NW¼	611.41 acres
Sec. 19 W½SW¼	68.86 acres
Sec. 20 E½,NW¼,E½SW¼	598.72 acres
Sec. 21	884 acres*
Sec. 28	908 acres*
Sec. 29 NE¼,E½SE¼,NE¼NW¼,SW¼SW¼	329.8 acres
Sec. 30 SW¼NW¼,W½SW¼	103.95 acres
Sec. 31 NW¼,S½SE¼	229.50 acres
Sec. 32 W½NW¼,W½E½NW¼	120.00 acres
Sec. 33	930 acres*

Total	35,340.07 acres

*Unsurveyed
** Partially surveyed

Proposed Mineral Withdrawal (Preferred Alternative)

T. 40 N., R. 24 E.,	
Sec. 1 W½SE¼,SE¼SW¼	120.00 acres*
Sec. 12 NW¼NE¼,E½W½,W½SE¼	301.91 acres
Sec. 13 NW¼NE¼,E½NW¼,SW¼	309.45 acres
Sec. 14 E½SE¼	80.00 acres*
Sec. 23	684.79 acres
Sec. 24	662.75 acres
Sec. 25	640.00 acres
Sec. 26 N½	327.85 acres
Sec. 36 NE¼NE¼	40.00 acres
T. 40 N., R. 25 E.,	
Sec. 19 W½SW¼	68.86 acres
Sec. 29 SW¼SW¼	40.00 acres
Sec. 31 NW¼	149.58 acres
Sec. 32 W½NW¼,W½E½NW¼	120.00 acres
	3545.19 acres total

APPENDIX B - *VISITOR MANAGEMENT*

In response to increased visitation, a public desire for continuance of camping, and a BLM effort to reduce riparian impact by concentrating or channelizing the camping opportunity to an area already influenced through this type of activity, it is essential that certain visitor management techniques be implemented to decrease destructive impacts to sensitive water, plant and animal resources as described in this plan. The best way to accomplish this is to make the visitor a "management partner" through non-invasive back country use instructions and environmental education literature.

Interpretive materials and facilities as described below would improve the area function and visitation quality for both disabled and non-disabled persons. Local and regional natural and cultural resource interpretation would give visitors an appreciation of their Basin and Range surroundings and would continually remind them they are only visitors in passing and, while enjoying the area, may also join agency and volunteer group efforts in preservation of landscape and ecology.

A limited number of low profile, low silouhette facilities would be installed to partition vehicles from direct impact on riparian areas. Natural materials would be the first choice for any constructed facility and of if this wasn't feasible facilities would be painted to blend with and preserve surrounding landscape integrity or constructed of natural materials. Facility development would comply with applicable construction criteria: 1) provide for the health and safety of the public, users and employees; and 2) prevention and mitigation of resource damage.

The recreation planning effort at Soldier Meadows would concentrate on promoting public land use conservation ethics which in turn would protect and enhance public land values and reduce BLM administrative and maintenance costs. In addition to these tools, certain regulations to control visitor behavior are either currently in effect, or would be established.

1. RULES OF CONDUCT

1. Certain regulations pertaining to rules of conduct and use conditions <u>are currently in effect</u> for the Soldier Meadows area under 43 CFR Part 8340 - Off-Road Vehicles and 8360 - Visitor Services, Subpart 8365. These regulations would be posted at the visitor Area Orientation site and at other entry areas to ensure compliance, both voluntary and involuntary (citation).

2. Further, upon signing of this plan by the authorized officer, special recreation rules of conduct would provide for additional compliance regarding off-road vehicle use (43 CFR 8340, Subpart 8342), site occupancy, vehicle parking, water quality and firearms safety. These would likewise be posted as noted in the above paragraph.

1. Off-road vehicle use: Designated *Limited* to existing roads within the Soldier Meadows boundaries.

2. Camping: Permitted for no more than five consecutive days and nights.

3. Vehicle Parking: No vehicle parked within 200 feet (70 adult paces) of any water source.

4. Water Quality: No camping permitted within 200 feet (70 adult paces) of any water source.

5. Firearm/Visitor Safety: Firearms would not be discharged in the direction of Soldier Meadows from any point within one-half mile of the designated Soldier Meadows boundaries.

2. AREA ORIENTATION

Signing would welcome visitors to the ACEC from north and south approaches and direct visitors to a central orientation site. OHV limitations would be posted on these signs. At the central orientation site, located at the current visitor survey station, three facilities with a substantial common concrete pad (anchor) would be installed:

1. Orientation Panel - Framed, low-profile, 45° silkscreen imbedment panel describing the nature of unique and sensitive natural and cultural resources in the ACEC. Verbiage would be written with integrated Leave No Trace, Minimum Impact Camping and Tread Lightly (4WD) program messages. Public would be invited to participate in management by practicing principles of each program. Panel would be weather and UV-resistant such as many now in place at recreational sites, parks and monuments throughout Department of Interior.

2. Brochure Box - constructed of steel and partitioned to hold three or four different brochures. Design would be rectangular with latched lid for loading and bottom horizontal slot for dispensing. Lettering would indicate no money kept in box. Brochures would be: *Enjoying Emigrant Trail Country Safely!* (BLM), *Leave No Trace Trifold* (NOLS), *The Land, Environment and Recreation Vehicle!* (California Association of 4WD Clubs). A fourth slot could be used for an additional Special Status Species brochure or one of the existing Winnemucca District fauna lists.

3. Visitor Sign-in/Survey Box. Already in place but would be reset in common concrete pad. Two additional facilities could possibly be included at this site or added at a future date.

4. Shelter. Although the Orientation Panel would be weather resistant, a small open-sided overhead shade shelter would prolong its life.

5. *Toilet.* Vandal-resistant concrete vault toilet with concrete tinted to blend with surrounding environment. This fully-accessible single riser unisex toilet would function to reduce or eliminate human waste, wind-blown toilet paper and unsanitary homemade commodes currently evident in the area.

3. SIGNING

Regulatory and directional signs could be either mounted on flexible brown Carsonite posts or could be tan or light grey painted metal or wood mounted lower to the ground, yet clearly visible from a vehicle. Signs would be limited to the number necessary to basically guide visitors. Mandatory signs such as "No Discharging of Firearms" could be posted at initial entry locations to high use areas such as around the bathing pools, Soldier Meadows ranch and the old line cabin.

Non-invasive "friendly" messages like "Remember to Tread Lightly," "Remember to Leave No Trace," "Let's all work to keep this area beautiful," etc, could be placed in a few locations on low-mounted posts throughout the area.

4. BATHING POOLS SITE

Only four bathing pools are established and apparently the dams are historical and that is what we should continue to assume in site protection. A new "close-in" track is beginning to appear at the lower riparian area below the Hot Pots. This two-track would be naturalized or de-emphasized by camouflage and natural materials barriers. Any new hot pots would be dismantled by staff and volunteers when spotted. To retain the flat setting at the bathing pools site area, all necessary facilities would be built low to the ground; nothing would be higher than three feet.

1. Vehicle Partitioning

To further avoid "loving this site to death," it is necessary to partition vehicles away from the riparian and four traditional Hot Pots with the use of either bollards, dragons' teeth or steel railing in combination with vegetation to break up blend the hard lines of such materials. All vehicles would be restricted to the east side of the Access Road where several defined pullouts and head-in parking sites would be developed. A circular "bald" area near the south end of the site would be defined to provided a more or less group site and allow unimpeded vehicular access between this location and the riparian.

1. Bollards are short, upright (two feet) Schedule 80 steel posts filled with concrete placed along the access road west side and around the far west riparian side every four feet. Once painted in subdued color pattern, the design is actually rather pleasant and a very effective barrier against any vehicle, except motorcycles.

2. Dragons' teeth are no more than natural rocks large enough to block high-clearance vehicles and situated to surround the riparian and deny vehicular access close to or on the riparian or west of the access road. Because a car is seven feet wide for planning purposes, anchor rocks (rock anchors imbedded in rock and buried concrete bases) would be installed every five feet. Loose rocks and natural plantings would be filled between these. Pathways would lead to the Hot Pots. This method would effectively block all vehicles.

3. Horizontal Schedule 80 steel railing (4-inch diameter) two feet above the ground would be placed around the Hot Pot area to preclude all vehicles. 24-inch gaps would allow pedestrian access from vehicles to the Hot Pots. Subdued painting and vegetation would soften this partition.

2. Camp Areas

East of the Access Road and in parallel is a low ridge. In addition to defined pullouts and head-in vehicle sites, the notion of parking and camping east of and away from the riparian area would be further defined. Immediately east of vehicle parking sites, it would be made clear to the public where camping is supposed to be. Signs low to the ground could indicate direction to camping using the universal "tent" symbol. Steel ground fire rings, with anchored hinges to allow ash removal, could be placed east of each camping site. All sites would be accessible to disabled persons.

3. Sanitation

Blowing toilet paper and human feces have been observed generally around the area. To preclude further pollution, toilets are required. On the far side and at each end of the low ridge, yet further east of the park and camp sites, toilets would be located. These would consist of 700 to 1,200-gallon cross-linked polyethylene vaults, about 8 feet long x six feet wide x six feet deep (buried). To keep the low profile character no housing would be built. Above each vault would be a toilet riser and a combination of concrete privacy screen and vegetation. Each toilet site could also be constructed in defilade to place the user lower in the immediate topography. Thus, the screen and vegetation would retain a normal height appearance. The toilets would be periodically pumped and refreshed.

4. Litter

The entire area would be thoroughly cleaned of all litter and periodically maintained through volunteer group efforts. The Orientation Site would contain reminders to "Pack It In/Pack It Out." Standard non-invasive BLM signs could be posted near parking areas on low-profile posts with the same message.

5. CABIN SITE

The site area has a cold-water spring that is being impacted from drive-up use due to its proximity to the cabin. An attractive split rail fence, or a concrete look alike, would partition vehicles at the cabin from the spring. North of the cabin is an area of toilet paper, homemade commodes and feces on the ground. A toilet similar to those described for the Hot Pot Site would be placed here. The cabin interior would be improved and messages bragging of artifact looting eradicated. Pending requisite cultural mitigation, this area would be totally cleaned of contemporary litter through volunteer group efforts.

6. VISITOR BEHAVIOR

1. Vandalism

To combat probable occasional vandalism BLM presence would increase through law enforcement and volunteer contact team efforts. Preventive environmental education would occur through on-site interpretive means, word-of-mouth and media sources. Damaged facilities would be repaired fast, without delay.

2. Law Enforcement

Involuntary compliance to posted regulations would be insured through citation of misbehaving visitors.

3. Volunteer Contact

Several organizations exist that are willing to assist BLM in contact functions with the public. These groups and individuals would be officially signed up on BLM Volunteer Agreements, the legal instrument that authorizes volunteers under BLM. Once signed as volunteers, groups and individuals would receive official volunteer training to orient volunteers to the BLM and give project direction and guidance. As unpaid BLM employees and hence, representatives, volunteers would understand the scope of each project, responsibilities, importance of project work and hour tracking, expectancies and benefits of volunteerism.

Off road public lands users would be contacted by volunteer 4WD groups with the Tread Lightly message. Contacts would continue through networking within respective newsletters and other media. The same would hold true as recreational history buffs meet volunteer trails groups. Volunteer hiker groups would contact and pass the Leave No Trace message on to camp groups.

1. Site Host

A Site Host Program would be established, much like campground hosts. BLM would network throughout its existing volunteer program and with public recreation agencies in the U.S. for such hosts. Site Host participants would be required to use their own self-contained RV's and would engage in site care and visitor contact/management, and collecting visitor use data. A mandatory option for limitation to a cab-over camper on pickup or tent host site would be alternatives more in keeping with limited, blended facilities development.

Funding-dependent, hosts would receive a modest daily stipend ($7 to $14 per person) and would receive the same training and supervision as volunteers so hosts would be oriented to the resource and prepared to be very active in visitor contact.

A dedicated Host Site would be defined near the most heavily used access to the Soldier Meadows area from the Black Rock approach and signed as a Host Site, with hours of availability. A defined site would have a low-relief wood or stuccoed cinder block wall and two roll-away gates so that an RV up to 45 feet can be contained inside. Perhaps a shade shelter, picnic table and single-post grill could be added as amenities.

2. Visitor Contact Station

During high-use periods the BLM and/or volunteers could staff a trailer to serve as a Visitor Contact Station. Like hosts, jobs would be public contact and environmental education, site maintenance and visitor use data collection.

3. Employee Contact

While BLM employees in the field have work to accomplish, they remain a very important public contact source, providing resource information and environmental education. Some forms of visitor use data can be collected. Employees usually have maps along and preparing public contact kits (brochures, fact sheets, photocopied maps) should be encouraged.

4. Environmental Education

The following two sections on *Leave No Trace* and *Tread Lightly* would be part of the Winnemucca District Recreation Program long-range monitoring and environmental education strategy for both Soldier Meadows and the encompassing Black Rock Desert Region. These messages would be integrated into on-site interpretive and informational messages to accomplish the environmental education objective.

1. Leave No Trace/Minimum Impact Camping

A Bureau of Land Management objective is to preserve and protect natural and cultural heritage resources for the benefit of current and future generations. BLM participates in ***Leave No Trace***, ~~is~~ a national partnership between the National Outdoor Leadership School and public lands agencies to maintain much of the public lands backcountry in a natural state. Visitors and managers must cooperate to achieve this objective. It is imperative to preserve the Soldier Meadows setting.

Leave No Trace, through various media and personal contact and training asks all users to pack out what is packed in, leave places cleaner than when occupied, and leave natural and cultural resources intact. This is how citizens join together with public land agencies in maintaining and protecting beautiful, fragile public lands - both arid and forested.

LEAVE NO TRACE PRINCIPLES FOR BACKCOUNTRY USE

1. Plan Ahead and Prepare

* Know the regulations and special concerns for the area you'll visit.
* Visit the backcountry in small groups.
* Avoid popular areas during high-use periods.
* Choose equipment and clothing in subdued colors.
* Repackage food into reusable containers.

2. Camp and Travel on Durable Surfaces

On the Trail

* Stay on designated trails. Walk in single file down the middle of the path.
* Do not shortcut switchbacks.
* When traveling cross-country, choose the most durable surfaces available: rock, gravel, dry grasses or snow.
* Use a map and compass or GAPS unit to eliminate the need for rock cairns, tree scars or flagging tape.
* Step to the trail downhill side and talk softly when encountering pack stock.

At Camp

* Choose an established, legal site that will not be damaged by your stay.
* Restrict activities to the area where vegetation is compacted or absent.
* Keep pollutants out of water sources by camping at least 200 feet (70 adult steps) from, springs, streams, ponds and lakes.

3. Pack it in Pack it out

* Pack out with you everything that you bring into the backcountry.

* Protect wildlife and your food through secured storage.
* Pick up all spilled foods.

4. **Properly Dispose What You Can't Pack out.**

* Deposit human waste in catholes dug 6 to 8 inches deep and at least 200 feet from water, camp or trails. Thoroughly cover and naturalize the cathole site when finished.
* Use toilet paper or wipes sparingly. Pack them out (ziplock plastic bags work well).
* To wash yourself or dishes, carry water 200 feet away from all water sources and use small amounts of biodegradable soap.
* Inspect your campsite for all trash and evidence of your stay. Pack out all trash: *yours and others'*. Naturalize your campsite before leaving.

5. ***Leave What You Find***

* Treat our cultural and natural heritage with respect. Leave plants, rocks and historical artifacts as you find them.
* Good campsites are found, not made. Altering a site should not be necessary. Modern backpack tents do not require trenches around them.
* Let nature's sound prevail. Keep loud voices and noises to a minimum.
* Control pets at all times. Bury dog feces in a cathole.
* Do not build structures or furniture or dig trenches. Position older-style canvas tents to avoid digging trenches.

6. ***Reduce Fire Use and Impacts***

* Campfires can cause lasting impacts to the backcountry, especially when rock fire rings are not removed. Also be aware that the cost of escaped fires that turn into wildland fires can be charged to the responsible campers.
* *Always* carry a lightweight stove for cooking. Enjoy a candle lantern instead of a fire.
* Where fires are permitted use established fire rings, fire pans, or mound fires (sand or earth on canvas sheet). Do not scar large rock or overhangs. Overhangs and Shelter ceilings may have faded pictographs that will be destroyed by soot or heat spoiling.
* Gather sticks no larger than an adult's wrist.
* Preserve habitat by not snapping branches off live, dead or downed trees.
* Put out campfires completely.
* Remove and pack out all unburned trash from fire ring and scatter the cool ashes over a large area well away from camp.
* If you built a new fire ring, take it apart and naturalize the hearth area and camp so as not to attract others and create an intensive-use spot.

2. Tread Lightly!

Tread Lightly! is a national partnership between four-wheel drive organizations and agencies in an effort to assist four-wheel-drive users in caring for resources that could easily be damaged by vehicle misuse.

4-WHEEL DRIVE USE IN THE BLACK ROCK REGION

Nationwide, the popularity of recreation vehicles (RVs) has increased to staggering proportions in the past decade. Motorcycles, dune buggies, ATV's, jeep-type vehicles, pickups, campers and passenger cars can all fit the RV classification. Instead of "off-road vehicles (ORV)," they are now known as "off highway vehicles (OHV)." Indiscriminate RV use has resulted in restrictions and closures in other areas. One inconsiderate RV operator can cause thousands of acres to be closed to the enjoyment of all visitors.

The Black Rock Desert region and its great Playa may look like a place for all-out cross-country travel. The reality is that many parts of the area and playa are sensitive and are now showing signs of degradation that could become permanent - unless all visitors do their part. Visitors can also be managers and help the public land agencies take care of this area.

Noise, dust and visual impacts are often cited as the most objectionable characteristics of RV use. These impacts may or may not have a detrimental effect on wildlife, plant life, water and air quality, and other resources. Until such time as scientific studies are conducted to evaluate these impacts, visitors are urged to participate as a visitor-manager to reduce or eliminate these impacts.

TREAD LIGHTLY! PLEDGE

Travel only where motorized vehicles are permitted.

Respect the rights of others to enjoy their activities undisturbed.

Educate yourself by obtaining maps and regulations, comply with signs and barriers, and ask owner's permission to cross or use private property, such as Double Hot Springs, which is private surrounded by public land.

Avoid streams, meadows, muddy roads and trails, springs and riparian habitat, wildlife, livestock and steep hillsides.

Drive and travel responsibly to protect the environment and preserve opportunities to enjoy motorized vehicle use on public lands.

Caution Notes about the Black Rock Desert

1. Beware of driving on the playa when the surface appears to be dry, when in fact it may be wet and impassable beneath the crust. The mud is so sticky that vehicles have had to be abandoned and dug out later in the dry season. Times to watch out are during the winter and spring when precipitation and runoff into the playa is greatest. But some areas stay wet into summer, too.

2. While tempting, avoid high speed on loose gravel roads and the Black Rock Playa. It is very easy to lose or over-control your vehicle. Lack of visibility in dusty conditions can easily cause collisions.

3. Many side roads and trails are not maintained and are seldom traveled. Use the buddy system and avoid traveling solo in areas where help may not be available.

4. Fuel and supplies are only available at Gerlach, Cedarville, Lovelock and Winnemucca. Although each has some medical facilities, the nearest full-scale medical facilities are in Reno.

5. Unattended buildings at Stevens Camp, High Rock Lake, Conlin Cabin and other locations can serve as havens if you become stranded in bad weather. Take care of these buildings so that others might make it out of a bad situation, as you would too.

Back-Country Road Tips in the Black Rock Region

This is high, cold desert country - even in summer. Evaporation rates are high and the wind is extremely chaffing. Lower deserts with thicker atmospheric layers have some protection from ultra-violet rays. The thinner air in this desert encourages more intensive ultra-violet radiation.

★Blistex, Etc, and a Higher-Rated Sunscreen Are Very Necessary for **Everyone**.

★Check Your Vehicle to Make Sure it Is Ready for the Rough Conditions out There.

★Notify a Friend or Neighbor Where You Are Going and When You Expect to Return.

★Maintain a Clean, Safe Camp. Locate Your Camp at Least 200 Feet (70 Adult Steps) from Water Sources.

★Do Not Bathe, or Wash Dishes or Clothing in Streams. Some of the Hot Springs Have Endangered Fish and Soap May Kill Them.

★Spare Food, Clothing, First Aid Kit, Water, Gasoline and equipment to get you out if you get stuck, Are **Essential** Items.

★Avoid Damage to Trees and Vegetation.

★A Map of the Area You Visit and a Compass Could Save Your Life

★Keep Children and Pets under Observation at All Times.

★Please Remove All Rock Fire Rings, Bury or Scatter the Ashes, Pack out All Litter and Naturalize Your Campsite Before Leaving.

★Firearms Use Requires the Utmost Safety and Noise Consideration for Others Camped Nearby. Firearms Should Only Be Discharged in Carefully Selected Target Areas. Shooting While out on the Playa Can Have Grave Consequences - Remember, it Is Flat for Miles and Even a .22-Caliber Bullet Can Travel Well over a Mile.

★Not All the Land Is Public - Quite a Bit in the Black Rock Region Is Private. Respect the Private Landowners' Properties and Signs. Private Landowners Are Not in the Business of Automotive/Tourist Services, Towing, Fuel and Repairs.

5. Media

Local and regional print and broadcast media can be important allies in educating the public toward proper backcountry use ethics. They can also be approached to emphasize heavy-use common recreation destinations over those that are extremely sensitive to recreational activities. Thus, the Soldier Meadows Activity Plan would direct recreation managers to coordinate with media regularly before, during and after heavy-use season. Methods of coordination include articles, columns, and recreation guides; public service announcements; phone interviews and local talk-show appearances

1. Articles would include environmental education, safety, volunteer projects or de-emphasis of Soldier Meadows. Certain local or regional papers may allow BLM recreation or wildlife specialists to have monthly or quarterly columns. Several regional papers provide comprehensive recreation guides in spring or early summer - it would be important for BLM to provide current, accurate information to such guides, including information on sensitive areas and species.

2. Recreation specialists would write and submit public service announcements (PSAs) to radio and television. the cost of thirty-second PSAs is not charged

by media to BLM - it is a public service required by law. PSAs should be submitted to the most popular county-western, rock and roll, popular, Spanish and easy-listening stations.

3. Recreation, Range and Wildlife specialists would periodically conduct phone interviews or appear on local talk shows to discuss the various topics, themes and objectives of this plan.

7. VISITOR USE DATA

Staff, volunteers and other entities, such as Nevada Division of Wildlife, would collect visitor use data continually over a five-year period to determine recreational trends and use. The Limits Of Acceptable Change long-range monitoring plan being established throughout the Black Rock Desert would encompass the Soldier Meadows site area.

APPENDIX C - ABBREVIATIONS USED

ACEC- Area of Critical Environmental Concern

AML-Appropriate Management Level

ARPA- Archeological Research and Protection Act

BLM-Bureau of Land Management

ESA- Endangered Species Act of 1973

FLPMA-Federal Land Policy & Management Act

FWS-U.S. Fish and Wildlife Service

HMA- Herd Management Areas

KGRA- Known Geothermal Resource Area

MFP- Winnemucca District Management Framework Plan

MUD-Multiple Use Decision

NAGPRA- Native American Graves Protection and Repatriation Act

NDOW- Nevada Division of Wildlife

NEPA- National Environmental Policy Act

NHPA- National Historic Preservation Act

RA-Resource Area

RNA-Research Natural Area

SMAP- Soldier Meadow Activity Plan

APPENDIX D - MFP DECISIONS APPLICABLE TO THE SOLDIER MEADOWS AREA

Sonoma Gerlach Management Framework Plan III decisions applicable to the Soldier Meadow Activity Plan are listed below:

Cultural Resources:

CR 1.10: Post positive protective signs at: Cr-NV-02-02 Silent Snake Springs, Cr-NV-02-236 Hardin City, and any other sites as they are identified.

CR 1.15: Insure that a cultural resources survey is completed prior to any activity which will result in new surface disturbance or transfer of land from public ownership. Exceptions are those not required by policy or regulation, eg. 3809 mining notices.

CR 1.19: Encourage mining and other interests to work with the Bureau to mitigate possible adverse environmental impacts to cultural resources.

Wildlife:

WL 1.1: Manage range conditions to allow existing big game populations to reach reasonable numbers where possible. Monitor condition and trend of key wildlife areas to insure habitat is available. Specific management objectives will be designed for these critical species and these objectives will be used in the activity plans developed on an area.

WL 1.5a: Designate 307.22 acre parcel as desert dace ACEC.

WL 1.7: In allotments designed for grazing system development the forage needs of wildlife will be estimated within the pastures where the wildlife use occurs and will be taken into consideration in the AMP development.

WL 1.10: Management objectives of activity plans (AMPs, HMAs, HMPs, etc.) will include specific objectives pertaining to improving and maintaining desired riparian areas and meadow habitats. In the development of activity plans, meadows and riparian areas will be considered as "critical" areas.

WL 1.13: Provide water for wildlife at existing water sources.

WL 1.16: Retain in public ownership all public lands containing valuable wildlife habitat, unless it is determined that such lands, because of location or other characteristics are difficult and uneconomical to manage as part of the public lands or

there is a higher and better use.

WL 1.26: Through a coordinated planning approach in the development of activity plans (AMPs, HMPs, HMAs, etc.) ensure that waterfowl habitats are adequately addressed and where appropriate provide for improved waterfowl habitat conditions.

WL 1.27: Maintain and improve habitat for sensitive, protected, threatened, and endangered species. Those presently listed are identified below:

Endangered:
American peregrine falcon
Threatened:
desert dace
Category 1:
basalt cinquefoil
Category 2:
Tiehm's milk-vetch
Schoolcraft's cat's-eye
Crosby's buckwheat
grimy ivesia
smooth stickleaf
snowy plover
Sensitive:
spotted bat, California bighorn sheep, numerous plants
Protected:
All raptors

WLA 1.3: Through a coordinated planning approach develop a Habitat Management Plan (HMP) for each stream in the resource area.

WLA 1.8: Encourage mining and other interests to work with the Bureau to mitigate possible adverse environmental impacts.

WLA 1.9: Investigate Nevada water rights records for each stream capable of supporting a sport fishery. Apply to the State of Nevada for the right to all unappropriated stream waters in the resource area. Apply for the rights to appropriated stream waters which are eligible for reappropriation through nonuse of existing rights. Protect the appropriation of any water from public streams containing sport fish.

WLA 1.11: Fire lines will not be constructed by heavy equipment on riparian stream zones and fire retardant will not be applied to water.

WLA 1.12: BLM roads on resource area streams be waterbarred or relocated to prevent erosion.

WLA 1.13: Apply no herbicides or pesticides directly over the Sonoma-Gerlach Resource Area's streams, lakes, or reservoirs.

Recreation:

R 1.4: Acquire or provide sufficient water to support the uses of the public lands for wild horses, wildlife, aquatic habitat, livestock, and recreation.

R 1.7: Evaluate line shacks, miner's cabins and other isolated historical structures to determine which should be left intact and which should be destroyed.

R 1.11: The Sonoma-Gerlach Resource Area is open to OHV use with the following exceptions:

George Lund Petrified Forest
160 ac. - T. 38 N., R. 23 E. Sec. 21, SE1/4

Allow no organized or competitive off road vehicular use that would permanently detract from the natural character of area as determined by the authorized officer.Competitive events that are temporary in nature and in which permanent disruption of the natural character of the playa of the Black Rock Desert can be mitigated will be allowed.

Limit off-road vehicle use during the lambing seasons (February 1 to May 31) in bighorn sheep use areas as reintroduction are made. Existing roads and trails in a hazardous condition may be closed temporarily or permanently on a case-by-case basis. Permanent closures will be coordinated with county government.

R 2.1: Retain public lands in identified recreation areas of Class A and B quality with the exception of those lands immediately adjacent to Rye Patch Reservoir. Class A and B quality areas are the better recreation sites in the resource area.

Visual Resources:

V 3.1: Allow no action to degrade visual resources as classified in visual resource inventory.

Minerals:

M 5.5: For oil and gas, and geothermal leases, no surface occupancy will be allowed on visible remnants of the Applegate-Lassen trail from Rye Patch reservoir north to the Western Pacific railroad tracks. The width of the corridor will be 1 mile to either side of the Applegate-Lassen trail from the Sonoma-Gerlach Resource AREa boundary at the Western Pacific railroad tracks north to Black Rock Point. From Black Rock Point to the district boundary the corridor will to the east follow the crest of the Black Rock Range, and to the west extend for 1 mile from the trail. The desert dace ACEC is also protected from surface occupancy.

Range:

RM 1.1: Grazing will be managed in the Sonoma-Gerlach R.A. with multiple uses fully considered. This decision establishes the base herbivore grazing level by grazing allotment. Initially stocking levels will remain at current levels except where agreements are reached with the livestock operator.

Active Preference
Soldier Meadows - 16,070 reduced to 12,053 in 1988

RM 1.3: Establish periods-of-use for each allotment and base management on the physiological requirements of key species in accordance with the attached list. Make season-of-use data available to CRMP groups so that they can use this information in the development of plans using the CRMP process.

Soldier Meadows 6-1 to 2-28

Wild Horses and Burros:

WH/B 1.1: Establish WH/B Appropriate Management Level (AML) by herd use area using the July 1, 1982 numbers as a starting point for monitoring purposes except where there is adequate and supportable resource data, or the numbers are established by court order. (IBLA decision 88-591 June 7, 1989 found that numbers must be established by resource monitoring data, not the number of horses inhabiting an area as of July 1, 1982).

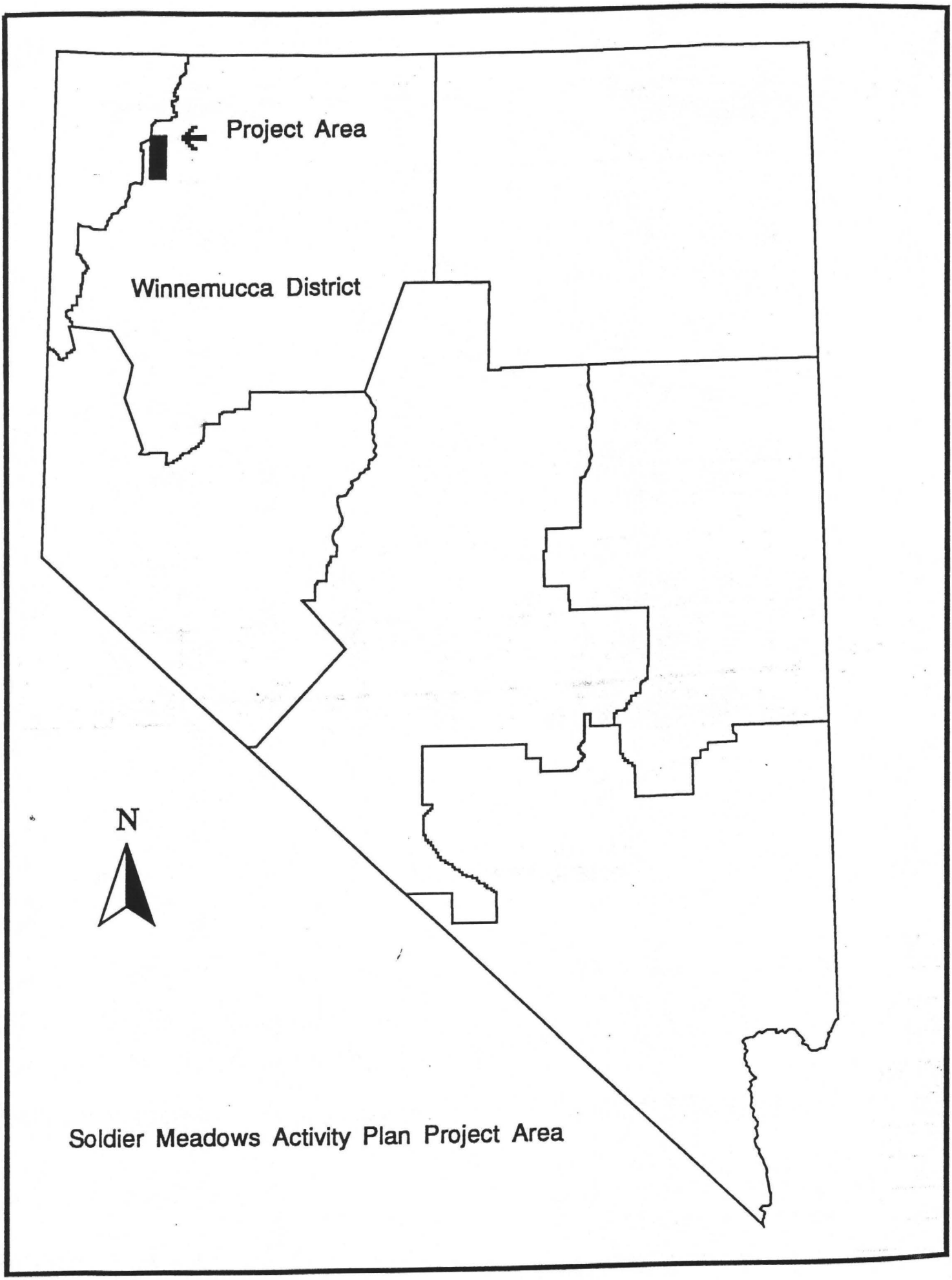
WH/B 1.7: Acquire or provide sufficient water on public lands to support wild horses, wildlife, aquatic habitat, livestock, and recreation.

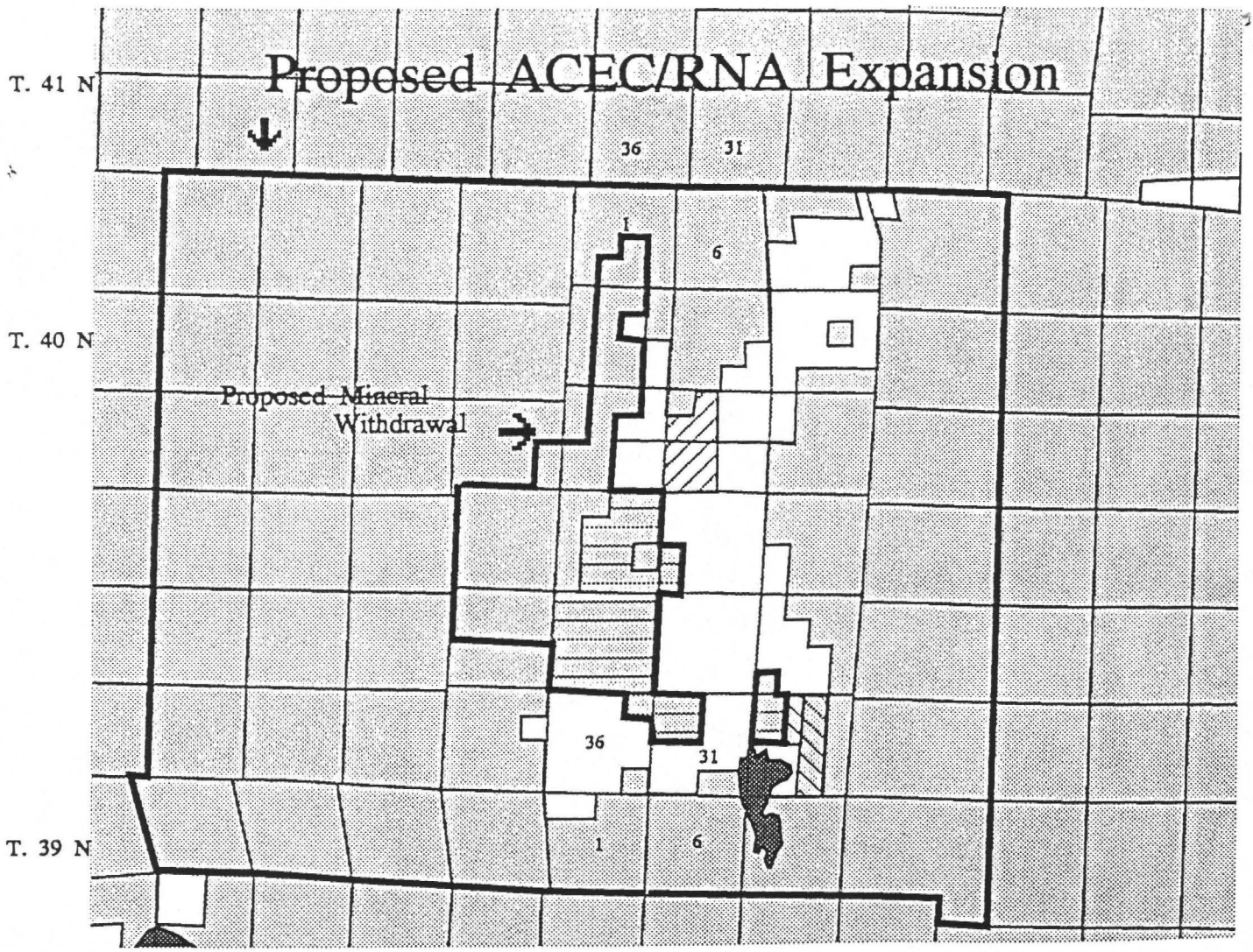
Lands:

L 3.3: Make lands available for agricultural disposal provided:

1. Disposal is in the national interest.
2. Soils are determined to be suitable.
3. Water is available.
4. The disposal is compatible with local government plans and is coordinated with local government entities to insure that necessary services and appurtenances such as roads, schools, etc., are possible and practical.

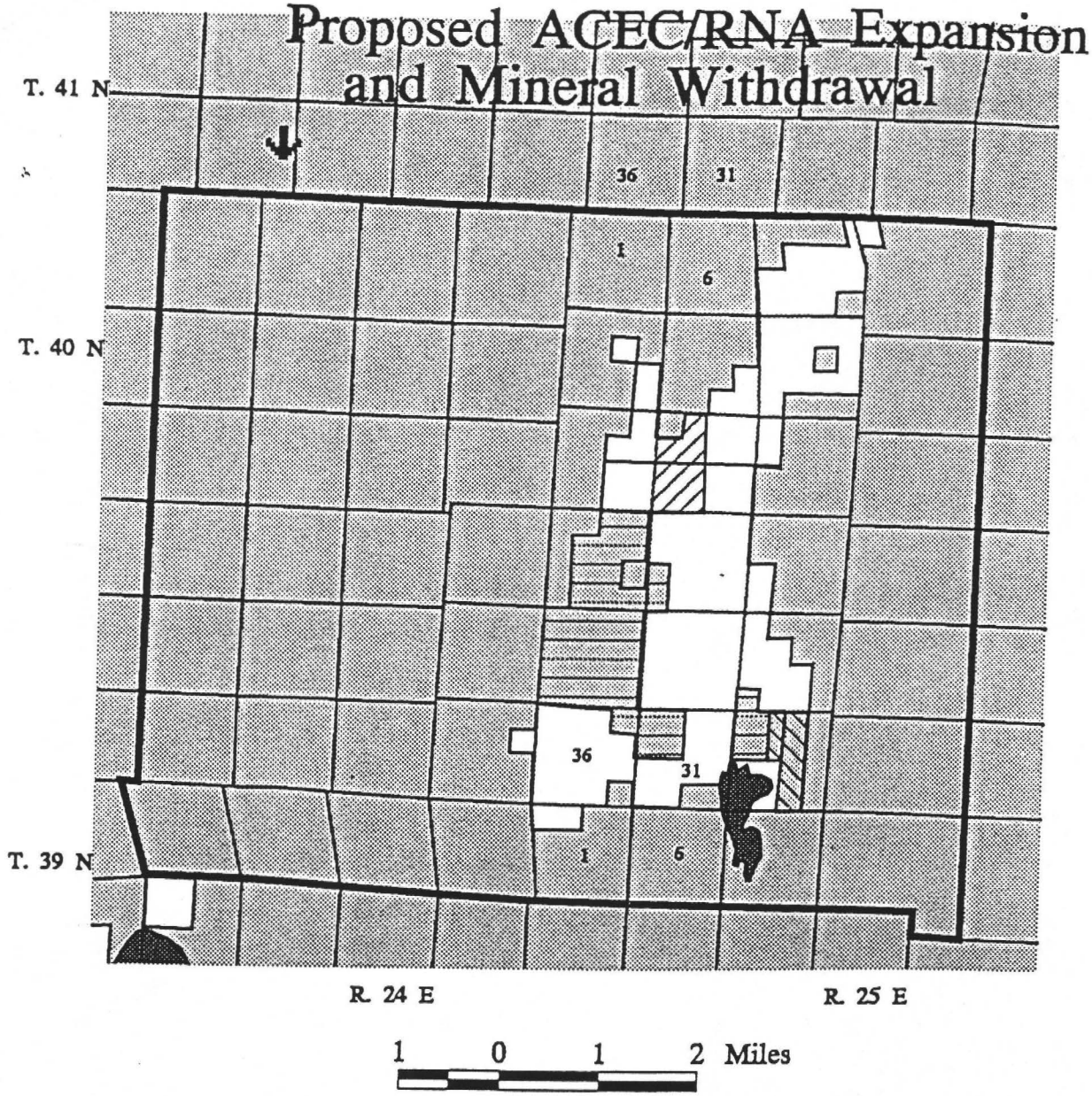
APPENDIX E - MAPS


Project Area
Winnemucca District
N
Soldier Meadows Activity Plan Project Area



Soldier Meadows Activity Plan

Preferred Alternative


Proposed ACEC/RNA Expansion
and Mineral Withdrawal
T. 41 N
T. 40 N
T. 39 N
36
31
1
6
36
31
1
6
R. 24 E
R. 25 E
1 0 1 2 Miles
N
BLM dace habitat purchase
BLM selected for exchange
Private offered for exchange
BLM
Private
Soldier Meadows
Activity Plan
Alternative 2

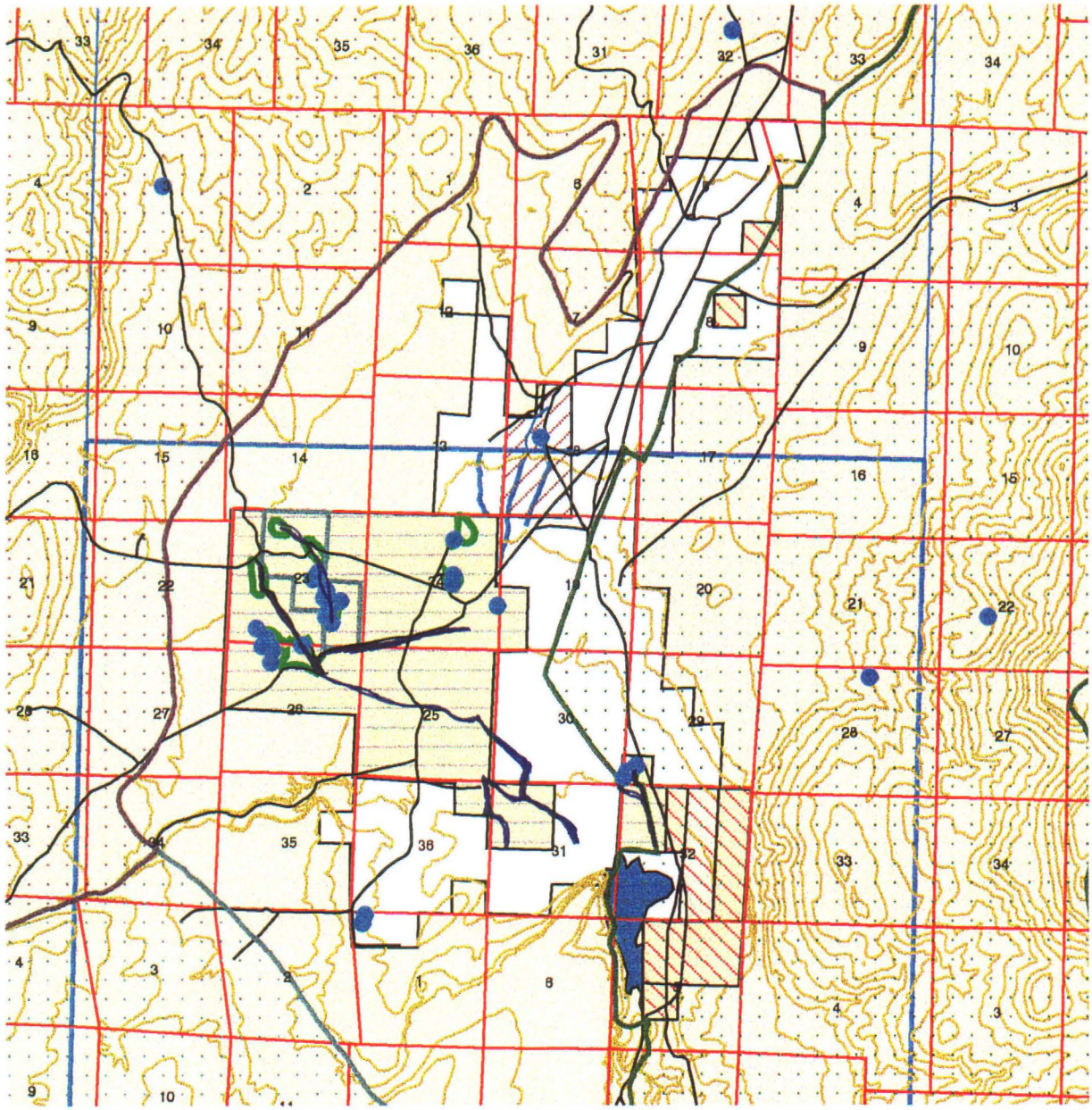
R. 24 E

R. 25 E

T. 41 N

T. 40 N

T. 39 N



1.2 0 1.2 2.4 Miles

LEGEND

- Springs
- Calico HMA
- Black Rock HMA
- Warm Springs HMA
- Present ACEC
- Dace Habitat
- Potentilla Habitat
- Blm dace habitat purchase
- Blm selected for exchange
- Private offered for exchange
- BLM
- Private
- Water

Soldier Meadows Activity Plan

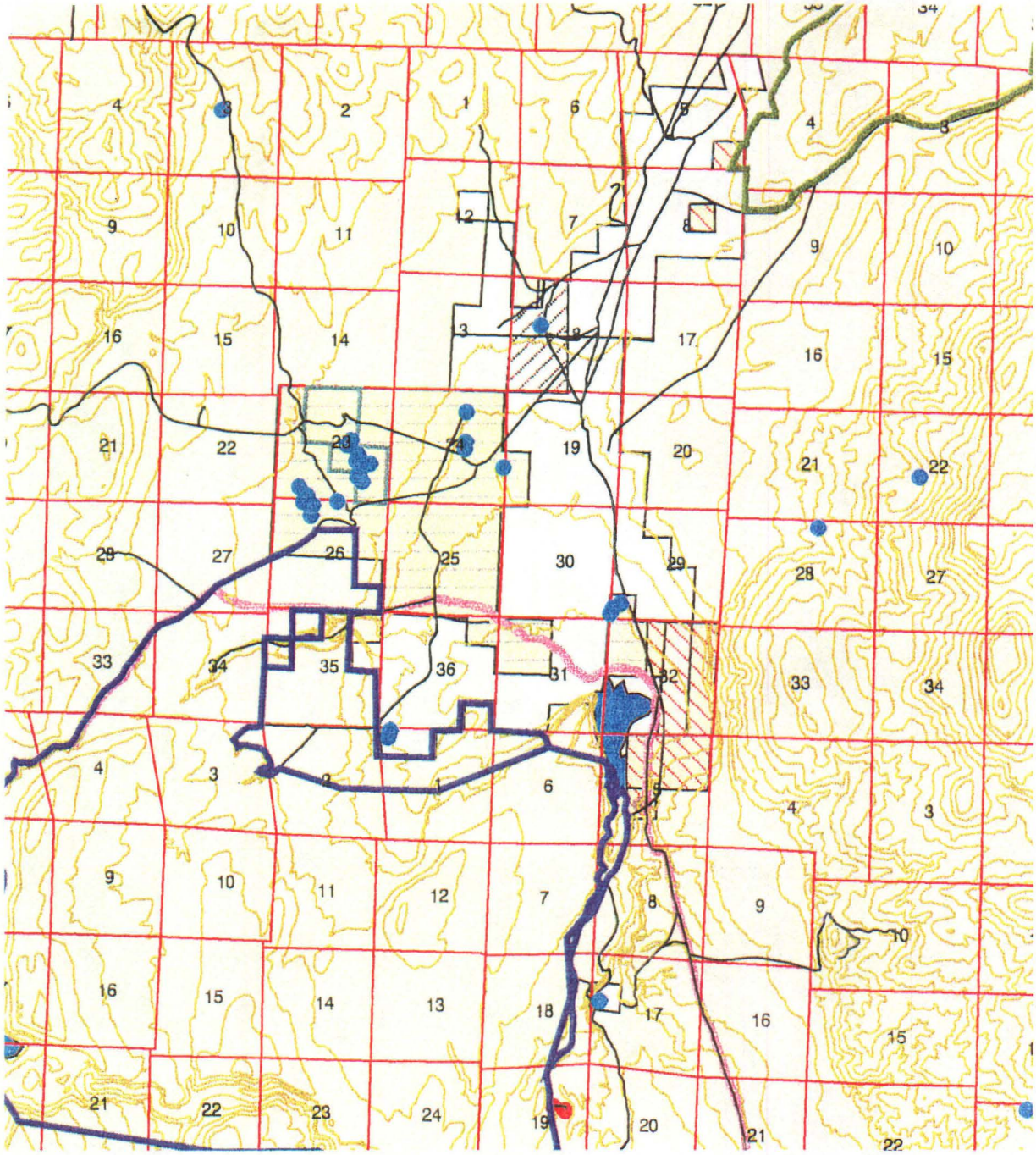
Biological Resources

N

W E

S

5/13/97



LEGEND

- Springs
- High Rock Lake WSA
- North Black Rock Range WSA
- Applegate-Lassen Trail
- Present ACEC
- Borrow Pits
- Gravel Pits
- Blm dace habitat purchase
- Blm selected for exchange
- Private offered for exchange
- BLM
- Private
- Water

0.77 0 0.77 1.54 Miles

Soldier Meadows Activity Plan

Cultural, Minerals, and Recreation

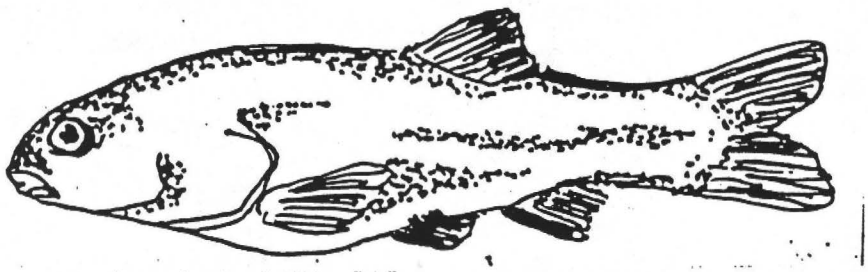
N
W E
S

5/13/97

APPENDIX F- LIST OF PREPARERS

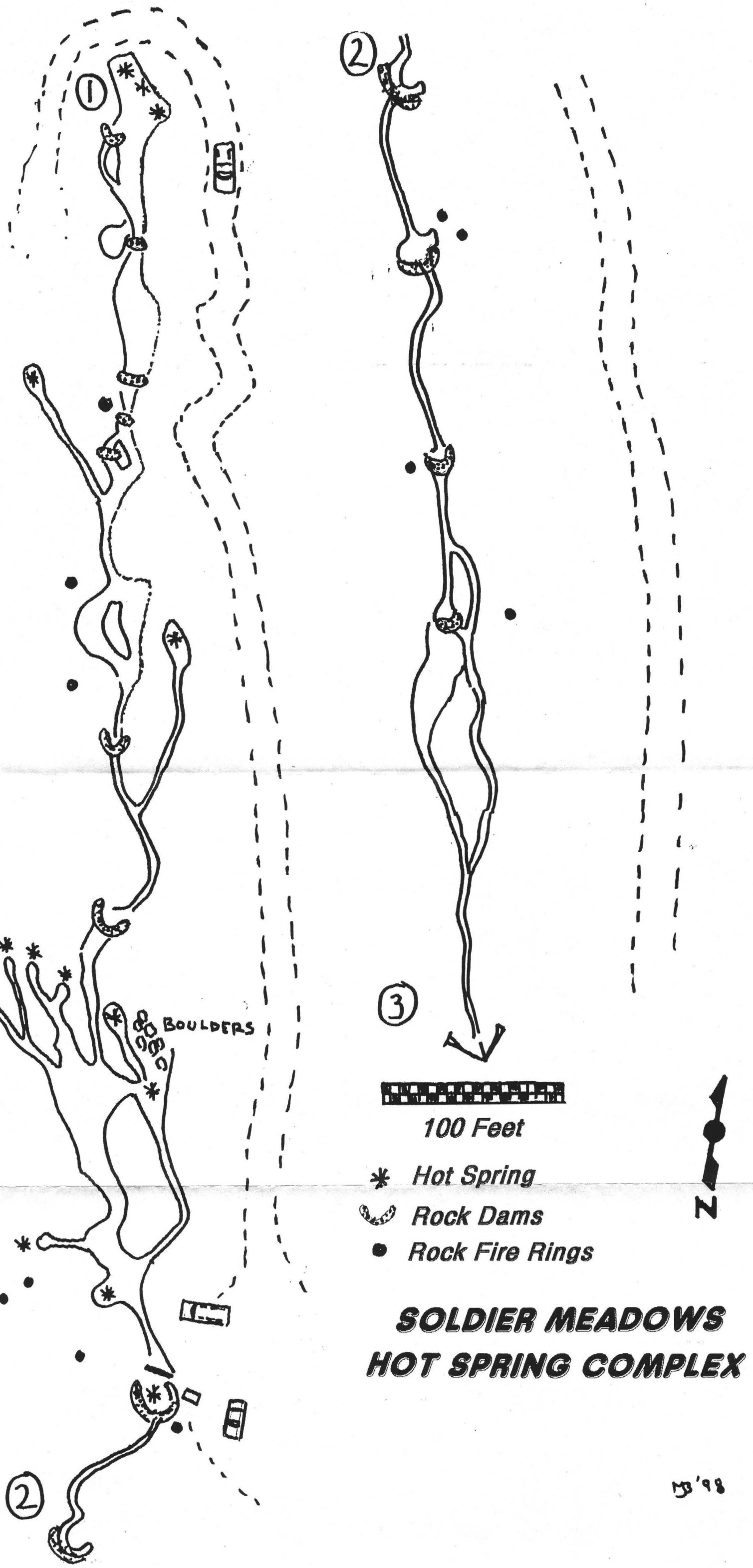
Arn Berglund	Fisheries Biologist	Team Lead, Wildlife & Fisheries, T&E Fish and Wildlife
Mike Bilbo	Recreation Specialist	Recreation, Wilderness and Visual Management
Delores Cates	Geologist	Geology and Minerals Management
Mary Figarelle	Realty Specialist	Lands
Peggy McGuckian	Archeologist	Cultural Resources
Jerry Moritz	NEPA Coordinator	NEPA Compliance
Ron Pearson	Rangeland Mgt. Spec.	Livestock Grazing
Leigh Redick	Rangeland Mgt. Spec.	T&E Plants
Tom Seley	Wild Horse Specialist	Wild Horse & Burro Management
Mike Whalen	Asst. Fire Mgt. Officer	Illustrations

APPENDIX G- ILLUSTRATIONS



Desert Dace (*Eremichthys acros*)

Basalt Cinquefoil *(Potentillia basaltica)*



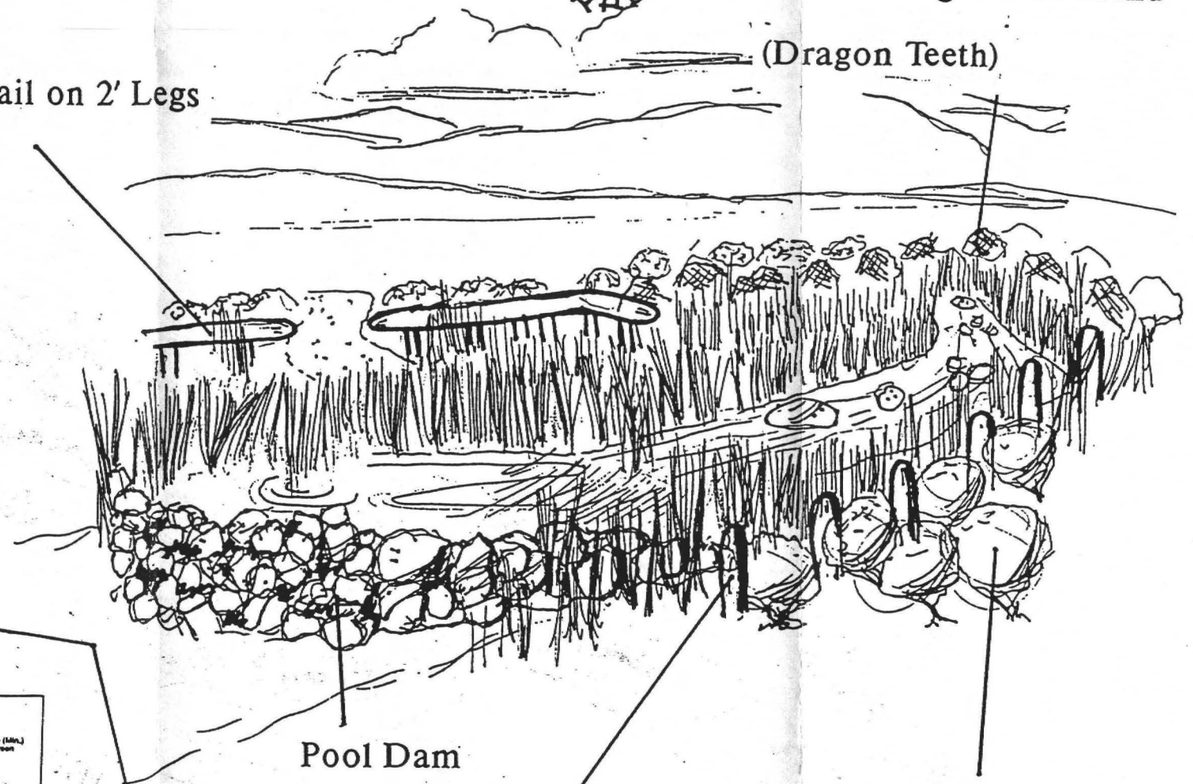
SOLDIER MEADOWS HOT SPRING COMPLEX

MB '98

RIPARIAN/VEHICLE PARTITION TYPES

Fat Rail on 2' Legs

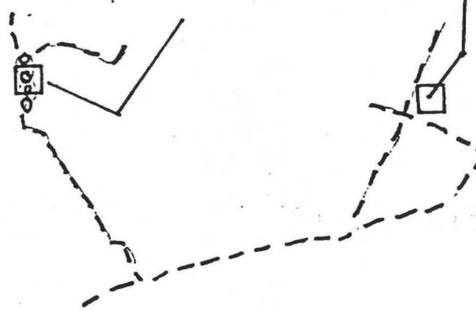
Natural Rocks/Vegetation Blend (Dragon Teeth)

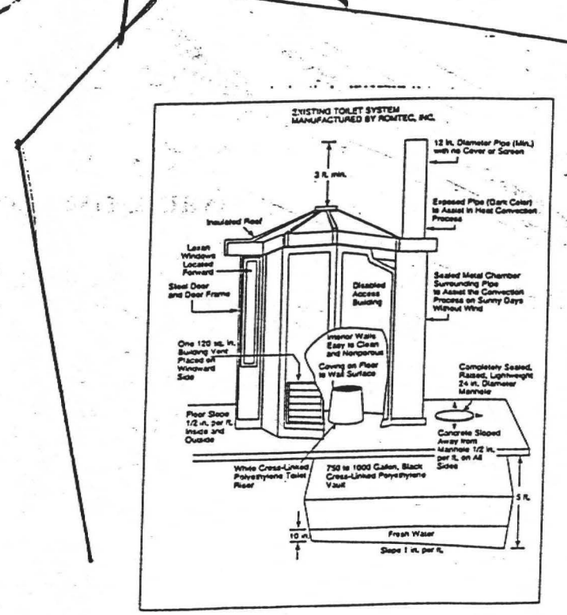


Orientation Site

Cabin Site

Hot Pool Site



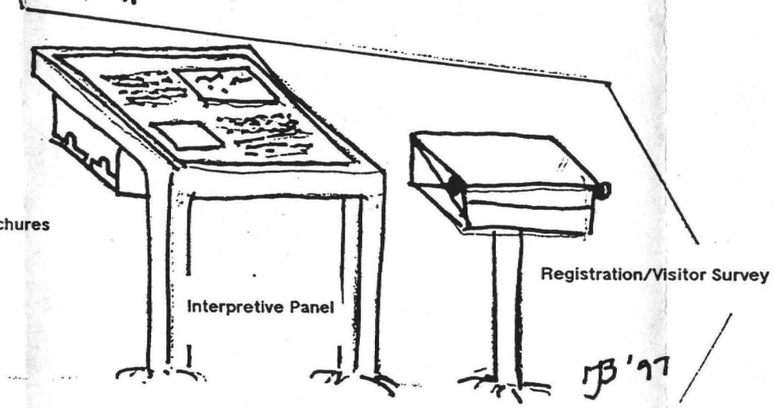


Vault Toilet

Pool Dam

Big Sage

Steel Bollard & Vegetation Blend



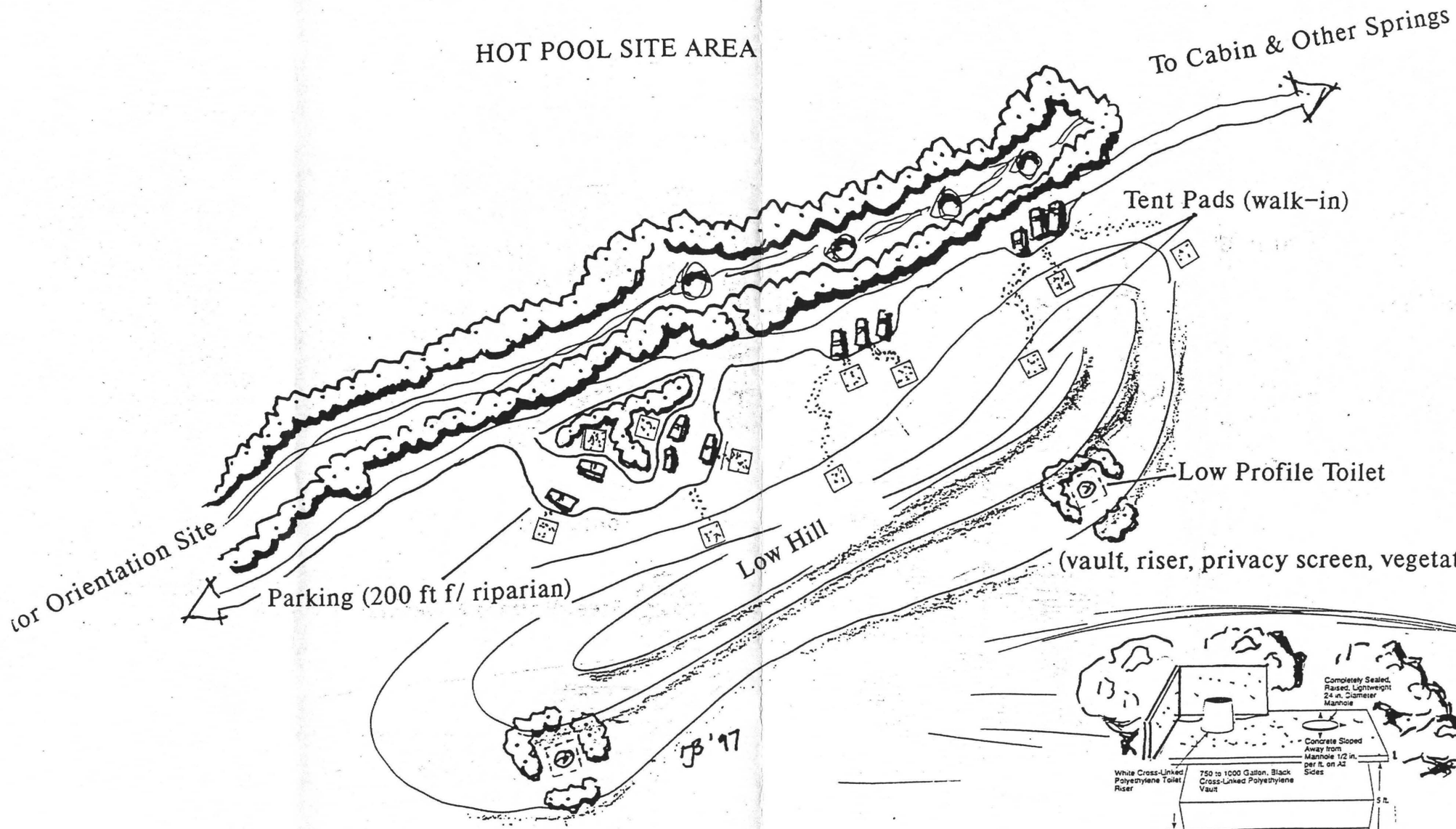
Brochures

Interpretive Panel

Registration/Visitor Survey

JB '97

HOT POOL SITE AREA



Form 1842-1
(February 1985)

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NEVADA

INFORMATION ON TAKING APPEALS TO THE BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS
1. This decision is adverse to you.
AND
2. You believe it is incorrect.

IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED:

1. NOTICE OF APPEAL....Within 30 days file a Notice of Appeal in the office which issued this decision (see 43 CFR Sections 4.411 and 4.413). You may state your reasons for appealing, if you desire.

2. WHERE TO FILE NOTICE OF APPEAL

Bureau of Land Management
Winnemucca District Office
5100 E. Winnemucca Blvd.
Winnemucca, NV. 89445

Regional Solicitor
Pacific Southwest Region
U.S. Dept. of the Interior
2800 Cottage Way E-1712
Sacramento, CA. 95825-1890

3. STATEMENT OF REASONS....Within 30 days after filing the Notice of Appeal, file a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington, VA 22203 (see 43 CFR Sec. 4.412 and 4.413). If you fully stated your reasons for appealing when filing the Notice of Appeal, no additional statement is necessary. Also send a copy to:

Regional Solicitor
Pacific Southwest Region
U.S. Dept. of the Interior
2800 Cottage Way E-1712
Sacramento, CA. 95825-1890

4. ADVERSE PARTIES....Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the Notice of Appeal, (b) the Statement of Reasons, and (c) any other documents filed (see 43 CFR Sec. 4.413). Service will be made upon the Associate Solicitor, Division of Energy and Resources, Washington, D.C. 20240, instead of the Field or Regional Solicitor when appeals are taken from decisions of the Director (WO-100).

5. PROOF OF SERVICE....Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington, VA. 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (see 43 CFR Section 4.401(c)(2)).

Unless these procedures are followed your appeal will be subject to dismissal (see 43 CFR Sec. 4.402). Be certain that all communications are identified by serial number of the case being appealed.

NOTE: A document is not filed until it is actually received in the proper office (see 43 CFR Sec. 4.401(a)).

Petition For A Stay Appeal

If you wish to file a petition (request), pursuant to regulation 43 CFR 4.21, 58 FR 4939, January 19, 1993, for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below.

Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards For Obtaining A Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

1. *The relative harm to the parties if the stay is granted or denied,*
2. *The likelihood of the appellant's success on the merits,*
3. *The likelihood of immediate and irreparable harm if the stay is not granted, and*
4. *Whether the public interest favors granting the stay.*

- -

43 CFR 2804 Appeals

2804.1 Appeals Procedure.

(a) All appeals under this part shall be taken under 43 CFR part 4 from any final decision of the authorized officer of the Office of the Secretary, Board of Land Appeals.

(b) All decisions of the authorized officer under this part shall remain effective pending appeal unless the Secretary rules otherwise. Petitions for the stay of a decision shall be filed with the Office of Hearings and Appeals, Department of the Interior.

[45 FR 44526, July 1, 1980, as amended at 53 FR 17702, May 18, 1988]

- -

43 CFR 1821.2 Office Hours, Time, And Place For Filing

Sec. 1821.2. The Winnemucca District Office is open to the public for the filing of documents and inspection of records during the hours of 7:30 AM. and 4:30 PM. Monday through Friday of each week, with the exception of those days where the office may be closed because of a national holiday or Presidential or other administrative order.

Sec. 1821.2-2(d). Any document required or permitted to be filed under the regulations of this chapter, which is received in the Winnemucca District Office, either in the mail or by personal delivery, when the office is not open to the public shall be deemed to be filed as of the day and hour the office next opens to the public.

Sec. 1821.2-2(e). Any document required by law, regulation, or decision to be filed within a stated period, the last day of which falls on a day the Winnemucca District Office is officially closed, shall be deemed to be timely filed if it is received in the appropriate office on the next day the office is open to the public.

July 24, 1998

Mr. Colin Christensen
Renewable Resources
Winnemucca Field Office
5100 Winnemucca Blvd.
Winnemucca, Nevada 89445

Subject: Soldier Meadow Activity Plan

Dear Mr. Christensen;

The Commission for the Preservation of Wild Horses appreciates this opportunity to comment on the Soldier Meadows Activity Plan. Wild horse herd management areas are managed under a series of allotment specific multiple use decision. This area lends itself to a more comprehensive and ecosystem approach to better manage wild horses in view of a complex rather than specific herd management areas.

We favor the establishment of appropriate management levels to meet habitat specific objectives for desert dace. The Soldier Meadows Multiple Use Decision set the allowable use levels for key species and riparian habitat throughout the allotment. Proper use pattern mapping data collected to these specific objectives could determine the carrying capacity of this allotment or pasture.

The Paiute Meadows Multiple Use Decision determined that the East Black Rock and West Black Rock Herd Management Areas would be managed as one herd. A comprehensive appropriate management level was to be established in conjunction with Paiute Meadows and Soldier Meadows Allotment Evaluations.

We were disappointed that monitoring studies to determine wild horse impacts to specific riparian habitats were not completed. This lack of information will not contribute to properly determining wild horse numbers to achieve a thriving natural ecological balance.

Please consider our comments in the pending final document.

Sincerely,

CATHERINE BARCOMB
Administrator

Commission

7-2298

July 22, 1998

Mr. Colin Christensen
Renewable Resources
Winnemucca Field Office
5100 Winnemucca Blvd.
Winnemucca, Nevada 89445

Subject: Soldier Meadow Activity Plan

Dear Mr. Christensen:

The Commission for the Preservation of Wild Horses appreciates this opportunity to comment on the Soldier Meadow Activity Plan. Wild horse herd management areas are managed under a series of allotment specific multiple use decisions. This area lends itself to a more comprehensive and ecosystem approach to better manage wild horses in view of a complex rather than specific herd management areas.

We favor the establishment of appropriate management levels to meet habitat specific objectives for desert dace. The Soldier Meadows Multiple Use Decision set the allowable use levels for key species and riparian habitat throughout the allotment. Proper use pattern mapping data collected to these specific objectives could determine the carrying capacity of this allotment or pasture.

The Piaute Meadows Multiple Use Decision determined that the East Black Rock and West Black Rock Herd Management Areas would be managed as one herd. A comprehensive appropriate management level was to be established in conjunction with Piaute Meadows and Soldier Meadows Allotment Evaluations.

We were disappointed that monitoring studies to determine wild horse impacts to specific riparian habitats were not completed. This lack of information will not contribute to properly determining wild horse numbers to achieve a natural thriving ecological balance.

Please consider our comments in the pending final document.