

***Draft Environmental Assessment**



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ENVIRONMENTAL ASSESSMENT

Soldier Meadows Recreation Management Plan
NV-020-04-26

Winnemucca Field Office, Nevada BLM
Humboldt County, Nevada



Soldier Meadows Recreation Plan Environmental Assessment

EA No. NV-020-04- 26

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INTRODUCTION

Purpose and Need

The Soldier Meadow project area contains a unique combination of natural and cultural resources, many of which are found nowhere else. Unregulated visitor use is currently damaging some of these resources and sensitive habitats are continually threatened by increased visitor use as the area becomes more publicized. The Resource Management Plan (RMP) for the Black Rock Desert High Rock Canyon Emigrant Trails National Conservation Area (NCA), the *Recovery Plan for the Rare Species of Soldier Meadows* (FWS 1997), and the recently issued Biological Opinion for the RMP (FWS 2004a) encourages the BLM to take appropriate actions to manage visitor use to support the recovery of sensitive flora and fauna residing in the project area.

This project would provide continued opportunities for recreation uses that are consistent with the protection of area resources. The following alternative proposes the development of designated camping areas and public outreach materials for the Soldier Meadow Hot Spring Area. The project would also involve extensive rehabilitation efforts to restore upland areas associated with sensitive habitats that have been impacted by vehicular use.

Relationship to Statutes, Regulations, or Other Plans

The Sonoma-Gerlach Management Framework Plan (BLM 1982) recognized the importance of the unique resources of the Soldier Meadows Area and included a decision establishing a 307 acre Area of Critical Environmental Concern (ACEC) to protect the habitat of the desert dace (*Eremichthys acros*) and Soldier Meadows cinquefoil (*Potentilla basaltica*) found on public land. In 1992 BLM acquired additional habitats and populations for of all the special status species through a purchase of additional lands and acquisition of a conservation easement on adjacent private lands.

In 1997 the U.S. Fish and Wildlife Service (FWS) issued the *Recovery Plan for the Rare Species of Soldier Meadows*. This plan included specific management recommendations for the management and recovery of special status species associated with Soldier Meadows.

The 1998 *Soldier Meadows Activity Plan* prepared by the BLM incorporated many of the FWS recommendations and identified specific actions associated with management of a number of activities and programs including recreation related actions.

The Soldier Meadows Multiple Use Management Environmental Assessment, NV-020-03-09, was approved in the spring of 2004. This document described the affected environment for the project area and included a decision that required the construction of a fenced enclosure encompassing sensitive habitats in the hot springs area.

The Desert Dace Protective Fence Environmental Assessment, NV-020-03-24 was approved May 2004. This document authorized the construction of approximately 10 miles of fence to encompass the sensitive habitats within the hot springs area of the Soldier Meadows allotment.

The Black Rock Desert High Rock Canyon Emigrant Trails National Conservation Area RMP (BLM 2004b) increased the size of the Soldier Meadows ACEC to 2,077 acres to include all the known habitats and populations of the special status species occurring on public land within the area. These special status species include one Threatened species of fish, desert dace; one candidate wildflower, Soldier Meadows cinquefoil; and one candidate snail, elongate Mud Meadows springsnail. The RMP also included decisions that closed or relocated 3.3 miles of vehicle access routes, established camping restrictions and identified the ACEC for the most intensive level of visitor management to protect habitats of special status species.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVE

Three Alternatives were developed through the RMP scoping process, as well as through project specific public scoping conducted in 1997 and again in 2004:

- The Proposed Action Alternative represents an active management approach that would facilitate limited recreation use within the ACEC, with relatively low levels of development and infrastructure, while meeting the needs of the special status species.
- The Continue Present Management Alternative (Alternative 2) is the No Action Alternative for the area. Only those actions specifically prescribed in the RMP would be undertaken.
- The Intensive Management Alternative (Alternative 3) would increase development and infrastructure in the ACEC to a level that would provide recreation opportunities for a greater number of visitors as under the Proposed Action.

Appendix 3 provides a comparison between

the three alternatives.

Proposed Action –Proactive Visitor Management

This alternative proposes a series of management actions and infrastructure development that would support levels of public use at approximately the current visitation levels, while protecting sensitive species and cultural resources in the area. Actions would be taken to minimize current impacts caused by recreational and other human uses.

Transportation Management

Actions would be taken to manage vehicular use in the ACEC to prevent damage to archeological and biological resources, and to provide continued access to recreation destinations. Please refer to the Transportation Management Table located in Appendix 4. Specific actions proposed by this plan include:

Roads Closures/Reroutes



Road crossing hot spring outflow containing two species of concern

Consistent with decisions in the RMP, seven road segments totaling 3.3 miles would be closed or rerouted to protect habitat for Soldier Meadows cinquefoil, elongate Mud Meadows springsnail, and desert dace habitats. The newly constructed roads and rerouted sections would be constructed 10 foot wide and 4 inches deep with compacted gravel.

These include the following roads:

1. The existing hot spring access routes, that parallel both sides of the main hot springs, would be closed to vehicle use. An alternate route would be established outside of sensitive habitats. See the Hot Springs Inset Map (Map 2).



Looking South from head of springs – vehicle routes within riparian zones on both sides of the springs that are proposed for closure.

2. The designated hot springs access road would be rerouted in areas where Soldier Meadows cinquefoil populations are being impacted by vehicular use. See Soldier Meadow Overview Map (Map 1).

3. The existing access route to the satellite spring would be closed approximately 200 yards from the hot spring and converted to walking trail. A vehicle turn-around and campsite would be developed at the end of the road spur. Camping would be allowed at the designated sites only.

4. Three other roads shown in yellow on the Soldier Meadows Overview Map would be closed to minimize impacts to Soldier Meadows cinquefoil, elongate Mud Meadows springsnail, and desert dace habitats.

Obtain Road Easements

1. Acquisition of public easements across private lands would be pursued with private landowners to ensure continued legal access to the hot springs camping area and to Fly Canyon west of Soldier Meadow Road (Humboldt County 200). See Map 1 for proposed easement locations.

2. Acquisition of public easements across private lands would be pursued with private landowners to provide legal access east of Soldier Meadows Road to Slumgullion Canyon. See Map 1 for proposed easement locations.

Vegetation Restoration, Traffic Control, and Road Hardening

Actions would be taken to rehabilitate and prevent additional impacts from vehicle and camping use. Closed road segments, redundant spur roads and undesignated camping areas along the main access road would be restored to natural conditions. Physical barriers would be used to delineate designated use areas. Additionally, some road segments not associated with special status species habitats would be hardened to withstand visitor use, reduce soil erosion into springs and streams and minimize the formation of multiple routes during wet seasons.

Restoration of upland vegetation would be conducted on disturbed sites. Rehabilitation efforts would use a combination of mechanical ripping and pitting followed by mulching and seeding. Soldier Meadows cinquefoil habitats would be restored using hand tools without seeding. Sediment barriers would be used to minimize impacts to aquatic resources. Several areas may require repeated restoration treatments.

Vehicle barriers would be strategically placed to limit vehicle use to designated vehicle routes. A combination of native stone and steel bollard and fencing would be used, with emphasis on maintaining natural conditions in the immediate vicinity and viewshed of hot spring resources. Vehicle barriers would not be used in habitats for special status species.

Locations and Types of Vehicle Barriers:

1. Vehicle barriers would be placed around

designated campsites, the day-use area, and the main access roads in the developed camping area. Large rocks would be used in place whenever possible. Stone barriers would be seated in the ground to discourage moving and to create as natural of a setting as possible.

2. Vehicle barriers would be used to delineate the parking area and trailhead for the satellite hot spring (Hot Spring Inset Map 2).

3. Short segments of temporary fencing would be used at intersections of prominent roads that were closed to discourage vehicles from driving around barriers in areas where vegetation is scarce and the terrain is conducive to cross country travel.

4. Steel bollards and cable or wooden fencing would be constructed at the cabin site to prevent vehicular use of the adjacent meadow, which contains Soldier Meadows cinquefoil and dace populations.

Road hardening would involve actions to minimize road widening and braiding, as well as impacts to intermittent stream crossings.

1. Road segments that are traditionally wet or are known to collect moisture would be locally hardened so that they would be passable without causing erosion during wet periods. Entrenched road beds may be raised with compacted gravel to prevent runoff down the roads and the formation of multiple routes.



Intermittent stream crossing near hot springs.

2. A graveled low water crossing would be installed at the intermittent stream crossing located along the designated access road to the hot spring camping area. See the Hot Spring Inset Map (Map 2).

Public Information and Management Presence

Visitor Orientation

Two small visitor orientation kiosks would be developed at the east and west ACEC boundaries, where the access road crosses the enclosure fence line. See appendix 2 - Graphic 9, for a detailed sketch of the proposed kiosks.

Orientation kiosks would serve multiple outreach purposes and would be used as an area to stock literature, and to encourage responsible use and self discovery of the area resources. See the Soldier Meadows Overview Map for specific locations.

Kiosks would provide the following items:

1. Information about current projects in the area – maps and designated routes, designated camping areas, road closures, etc.

2. Fact sheets and self-guided interpretive brochures. Educational materials would emphasize the importance of all Soldier Meadows ecosystem components, including special status species, cultural resources, the Applegate trail and other human uses.

3. Safety messages

4. Leave-No-Trace© and Tread Lightly!© information.

5. Wilderness and ACEC information

Written Literature

Brochures and fact sheets would be developed for use with on-the-ground markers to interpret on-site resources. Markers would be designed to blend with the natural setting.

Signage

Regulatory Signage

1. Signs would be used to identify ACEC boundaries, wilderness boundaries, and specially designated areas, in which specific regulations apply. Signs would be located primarily in areas where roads cross fence lines, and on the fence lines, and would be low-profile on the landscape.

2. Temporary signage would be used at intersections of roads that are proposed for closure to identify alternate access routes to the hot pools area. See Hot Springs Inset Map 2 for proposed locations.

Interpretive Signage

Interpretive signage would be used at the day use site to increase awareness and appreciation of specific hot spring resources. See Hot Spring Inset Map for the proposed

day-use site location and Appendix 2 for a detailed sketch of the proposed interpretive panel.

Management Presence

The following efforts would be made to provide an increased on-the-ground presence in the ACEC:

1. Recruit a volunteer host(s) for the busy season (Memorial Day through November) The site host(s) would provide an on-site source of visitor information and would monitor visitor use.
2. Increase BLM law enforcement presence during period of high visitor use.
3. Cooperative partnerships would be pursued with the Nevada Department of Wildlife and local counties to provide patrol of the area.
4. A partnership with Soldier Meadows Ranch would be pursued to provide overflow camping and monitoring for the Hot Springs area.

Camping and Day-Use Activities



An impacted campsite situated directly adjacent to the upper hot spring pool.

Camping

Overnight use would be permitted in designated campsites in a primitive camping area or other designated group use sites. Designated camping areas would generally be located a minimum of 300 foot from any water source.

1. Primitive Camping Area

A camping area with 6-8 primitive campsites would be developed near the hot springs, as shown on Map 2 – Hot Springs Inset Map. Overnight use would be allowed in designated campsites only. At least one fully accessible campsite would be developed in the camping area. The following types of campsites would be developed (See appendix 2 for graphics of the proposed site designs):

Individual campsites would be developed to accommodate people traveling with up to three vehicles. Most sites, with the exception of the walk in campsites, would accommodate two vehicles and a small trailer. See appendix 2 – graphics 1 and 2.

Group campsites would be provided for groups traveling with more than 3 vehicles. Groups would be encouraged to camp in designated group campsites. Designation as a group site would not preclude use by smaller parties. See appendix 2 – graphics 3 and 4.

Walk-in campsites, with parking for up to two vehicles, would be developed to provide opportunities to camp away from roads and other groups. See appendix 2 –graphics 5 and 6.

Overnight use areas would include the following features:

Vehicle barriers would be used to delineate parking and camping areas. Native stone would be used wherever possible, and bollards would be used where gaps exist. Most native stone that is currently on site would remain in place, except where the proposed access route or designated camping areas would require them to be moved. Stones would be gathered from a local source and would be seated in the ground to mimic natural conditions.

Tent pads would be developed in each campsite to identify areas available for use. All overnight visitors will be required to use established tent pads. Sites will incorporate pre-existing flat areas to minimize disturbance associated with tent pad development. Where no suitable tent pads currently exist, pads will be raised rather than graded to prevent disturbance of surface features. Tent pads will be delineated using native stone or treated lumber and will be filled with gravel.

Fire pits with metal fire rings would be installed in each of the developed campsites.

The group site would have a shared fire pit. Fire pits would be ADA accessible and would be constructed with native stone and concrete foundations (see Appendix 2 for a sketch). Campfires will be allowed in metal fire rings only.

Campsite markers would be used to identify designated campsites.

Native stone picnic tables and benches would be installed in a limited number of sites. Stones would be gathered from a local source.

One low-profile toilet would be installed in the vicinity of the newly developed camping area near the hot springs.



Existing toilet at soldier meadow – notice unsanitary conditions surrounding the toilet.

2. Other Designated Campsites

All other camping within the ACEC would be limited to designated campsites. One group use site would be designated at the area immediately surrounding the cabin. Walk-in access camping will be permitted at the satellite spring. A campsite may also be designated at the trailhead to the satellite spring. See Map 3, Proposed Action Implemented for proposed campsite

locations.

Designated sites would have the following features:

Campsite markers would be used to identify designated campsites

Vehicle barriers may be used in area where vehicle impacts exist or continue to impact natural or cultural resources.

A **toilet** would be installed at the cabin campsite.

3. Camping Regulations

- Overnight stays in the developed camping area could be limited in duration during peak seasons to accommodate more users and prevent visitor conflict.
- Operations authorized under a Special Recreation Permit would not be allowed to camp in the developed camping area.

Day-use

A day-use area would be developed near the hot springs camping area (See Hot Spring Inset Map 2).

The day use area would include the following features:

- A parking area would be developed to accommodate up to 5 vehicles.
- A native stone picnic table
- An interpretive marker – brochure based interpretation
- A low profile vault toilet shared with the primary campground.
- Portions of the existing hot springs access roads would be reverted to

walking trail to provide access to the hot pools.



Bathing Pools

The existing bathing pools would be available for public use in the main spring area. Walk-in access would be provided to the bathing pools. The perimeter of the two or three most heavily used pools would be hardened with flagstone to prevent bank deterioration and user-made facilities. Constructing new dams would be prohibited, and other unused rock dams may be removed; if impacts are identified through monitoring of desert dace and snail population.

Inventory and Monitoring

The project areas would be continually monitored to ensure that planning objectives are being met. Continued rehabilitation and visitor use management will be based on monitoring results. The proposed monitoring schedule would include:

Special Status Species

Soldier Meadows Cinquefoil

- Survey all potential and occupied habitats
- Monitor population densities and reproductive success over time to

determine trend.

Desert Dace

- Work with NDOW, USGS, and FWS to ensure population monitoring occurs on a regularly scheduled basis.
- Inventory and monitor dams/pools

Springsnail Species

- Complete inventory of potential and occupied habitats
- Determine densities of existing populations.
- Monitor population densities over time

Recreation Use

Visitation would be monitored with the use of a campsite inventory, vehicle counters and aerial surveillance.

Campsite Inventories would be conducted annually to assess resource conditions. The inventory would identify the degree of impacts and possible site management solutions.

Car counters would be installed at the following locations:

- Soldier Meadows Road – North and South of Fly Canyon Junction
- Along the designated hot spring access road

Alternative 2 (Continued Management- No Action)

Management actions in this alternative would implement specific actions identified in the RMP. This alternative would provide recreation opportunities for fewer overnight visitors at the hot springs area, but would include efforts to rehabilitate habitats for

sensitive flora and fauna.

Transportation Management

Similar actions, as those identified in the proposed action, would be taken to manage vehicular use in the ACEC. Specific actions proposed by this plan include:

Roads Closures/Reroutes

The 7 road segments identified in the Proposed Action alternative would be closed or rerouted to protect habitats of Soldier Meadows cinquefoil and desert dace. See the preferred alternative and maps for the proposed closures. No alternative access road or camping areas would be developed under this alternative.

Road Easements

The same road easements across private property that were identified in the proposed action, would be pursued under this alternative. (See Soldier Overview Map 1)

Rehabilitation, Traffic Control, and Road Hardening

Similar actions as described in the proposed action would be taken to rehabilitate and prevent additional impacts from vehicle and camping use. Closed road segments, redundant spur roads and undesignated camping areas along the main access road would be restored to natural conditions. Physical barriers would be used to delineate designated use areas.

Rehabilitation of upland vegetation would be the same as identified in the Proposed Action alternative.

Vehicle barriers would be used to prevent continued use of closed segments and closed spur trails. However, management actions

in the proposed action to install barriers at designated campsites and at the cabin site would not be implemented. Fencing would not be used at the intersections of closed routes, as proposed in the proposed action alternative.

Road hardening would involve actions to minimize road widening and braiding, but would not include actions to harden intermittent stream crossings.

Road segments that are traditionally wet or are known to collect moisture would be locally upgraded with a gravel base, only to provide for resource protection (consistent with RMP guidance).

Public Information and Management Presence

Visitor Orientation

No orientation site or kiosks are proposed under this alternative. Public information would be disseminated through the existing visitor register box and directional signage. The existing register box would be moved off of private lands and maintained on public lands.

Written Literature

No written literature specific to area resources would be developed under this alternative.

Signage

1. Carsonite signs would be used to identify wilderness boundaries. ACEC boundaries would not be marked.
2. Temporary signage proposed in the other alternatives would not be used.

Management Presence

The following actions would be taken under all alternatives, to provide an increased on-the-ground presence in the ACEC:

1. Recruit a volunteer host(s) for the busy season (Memorial Day through November) The site host(s) would provide an on-site source of visitor information and would monitor visitor use.
2. Increase BLM law enforcement presence during period of high visitor use.
3. Cooperative partnerships would be pursued with the Nevada Division of Wildlife and local counties to provide patrol of the area.
4. A partnership with Soldier Meadows Ranch would be pursued to provide overflow camping and patrol for the Hot Springs area.

Camping and Day-Use Activities

Camping

1. Overnight use would be permitted in existing campsites that are more than 300 feet from the hot springs. Campsites would have campsite markers and may require the use of vehicle barriers where impacts occur.

No primitive camping area, new campsites, fire pits, toilet, tent pads, picnic tables/benches or developments proposed in the other two alternatives are proposed in this alternative.

2. Overnight stays would be limited in duration to 14 days, consistent with existing regulations.

3. Small scale operations authorized under a Special Recreation Permit would be allowed to camp in the ACEC.

Day-use

No day-use site or walking trails would be developed under this alternative.

Vehicle routes and Camping Areas

This alternative would include the same rehabilitation efforts described in the proposed action alternative.

Bathing Pools

The existing bathing pools would be available for public use. Pools would be accessible by foot travel only, but no trails would be developed. Spring margins would not be hardened. Constructing new dams would be prohibited, and other unused rock dams may be removed consistent with the protection of sensitive resources.

Inventory and Monitoring

The project areas would be continually monitored to ensure that planning objectives are being met. Continued rehabilitation and visitor use management will be based on monitoring results. The monitoring schedule proposed under this alternative is identical to that described in the proposed action.

Alternative 3 (Intensive Management)

Management actions in this alternative would implement specific actions identified in the RMP. This alternative would provide recreation opportunities for fewer overnight visitors at the hot springs area, but would include efforts to rehabilitate habitats for sensitive flora and fauna.

Transportation Management

Similar actions, as those identified in the proposed action, would be taken to manage vehicular use in the ACEC. Specific actions proposed by this plan include:

Roads Closures/Reroutes

The 7 road segments identified in the Proposed Action alternative would be closed or rerouted to protect habitats of Soldier Meadows cinquefoil and desert dace. See the preferred alternative and maps for the proposed closures. No alternative access road or camping areas would be developed under this alternative.

Road Easements

The same road easements across private property that were identified in the proposed action, would be pursued under this alternative. (See Soldier Overview Map 1)

Rehabilitation, Traffic Control, and Road Hardening

Similar actions as described in the proposed action would be taken to rehabilitate and prevent additional impacts from vehicle and camping use. Closed road segments, redundant spur roads and undesignated camping areas along the main access road would be restored to natural conditions. Physical barriers would be used to delineate designated use areas.

Rehabilitation of upland vegetation would be the same as identified in the Proposed Action alternative.

Vehicle barriers

Same as the proposed action.

Road hardening would involve actions to minimize road widening and braiding, as

well as impacts to intermittent stream crossings.

1. All key access roads would be hardened with compacted gravel.
2. A gabion basket or other device to contain rock would be installed at the intermittent stream crossing located along the designated access road to the hot spring camping area. See the Hot Spring Inset Map (Map 2).

Public Information and Management Presence

Visitor Orientation

An orientation site would be constructed along Fly Canyon Road at the junction of the Hot Springs Access Road.

It would include:

A covered orientation panel consisting of one low profile, 45 degree silkscreen embedment panel.

A brochure box – steel with lid, holds up to four brochures

Visitor Register Box – Already in place, but would be moved off of private land to the orientation site.

A standard vault toilet

Written Literature

Same as proposed action.

Signage

Regulatory Signage

1. Signs would be used to identify ACEC boundaries, wilderness boundaries, and specific regulations that apply within the

specially designated areas.

2. Temporary signage described in the proposed action would be used under this alternative.

Interpretive Signage

1. Interpretive signage would be used at the day use site to increase awareness and appreciation of specific hot spring resources. See Appendix 2 for a detailed sketch of the proposed interpretive panel.
2. The orientation site would include a covered orientation panel and may include other interpretive exhibits.

Management Presence

Same as the proposed action.

Camping and Day-Use Activities

Camping

Overnight use would be permitted in designated campsites in a primitive camping area or other designated group use sites. All new camping areas would be located a minimum of 300 foot from any water source.

1. A primitive camping area with 10-12 campsites would be developed near the hot springs, as shown on the Hot Springs Inset Map 2. All overnight use would be allowed in designated campsites only. At least one fully accessible campsite would be developed in the camping area. All camping and parking areas would be hardened with compacted gravel.

The following types of campsites would be developed (See appendix 2 for graphics of the proposed site designs):

Individual campsites would be developed to accommodate groups traveling with up to three vehicles. All sites would accommodate small trailers and motor homes, with the exception of the walk-in campsites.

Walk-in campsites, with parking for up to two vehicles, would be developed to provide opportunities to camp away from roads and other groups.

Two group campsites would be designated in the developed camping area. Groups traveling with more than 3 vehicles would be required to camp in designated group campsites. Designation as a group site would not preclude use by smaller parties.

Overnight use areas would include the same facilities as described in the proposed action, with the exception of the following differences:

- Concrete Picnic Tables would be used instead of native stone.
- A standard vault toilet would be used instead of the low-profile toilet described in the proposed action.

2. Camping within the entire ACEC, including areas away from the developed camping area, would be allowed in designated campsites only.

Two campsites outside of the primary camping area would be designated as group use sites, which would allow for groups traveling with more than 3 vehicles. One group site would be developed at the satellite spring south of the main hot pools camping area, and the other group site would be located at the cabin site. See Soldier Overview Map 1 for proposed

campsite locations. In addition to the items described in the proposed action, all designated sites would have metal fire rings installed.

3. Overnight stays in the developed camping area would be limited to 5 days to provide access to a greater amount of users.

4. Operations authorized under a Special Recreation Permit would not be allowed to camp in the developed camping area (Same as proposed action).

Day-use

A day-use area would be developed near the hot pools camping area (See Hot Spring Inset Map 2).

The day use area would include the following features:

- A parking area would be developed to accommodate up to 10 vehicles.
- A concrete picnic table
- An interpretive panel
- A standard vault toilet would be developed in an area accessible by day and overnight users.
- Walking trails would be established to provide access to the hot pools. Portions of the existing hot springs access roads would be reverted to walking trail. All new trails would be constructed with compacted gravel and would be ADA accessible.

Bathing Pools

The existing bathing pools would be available for public use. Walk-in access would be provided to the bathing pools. Boardwalks would be constructed around

the perimeters of the heavily used pools to prevent bank deterioration and user-made facilities. Constructing new dams would be prohibited, and other unused rock dams may be removed consistent with the protection of sensitive resources.

Inventory and Monitoring

The monitoring schedule proposed under this alternative is identical to that described

AFFECTED ENVIRONMENT

Photograph 1. Spring pool located within the proposed exclosure fence. (Courtesy Dr. Peter Rissler, USGS)



Water Resources

Water resources within the project area are described in the Soldier Meadows Multiple Use Management Environmental Assessment (EA No. NV-020-03-09), which is hereby incorporated by reference. Water Resources are described in Section 3.1, pages 20-25. This document can be obtained at the Winnemucca Field Office, BLM.

Aquatic Resources, including Threatened, Endangered, Candidate, and Sensitive AQUATIC Species

The aquatic resources found within the ACEC

in the proposed action.

are extremely unique. The aquatic environments found within this area each have a distinctive temperature regime, thereby providing habitat for unique species such as Hydrobiidae springsnails and the federally listed threatened desert dace (*Eremichthys acros*).

Springsnails (Hydrobiidae)

Numerous spring systems exist within the ACEC, which range from cold (near or below mean air temperature), thermal (5-10° C above mean air temperature), or hot (more than 10° C above mean air temperature) (see Sada et al. 2001). Within the ACEC several springsnails, which are small (1-8 mm high) mollusks that require high quality water (Sada et al. 2001), have been identified as being unique to the area. The majority of these species are members of the genera *Prygulopsis*, with one species belonging to the *Fluminicola* genus. These genera prefer cool, flowing water and gravel substrate (Sada et al. 2001).

The “Recovery Plan for the Rare Species of Soldier Meadows” identified several spring systems, which were known to be occupied by springsnails (USFWS 1997). Additional information has increased the known number of springsnail species to nine and also the number of springs that are inhabited by

springsnails within the ACEC. Six of the nine unique species found within the ACEC have been identified to genus/species (Table 4). Primary threats to springsnails, according to Sada et al. (2001), are habitat alteration via water diversions, excessive livestock grazing, nonnative macroinvertebrate establishment, and water depletion.

The riparian areas associated with the spring systems found on the ACEC are generally dominated by herbaceous species, including sedges (*Carex* spp.) and rushes (*Juncus* spp.). Willows (*Salix* spp.) are also a common riparian species found on a few spring systems. The outflow streams of the cold, thermal, and the lower downstream reaches of the hot springs are dominated by watercress (*Rorippa nasturtium-aquaticum*) with the sporadic occurrence of duckweed (*Spirodela* spp.), aquatic butter-cup (*Ranunculus* spp.), and cattail (*Typha* spp.). These outflow reaches also host a variety of macroinvertebrates, including ephemeropterans (mayflies), plecopterans (stoneflies), and trichopterans (caddisflies). The upper reaches of the hot springs are dominated by blue green algae (Cyanobacteria) and bacteria, along with the aquatic mites (*Partnuniella thermalis*) and other thermophilic species.

Photograph 2. The springsnail genera *Prygulopsis* (left) is the most common within the ACEC, however one species of *Fluminicola* (right) does occur in the area.



Table 1. Hydrobiidae snails

Common Name	Scientific Name	Status
Northern Soldier Meadows pryg	<i>Prygulopsis militaris</i>	BLM Sensitive, USFWS Species of Concern
Southern Soldier Meadows pryg	<i>Prygulopsis umbilicata</i>	BLM Sensitive, USFWS Species of Concern
Elongate Mud Meadows pryg	<i>Prygulopsis notidicola</i>	Federal Candidate Species
Squat Mud Meadows pryg	<i>Prygulopsis limaria</i>	BLM Sensitive, USFWS Species of Concern
Surprise Valley pryg	<i>Prygulopsis gibba</i>	No Status
Western Lahontan pyrg	<i>Prygulopsis longiglans</i>	No Status
2 species found unique ¹	<i>Prygulopsis</i> spp.	No Status
1 species found unique ¹	<i>Fluminicola</i> spp.	No Status

Desert Dace (*Eremichthys acros*)

The only known habitats for the desert dace occur within the ACEC. The desert dace has been federally listed as Threatened since 1985 (Federal Register Volume 50, p. 50304,) and

¹ pers. comm. Dr. Robert Hershler, Smithsonian Institute

is the only member of the genus, *Eremichthys*. At the time of listing, critical habitat was also listed, that encompasses 50 feet on each side of designated thermal springs and their outflow streams (USFWS 1997). At least ten thermal outlets and the associated downstream channels support this unique, spring dwelling species.

Photograph 3. Desert dace (*Eremichthys acros*)



To date, there is little information regarding the species or its habitat requirements. The basic habitat requirements for the desert dace were identified in the “Recovery Plan for the Rare Species of Soldier Meadows” (USFWS 1997). These data were derived from the characteristics of spring systems that were occupied by desert dace, although these data may not represent optimal conditions for the species. In addition to desert dace, three other native fish species occupy the lower portions of the thermal outlets. These species include: speckled dace (*Rhinichthys osculus*), tui chub (*Gila bicolor*), and Tahoe suckers (*Catostomus tahoensis*) (see photographs shown below, courtesy Dr. Peter Rissler, USGS).

Photograph 4. speckled dace (*Rhinichthys osculus*)



Photograph 5. Tahoe sucker (*Catostomus tahoensis*)



Photograph 6. tui chub (*Gila bicolor*)



Photograph 7. goldfish (*Carassius auratus*)



Photograph 8. green sunfish (*Lepomis cyanellu*)



Research is currently being conducted by the United States Geological Survey (USGS) to

determine the seasonal distribution and population levels of desert dace within each spring system. The research project is also determining the presence and distribution of non-native fish species within the spring complexes of the ACEC, which were identified as a threat to the long term viability of the desert dace (USFWS 1997). These species include goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), largemouth bass (*Micropterus salmoides*), and channel catfish (*Ictalurus punctatus*). According to Dr. Gary Scopetone the species that presents the greatest threat to desert dace is the green sunfish, due primarily to its ability to adapt to habitat extremes and its aggressive predatory nature (see photographs shown above, courtesy Dr. Peter Rissler, USGS).

Vegetation, including Threatened, Endangered, Candidate, and Sensitive PLANT Species

Vegetation communities in the Soldier Meadows Hot Springs area were surveyed by Nachlinger (1991) during the 1990 growing season. She mapped three upland and four wetland plant communities in the area.

The three upland communities form a complex pattern on the landscape associated with soil texture, alkalinity and landscape position. Great Basin sagebrush scrub and Shadscale scrub communities occupy the alluvial fans and slopes, with sagebrush communities occupying the best-drained and least alkaline sites. These communities have sparse understories of native grasses and forbs. Nachlinger found these communities to be stable although native grasses were limited in diversity and abundance. Greasewood scrub communities provide a transition between the low-lying wetland communities and the upland Great Basin sagebrush scrub

and Shadscale scrub communities. Great Basin wildrye and desert saltgrass are important species in this community.

Four wetland communities occupy about 10 percent of the project area. Alkali marsh communities are the lowest wetland communities. These sites occur where the water table is above the soil surface. Tules, cattails, grasses, sedges and other emergent marsh species dominate this site. Areas of alkali marsh where recreational use is concentrated were in poor condition. Livestock were observed to generally avoid these communities because of the soft soils. The alkali seep community is slightly higher in landscape position than the marsh community where the water table is at or just above the soil surface. In many cases this community borders the alkali marsh community. Wetland grasses, sedges, and rushes dominate the community. Alkali seeps are subject to disturbance by recreational use and grazing animals attempting the access the water sources that this community buffers. Alkali meadows occur where the water table is just below the soil surface. Water is less available and prevalent than in the alkali marsh and seep communities, but more available than in the adjacent greasewood scrub community. Grasses, rushes and sedges dominate the meadows. Introduced species were most common in this community and were indicators of past disturbances. Livestock grazing in the past was concentrated in this community however the fence scheduled for construction in 2004 will eliminate grazing by livestock and wild horses from this and other wetland communities. Great Basin riparian scrub communities occur in a few drainages with a high water table. Woody shrubs and small trees including willow and wild rose dominate these communities.

Soldier Meadows cinquefoil (*Potentilla basaltica*) is a herbaceous perennial plant that grows primarily in the Soldier Meadows area. It is currently listed by the USFWS as a candidate for listing as threatened under the Endangered Species Act (Federal Register Vol. 67, p. 40662). The plant grows from prostrate stems extending from a low basal rosette. Bright yellow flowers occur in loose clusters at the end of the stems. The species blooms during late spring and early summer. The species is associated with moist saline/alkaline soils associated with alkali seeps and meadows. The species appears to favor sites with micro-relief in saturated soils to obtain root aeration. Soldier Meadows cinquefoil exhibits the ability to colonize previously disturbed areas, including old livestock corrals and the raised rim of hoof prints in wet soils. Surveys completed by Nachlinger in 1990, FWS in 2002, and BLM in 2004 indicate stable to increasing populations. Soldier Meadows cinquefoil thrives in the majority of its potential habitat, except where vehicle trails and campsites occupy areas of otherwise suitable habitat. See maps 1 and 2 for cinquefoil habitat locations.



Impacted population of Soldier Meadows cinquefoil growing adjacent to a campsite.

Current threats are associated with recreation

use of occupied habitat. Camping and associated activities in the vicinity of the “bathing pools” has depleted significant portions of the upland vegetation. Each year, additional campsites and vehicle routes are pioneered, leading to additional impacts on vegetation communities.

Livestock Grazing

Hoof shearing and soil displacement, associated with grazing animals walking on saturated soils when attempting to access water sources, has impacted vegetation communities. However, grazing would not occur within the project area, since the entire ACEC will be fenced in the summer of 2004.

Realty and Public Access

The Soldier Meadows ACEC is located adjacent to private lands that are currently owned by Estill Ranches Inc. The current public access West to the Soldier Meadows ACEC and East through Slumgullion Canyon toward Pauite Meadows crosses private lands in two places. These access roads were identified in the RMP and transportation management decisions specifically addressed providing long-term access East to West and North to South across the NCA. The two short road segments that cross private lands in Soldier Meadows provide critical access to desirable recreation sites, wildlife hunting areas and management facilities, the Applegate National Historic Trail and other high demand resources located on public lands.

There are also at least two hot springs on private lands to the North of the public land hot springs. These sites are also visited by recreation users. Soldier Meadows Guest Ranch lets their customers and staff use hot

springs, as well as groups and individuals with permission.

Cultural

The Soldier Meadows area contains a complex array of cultural resources representing human occupation dating from perhaps 10,000 to 12,000 years ago to recent historic times. In addition to the considerable temporal span, surveys conducted to date indicate that a wide breadth of behaviors took place in the area, including the exploitation of floral and faunal resources associated with marshes and hot springs, lithic procurement and tool manufacture, trade and exchange, ranching, transportation, and emigration. While archaeologists have studied some aspects of these activities, others are not well understood.

Several prehistoric sites in the area contain dense artifact assemblages and intact cultural fill that could provide data useful for investigating these lesser-known aspects of past behavior. One of these sites, an extensive lithic and groundstone scatter, has been recommended eligible for the National Register of Historic Places (NRHP).

Historic Period resources including the Applegate-Lassen Trail and the Civil War-era Fort McGarry, both National Register properties, and the 1843-44 John C. Fremont Exploration Route are also located in the vicinity. In addition, ranching has been conducted around Soldier Meadows since 1869 and important cultural resources associated with this activity are likely to be present.

Further inventory will undoubtedly reveal the existence of many other properties of important research value. In most cases, these sites are the only sources of information available to archaeologists in their efforts to

understand the past and are, thus, valuable non-renewable resources.

Native American Religious Concerns

The Soldier Meadows area lies within the traditional territory of Northern Paiute peoples. Ethnographic sources indicate that the area was used by the Aga'ipanadokado (fish lake eaters) or Moadokado (wild onion eaters) groups who inhabited the shores of Summit Lake (BLM 1998). Contemporary tribal groups have been consulted in the past with regard to proposals presented in the Soldier Meadows Activity Plan (BLM 1998). At that time, they could not provide information on the traditional use of the area and had no knowledge of Traditional Cultural Properties (TCP's) or sacred places. They do, however, view Soldier Meadows as part of their ancestral territory and have expressed concern over potential impacts to cultural resources in the area.

Recreation



The Soldier Meadow Hot Springs area is a

popular recreation destination in the NCA. Among the resources that attract visitor use are the hot springs, a primitive cabin, portions of the Applegate-Lassen National Historic Trail, wildlife and wild horse viewing, and the availability of quiet and solitude during some times of the year. The hot springs site and the nearby cabin are recorded to receive over 5,000 visitor days each year, which are calculated as visit longer than or equal to 12-hours. The largest concentrations of use occur during the fall season corresponding with big game and upland bird hunting seasons. The hot spring site is also used by a limited number of organized groups, which include commercial trail tours and guided hunting trips. The hot springs area contains some of the most desirable camping areas in the NCA, which are threatened by undirected visitor use and associated impacts.



Impacted campsite located immediately adjacent to a hot spring dam and pool.

Visitor use is a primary concern for the protection of the area resources and visitor experience. All camping areas and roads were user created without regard for sensitive resources or potential user conflicts. Without adequate management, recreational use is a specific threat to sensitive wildlife and plant populations, as well as the overall riparian health and visual integrity. The introduction

of toxins and increased sedimentation caused by de-vegetation of upland areas is of particular concerns to both terrestrial and aquatic resources. Currently no sanitary facilities are available on-site which has resulted in the proliferation of human waste, wind-blown toilet paper and unsanitary homemade commodes. Large campsites and other disturbances caused by motorized use break up the landscape, which diminishes the perception of recreating in an area that is undisturbed landscape.

The cabin site, which is located away from the heavily used hot springs also attracts visitation year-round. Trash, old fence lines, and human waste litter the area surrounding the cabin. The meadow that is located adjacent to the cabin is used by OHVs. Trails are beginning to develop through the meadow as a result of this use.



Front view of cabin located in the ACEC.

Wide spread impacts to vegetation and cultural resources can be attributed to uncontrolled vehicle use, trampling by humans, stock and camping related activities, as well as the lack of information available about the sensitive species that are dependent on this area.

Soils and Noxious Weeds,

The affected environment for these resources found within the project area are described in the Soldier Meadows Multiple Use Management Environmental Assessment (EA No. NV-020-03-09), which is hereby incorporated by reference. The Soil Resources are described in Section 3.6, pages 49-50. The Noxious Weed Resources are described in Section 3.5, page 49. This document can be obtained at the Winnemucca Field Office, BLM.

Special Designations

The project area is within the Soldier Meadows ACEC. Approximately 2,077 acres of public lands in the Soldier Meadows area are designated as an ACEC including desert dace habitat, basalt cinquefoil populations and habitat for four endemic springsnails. The hot springs complex at Soldier Meadows contains endemic fish, plant, and invertebrate species. The area also is near the Applegate Trail and contains archaeological sites and districts considered eligible for the National Register of Historic Places. The popularity of the hot springs for recreation use often causes impacts to the important natural and cultural resources.

Visual Resource Management

BLM uses visual resource management (VRM) in the project area to manage the quality of the landscape by minimizing potential impacts to visual resources resulting from human activities or developments. The objectives of these classes vary from very little change in the landscape, (e.g. Class 1) to activity that allows major landscape modifications (e.g., Class IV). The VRM class for the project area is Class II. Class II VRM allows for management actions that retain the existing character of the landscape.

The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

A project area is within the boundaries of the Black Rock Desert – High Rock Canyon Emigrant Trail National Conservation Area (NCA). The NCA was established to protect the nationally significant cultural, geological, ecological and recreational resources of the area. The legislation creating the act was largely intended to preserve the terrain, scenic vistas and primitive conditions of the Black Rock Desert and High Rock Canyon areas as they were during the emigrant passage.

The most visible man-made features in the viewshed of the project area include historic sites such as the Applegate-Lassen Emigrant Trail and Soldier Meadows Ranch (Fort McGarry outpost). More recent developments include the major access roads, secondary routes and ways, and fences. The ranch landscape includes small dwellings, outbuildings, barns, fences, trees, corrals, and fields. They are mostly situated on private lands, with the exception of one abandoned cabin in the ACEC, and only the larger features (such as trees) are visible from a distance.

Wildlife, including Threatened, Endangered, Candidate, and Sensitive TERRESTRIAL Species

The Soldier Meadows Hot Springs Area occurs at the lowest edge of the sagebrush-steppe zone and the upper edge of the salt desert shrub zone. Many wildlife species commonly

associated with the sagebrush steppe communities, including sage-grouse, are missing from the project area. Pronghorn antelope, which use both sagebrush and salt desert shrub communities occur in low densities in the area. Wildlife occurring in the area are primarily associated with the four-wetland communities. The relatively high density of wetland sites when compared to adjacent areas creates a diversity of wetland vegetation and surface water situations. This diversity creates yearlong opportunities for a variety of wetland obligates and additional habitat for migratory species dependant upon wetland meadow and marsh sites. The riparian scrub community also supports limited habitat for woody riparian dependant wildlife species associated with drainages.

Several species identified as special status species could be expected to use the wetland communities during portions of the year. None of these species have been recorded from the area, but suitable habitat exists:

- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Spotted bat (*Euderma maculatum*)
- Western small-footed myotis (*Myotis ciliolabrum*)
- Long-eared myotis (*Myotis evotis*)
- Fringed myotis (*Myotis thysanodes*)
- Long-legged myotis (*Myotis volans*)
- Yuma myotis (*Myotis yumanesis*)

All of these species use natural caves and cracks in rock outcrops or man-made cavities for breeding, rearing, and/or hibernating. There is no specific information related to breeding colonies of these species in the Soldier Meadows area. Bats depend upon

insect prey and the best potential for insect prey occurs near wet meadows, open waters and marshlands.

- Black tern (*Chilodnius niger*)

The Black tern is migratory bird species that uses both coastal and inland wetlands. Nesting occurs in small colonies in wetlands with a mix of emergent vegetation and open water. The black tern uses marsh and slough habitats with fairly dense cattail or other marsh vegetation and pockets of open water. No occurrences of this species have been identified in the project area.

- Western least bittern (*Ixobrychus exilis hesperis*)

Bittern habitat consists of fresh water marshes and reedy ponds. No occurrences of this species have been identified in the project area.

- White-faced ibis (*Plegadis chihi*)

Ibis are seen occasionally as migrants in the fall. They nest in marshes (mainly hardstem bulrush) and feed in marshes and meadows. No occurrences of this species have been identified in the project area.

Wild Horses and Burros

The proposed actions would occur on lands outside designated Herd Management Areas. In addition, the entire ACEC will be fenced in the summer of 2004, which would exclude use by wild horses.

Wilderness

The proposed actions would not occur within designated wilderness.

ENVIRONMENTAL CONSEQUENCES

Critical Elements

The following critical elements of the human environment are not present or, if present, are not affected by the proposed action and alternatives.

Critical Elements	Present	Affected		Critical Elements	Present	Affected	
		Yes	No			Yes	No
Air Quality	X		X	Nat. Amer. Rel. Concerns	X	X	
ACEC's	X	X		T & E Species	X	X	
Cultural Resources	X	X		Wastes, Hazardous/Solid			X
Environmental Justice			X	Water Quality	X	X	
Farmlands, Prime/Unique			X	Wetlands/Riparian Zones	X	X	
Floodplains			X	Wild & Scenic Rivers			X
Invasive, Nonnative Species	X	X		Wilderness			X
Migratory Birds	X		X				

Impacts of the Proposed Action

Management actions taken to control recreation use and to protect and rehabilitate sensitive habitats would have long term impacts to the resources and visitor experience in the ACEC. While most traditional recreational opportunities would be available, the areas of use and number of overall people and vehicles would be limited. These actions taken together would revive impacted areas immediately adjacent to hot spring resources and provide a more diverse, but more directed variety of recreation opportunities.

Water and Aquatic Resources, including Threatened, Endangered, Candidate, and Sensitive AQUATIC Species

All three alternatives would involve closure and rehabilitation of the routes that occur within and adjacent to federally designated critical habitat for desert dace. The direct effects of route closure would be beneficial based on the rehabilitation of routes that would reduce potential erosion into the adjacent spring systems and also the elimination of vehicular travel within the riparian zones along the springs.

Repairing road segments that have been identified as causing aquatic resource impacts would be beneficial for aquatic resources. However, road repairs would have the potential to increase disturbance in the vicinity of aquatic habitats, which could cause short term sedimentation and turbidity level increases following a precipitation event.

To mitigate this potential impact, the appropriate Best Management Practices (BMP) would be employed when working within 100 feet of aquatic resource habitats. BMPs are described in detail in the mitigation section of this document.

The subject stream crossing occurs within an intermittent drainage that generally flows until mid June annually. The stream crossing is located within cobble and rubble substrates and is very stable. No impacts to aquatic habitat are expected, since this stream segment is intermittent and provides no seasonal habitat for aquatic species.

No direct effects on aquatic resources would be expected from placing barriers on closed routes; however indirect beneficial effects would occur from physically restricting vehicles from sensitive aquatic habitats.

No direct or indirect effects on aquatic resources would be expected from obtaining easements across private land to better access Slumgullion Canyon or the Hot Springs Area.

Increased management presence in the area would be expected to reduce adverse impacts to aquatic resources through increased education and monitoring to ensure compliance with protective regulations.

No impacts are expected to occur on aquatic resources from the actions outlined in the alternatives related to campsite and day-use facility development.

Under this alternative the existing hot spring pools could be utilized for recreational bathing. No new pools could be constructed and any additional building onto existing rock dams would be prohibited. Prohibition of building new rock dams or adding to the existing dams should preclude adverse impacts from occurring to desert dace and springsnails. Indirect adverse impacts may also occur to the desert dace from introductions of chemicals, such as soap, into the system from recreational bathers using the pools. Based on the distributional data from USGS collected in 2003, it appears that desert dace are not impeded by the rock dams and readily move through the rock structures, therefore no direct impacts are expected from the presence of the existing pools.

Re-vegetation of 3.3 miles of road with approximately 4 acres of disturbance would promote long-term soil stability in designated critical habitat for desert dace and habitat for springsnails, including a Federally listed candidate species. Short term sedimentation may occur following rehabilitation associated with high intensity precipitation events. Restoration efforts combined with educational materials provided at ACEC information kiosks would benefit the recovery and stabilization of aquatic species.

Efforts to stabilize existing hot pools and minimize contamination from recreation users, would also reduce impacts to sensitive species. Educational materials would inform users of their impact on aquatic resources and would advise low-impact recreational use. Construction of new rock dams in the main hot spring use area would be prohibited, which would minimize further disturbance to stream morphology, flow, and channel characteristics. Unsanitary conditions and contamination from human waste would be minimized by providing vault toilets.

Soils

Managing visitor use in the ACEC would help stabilize currently disturbed areas through rehabilitation efforts, visitor education, and effort to concentrate day and overnight use. Soils associated with cinquefoil would be stabilized by closing campsites, providing walking trails and providing information about Soldier Meadows cinquefoil. Designated walking trails would reduce trail proliferation resulting in multiple routes and increased soil disturbance.

Vegetation, including Special Status Plant Species

Road closures, road relocations, limiting camping to designated sites, hardening stream crossings, restoration of upland and riparian sites, and implementation of outreach efforts that improve understanding would decrease human impacts on both a few acres of upland and riparian vegetation.

Installation of kiosks, new signs, a vault toilet and developing new roads for the campground and road relocations would result in new surface disturbance and removal of vegetation on a similar area.

Soldier Meadows cinquefoil populations would be subject to human related disturbance on about 0.25 acres due to road closures and rerouting and campsite closures. Inadvertent disturbance due to human use may be reduced because visitors would be more aware of the presence and value of the species due to the outreach materials and developments. Taken together, the proposed actions would improve the health of cinquefoil communities.

Livestock Grazing and Wild Horse and Burro Management

The proposed action would not impact livestock grazing or wild horse and burro management. The entire spring system in the vicinity of the proposed actions will be fenced in the summer of 2004 to restrict use by cattle and wild horses and burros.

Cultural

Cultural resources situated within the proposed road reroutes, designated camping areas and camp sites, and kiosk locations would be subject to varying degrees of ground disturbance. These disturbances could result in the dispersal and destruction of artifacts, the disruption of site integrity, and the eradication of subsurface and/or datable cultural deposits. In addition, the proposed action could result in increased visitation which may accelerate looting of cultural resources in the vicinity.

In order to evaluate the presence of cultural resources in relation to the areas of ground disturbance, a Class I and III cultural resource inventory was conducted along the proposed road reroute, camping areas and camp sites.

The results of this investigation indicate that both prehistoric and historic period resources would be impacted by the proposed action. One resource, a wood-framed cabin is situated at the location of one proposed campsites. Evidence indicates that the site is less than 50 years old and it is not considered to be significant.

The investigation further revealed that an extensive NRHP-eligible prehistoric site encompasses the entire location of the camping area, another proposed campsite, and the road reroute proposed for the hot springs area.

It was determined that the areas of the site encompassing the campsite and road reroute are either highly disturbed or are peripheral to the primary occupation areas. As such, these areas are not considered to contain attributes that contribute to the site's eligibility.

However, the area of the site encompassing the camping area in the immediate vicinity of the hot pools retains a high degree of integrity, an attribute that is central to the significance of the site.

Impacts as a result of a potential looting would be further reduced through interpretation and public education, increased patrol, and the possible presence of camp hosts.

Upon implementation of a cultural resources mitigation plan, the proposed action will have *no adverse effect* on significant cultural resources. See Mitigation Measures for details of the data recovery effort.

Native American Religious Concerns

A solicitation letter was forwarded to the Summit Lake Tribal Council (SLTC) describing the proposed action and a mitigation proposal for the archaeological site in the hot pools area. The letter invited them to express any concerns they may have about places of traditional and religious importance in the vicinity. The SLTC responded in writing indicating their concern for natural and cultural resources in the area.

A meeting between the SLTC and BLM was conducted to further explain the details of the proposed project. The SLTC indicated that the project area contains resources important to both the Summit Lake and Pyramid Lake Tribes. BLM invited the tribe to participate in the development of educational materials for the site, which would help create an appreciation for the natural and cultural resources in the project area. At the conclusion of the meeting, the SLTC indicated that they would respond to the proposal in writing.

The proposed action would protect and enhance natural resources and reduce human impacts and increase appreciation for cultural resources.

Realty and Public Access

Road easements obtained from private land owners would have beneficial impacts to recreation, research, wildlife management, administrative and other NCA users. The easements would provide legal East to West access through the Soldier Meadows area, and East through Fly Canyon. Legal access to the Northwestern portions of the NCA, including the hot springs site and High Rock Canyon, would be secured for long-term use by recreation and other land users. Legal access to Slumgullion Canyon West through private property would provide long-term access to the Northeastern portions of the NCA and wilderness.

Noxious Weeds

The proposed action would reduce the proliferation of non-native species by reducing the amount of roads and area available for recreational uses. Any areas that are disturbed during implementation of the proposed action would be restored and monitored. Restoration, including seeding and monitoring, would minimize the establishment of non-native species.

Wildlife, including Special Status Terrestrial Species

Implementation of the Proposed Action alternative would have little impact on terrestrial wildlife species including migrant species. Visitor use would not be expected to change over current levels and that use would be concentrated in a small portion of the ACEC. Elimination of camping next to the water sources would decrease human disturbance of wildlife near water sources.

Special status species including bat species and the black tern, white-faced ibis and Western least bittern that may use wetland and marsh habitats would not be affected because visitors do not use these habitats.

Recreation

Management decisions in the proposed action would have long term benefits to the recreation experience, as a result of maintaining overnight opportunities and restoration of impacted areas to natural conditions. Proposed management of recreational use includes actions to provide long-term public access, identify and delineate designated routes, day-use and camping areas, provide visitor information, and monitor resource conditions.

Road closures, reroutes, and the use of vehicle barriers would restrict vehicle travel to designated routes. Impacts to the visitors' freedom of choice would be expected, but would not likely cause visitor displacement, with the exception of the satellite spring, where alternate access routes would not be provided. Prohibiting vehicle access to the satellite spring would likely cause displacement to other hot springs in the Soldier Meadows area or the NCA, but would provide additional non-motorized camping opportunities in the hot spring area. Actions taken to close, reroute or harden road segments that are impacting sensitive resources, such as Soldier Meadows cinquefoil and one intermittent stream would not have an impact on recreational use, except where access is improved through traditionally wet areas. Since road maintenance and construction would only occur in localized areas, overall access to the hot springs would not be improved above current levels.

Vehicle barriers and temporary fencing would create a minor visual obstruction to recreationists who are accustomed to the undeveloped character of the area, but would protect resources from impacts associated with road and campsite proliferation.

Management actions to provide public information would have long-term impacts to resources in the ACEC and NCA as a whole. Although information kiosks, interpretive panels and other proposed outreach facilities would have the potential to detract from the undeveloped character in small portions of the ACEC, long term protection of resources is expected. Temporary orientation signs would minimize impacts to users that are seeking traditional access routes to the hot springs and would minimize use of closed road segments. Increased understanding and respect for sensitive resources, gained through providing the proposed public information, would minimize inadvertent impacts that detract from the recreation environment. The increased public information would also improve compliance with new regulations. With the exception of the interpretive display at the day-use area, signs and kiosks would be developed in areas already containing man-made facilities, such as fences, cattle guards, a cabin and user made facilities. All new developments would be constructed with rustic materials, when possible, and would be low-profile in nature. Increased opportunities to learn about the resources of the ACEC and NCA would benefit the recreation experience, while protecting significant resources.

Developing a camping area and allowing use in designated campsites only, will have short-term impacts to the visitor experience by eliminating the freedom of choice in campsite location. However, by designating appropriate use areas, sensitive resources can be protected while providing for continued use of the hot springs area. Additionally, enhanced protection of the hot springs resources would have long term benefits to the recreation environment, by protecting and

restoring sensitive scenic areas. Long-term occupation of desirable hot spring areas by individual groups would be reduced by allowing camping only in designated sites, which would minimize competition for use of the hot springs. Since alternate camping areas would be provided in the vicinity of the hot springs, visitor displacement is not expected during the majority of the year. However, during the fall hunting season campsites may reach capacity, which would require some parties to camp in alternate locations. Restricting use by commercial outfitters would help minimize this impact, but some users may still be displaced to BLM and private lands outside of the ACEC.

Developing a day use area and walking trails will provide continued access to the hot springs. Some impacts would be expected to visitors with physical disabilities who could access the springs by vehicle in the past. Trails would provide access, but the majority of users would not be impacted by the additional 300-400 foot walk that would be required to access the springs by foot. A parking area would provide an adequate area to park and turn vehicles around without leaving the disturbed surface. A toilet would also be installed to minimize unsanitary conditions typical of the site. The walking trails combined with interpretive information will provide for unique educational opportunities. The day-use site would provide essentially the same opportunities to park and use the area resources as what is currently available, without impacting sensitive resources directly adjacent to the springs.

Actions associated with species recovery would have similar impacts to recreational use. Since the existing “hot pools” would be available for public use, opportunities for hot spring soaking would be unchanged. However, construction of new dams would be prohibited, which limits the number of springs available for use in the long-term. Rehabilitation efforts would help restore the natural and undeveloped character of the site, which would enhance primitive recreation opportunities at the hot springs.

Developing and implementing a monitoring schedule would improve the understanding of existing conditions and the impacts that result from management actions. Changes in visitation and uses would be identified and appropriate actions could be taken if necessary to minimize potential impacts. Population surveys would help determine if protective actions are supporting species recovery and where new or additional threats arise.

Implementation of the proposed management actions would have long term benefits to the recreation environment and would provide long-term recreation opportunities. Short-term impacts, mostly due to changes in access and camping areas would be off-set by improved resource conditions and additional opportunities available through interpretive information. Limiting the number of designated sites will ensure similar use conditions for future generations, even if it does result in the loss of spontaneity and increased competition for sites. Although some changes to the existing character would occur, long-term impacts to sensitive resources at desirable recreation areas would enhance the visitors perception of recreating in an area free from human disturbance.

Special Designations

Management actions in the proposed action are consistent with meeting the objectives for designation as an ACEC. The special qualities protected through ACEC designation would be enhanced through actions to manage visitor use and provide education about sensitive resources in the ACEC.

Visual Resource Management

The visual setting of the project area as a whole would be largely unaffected by the proposed actions. Although new disturbance would have the potential to diminish small areas of the ACEC, road closures, campsite designations, and dissemination of public information would help restore and maintain important areas near the hot spring resources.

For the purposes of analysis, potential impacts to visual resource will be discussed in two different contexts; one from the springs themselves, and the other from the primary access road through the ACEC (Fly Canyon Road).

The viewshed from the springs would be greatly enhanced from implementation of the proposed action. Existing roads, campsites, user made facilities, human waste and other recreation related impacts would be removed and rehabilitated. Alternate camping areas with sanitary facilities would be provided in an area that is out of sight from the hot springs. Improved natural conditions would benefit the visual setting of the hot springs.

The viewshed from Fly Canyon road would be largely unaffected. While new vehicle barriers and temporary signs would detract from the undeveloped nature of some locations, road closures and rehabilitation would improve natural conditions and the visual setting of the landscape. Vehicle barriers and campsite designations would help minimize development of new routes and campsites that would detract from the visual setting. Trailers, vehicles and other camping equipment at the designated campsites would be more visible from the main access roads than where most people currently camp.

All facilities would be designed to blend with the existing environments. Vehicle barriers would consist of native stone wherever feasible. In those areas where bollards, fences, or wooden vehicle barriers are used they would create a visual distraction along access roads, where closed road segments occur. Concentrating use in designated areas and on designated roads will reduce campsite and trail proliferation, further protecting the viewshed of the project area from use related impacts.

The proposed management would provide long-term protection of the viewshed from the hot springs resource and would minimize impacts on the landscape level.

Wilderness

The proposed action would not involve actions within designated wilderness, therefore no direct impacts are anticipated. However, educational efforts and boundary signing within the project

area would benefit the protection of wilderness resources and the associated opportunities for primitive recreation.

Impacts of Alternative 2 – Continued Management – No Action

Water and Aquatic Resources, including Threatened, Endangered, Candidate, and Sensitive AQUATIC Species

Similar beneficial impacts as those described for the proposed action would be expected as a result of road closures and reroutes. However, several beneficial impacts that would be expected from the proposed action would not occur under this alternative.

Expected benefits to aquatic resources would not improve due to the increased level of management presence in the area.

No impacts on aquatic resources are expected from not providing orientation sites; however the lack of information may indirectly impact the sensitive aquatic resources adversely. This adverse impact is primarily due to recreational bathers that use the hot springs and unintentionally harm the aquatic life by using soaps and chemicals in the water.

Impacts from decisions related to bathing pool use and hardening would be similar as the under the proposed action, except under this alternative the margins would not be reinforced using flag stone to prevent bank sloughing, which may lead to further impacts to streambanks and channel morphology.

Soils

Impacts would be similar to the proposed action. The road closures and route relocations would be the same as the proposed action, but less new surface disturbance would occur. However the reduction in disturbed area compared to the proposed action would be less than one acre.

Vegetation, including Special Status Plant Species

Impacts would be similar to the proposed action. The road closures and route relocations would be the same as the proposed action, but less new vegetation disturbance would occur. However the reduction in disturbed area compared to the proposed action would be less than one acre.

Impacts on Soldier Meadows cinquefoil would be similar to the proposed action. The same protective and restoration measures would be undertaken in both alternatives. The expected decreased visitor use would result in a slight reduction in direct human trampling of individual plants in populations near popular hot springs.

Livestock Grazing and Wild Horse and Burro Management

Impacts would be the same as described for the proposed action.

Realty and Public Access

Impacts would be the same as described for the proposed action.

Cultural

Direct impacts would be limited to ground disturbance associated with the road reroute described under the proposed action. The proposed reroute has been inventoried and it was determined that it did not contain significant cultural resources.

Since access and dispersed camping will not be as rigorously controlled and educational material would be limited, secondary impacts, such as vandalism and looting, would be harder to monitor and control.

Native American Religious Concerns

As described under the proposed action, a solicitation letter describing this alternative was forwarded to the Summit Lake Tribal Council (SLTC) and face-to-face consultation was conducted. The SLTC expressed concern for natural and cultural resources in the area, though they had no specific concerns in relation to the road reroute.

Since no interpretive or educational material would be distributed under this alternative, no input from the SLTC regarding the development to these materials would be solicited.

Noxious Weeds

This alternative would also reduce the proliferation of non-native species by reducing the amount of roads and area available for recreational uses. Since fewer surface disturbing activities are proposed under this alternative, there would be fewer opportunities for non-native seed to establish in the project area.

Wildlife, including Special Status Terrestrial Species

Impacts on terrestrial wildlife species would be similar to the proposed action. The same restrictions on camping adjacent to water sources would be undertaken in both alternatives. The expected decreased visitor use would result in a slight reduction in possible human harassment or disturbance of wildlife near water sources. Human use of wetland and marsh habitats that may be used by bats, black terns, white-faced ibis, and Western least bittern would remain at very low levels.

Recreation

Management decisions in the continued management alternative would have long term impacts to the recreation experience, as a result of the reduction in overnight opportunities and restoration of impacted areas to natural conditions.

Road closures, reroutes, and the use vehicle barriers would restrict vehicle travel to designated routes. Without vehicle access visitation would be expected to sharply decline and visitors

would likely be displaced to other hot springs or camping areas in the region. Impacts to the visitors freedom of choice in campsite location and vehicle travel would also be expected. Since no alternate camping areas or access routes would be established under this alternative, visitor displacement would be high, when compared to the other alternatives.

Actions taken to reroute or harden road segments that are impacting sensitive resources, would have the same impacts as those described for the proposed action.

Acquisition of road easements would have similar impact as those described under the proposed action.

The current method of disseminating information would not benefit sensitive resources or the visitor experience. The current information about ACEC and NCA resources is inadequate to communicate resource concerns and new regulations. Therefore, no increase in visitor appreciation for the resources or compliance with area regulations would be expected. The lack of orientation information would compound impacts to traditional users, since no explanation or alternate recreation areas would be provided those areas closed by this plan.

The undeveloped character of the area would be improved as a result of implementing this alternative, since existing roads and campsites would be restored. However, resource conditions would be expected to continue to decline in the vicinity of the hot springs without any direction for area visitors.

Since no camping area or day-use site would be developed under this alternative, use-related impacts would be displaced to undisturbed areas. Without the designation of parking areas or new pull-offs for day and overnight users, they would likely be developed by users causing surface disturbance in potentially sensitive areas. Impacts from human waste would be expected to continue and proliferate into areas where displaced users relocate.

Night use of the hot springs would be limited, since campsites would be designated in areas away from the main hot spring use area.

Without the provision of alternate campsites, it could be expected that visitors would continue to use existing sites and other hot springs on private lands or other locations in the NCA. Displaced recreation users would be expected to utilize hot springs on private lands to the north of the ACEC and throughout the NCA.

Similar adverse impacts to commercial outfitters would occur under this alternative.

Impacts associated with species recovery would be similar to those described for the proposed action. Since the area would be closed to camping, rehabilitation efforts would have a greater likelihood of succeeding and supporting the recovery of sensitive species.

Similar beneficial impacts would be expected from the development of a monitoring and

inventory schedule for the ACEC, as described for the proposed action. However, data recovery of cultural resources in the project area would not be conducted as it would under the proposed alternative.

Implementation of the proposed management actions would have long term benefits to the recreation environment, but would limit overnight recreation opportunities. Reductions in campsite availability and vehicle access would have long-term impacts to traditional recreation users. However, day use opportunities would be improved at the site, since there would not be long-term occupation of hot springs by overnight users. Impacts to overnight users may also be off-set by improved resource conditions, but impacts to traditional overnight users would still be substantial.

Special Designations

The same beneficial impacts as described for the proposed action would be expected under this alternative. Rehabilitation and stabilization of sensitive habitats would benefit from a decline in visitation that is expected under this alternative.

Visual Resource Management

Similar beneficial impacts as described under the proposed action would be expected under this alternative. However, potential impacts related to the placement of signs, and the development of new campsites and roads would not occur. Road and campsite proliferation would be expected without active management.

Wilderness

This alternative would not involve actions within designated wilderness, therefore no direct impacts are anticipated. The beneficial impacts from educational efforts, as described for the proposed action, would not occur under this alternative.

Impacts of Alternative 3 (Intensive Management)

Impacts under this alternative will be the same as under the proposed action, except where noted.

Water and Aquatic Resources, including Threatened, Endangered, Candidate, and Sensitive AQUATIC Species

Under this alternative boardwalks would be constructed to prevent bank sloughing, which would have no measurable difference in effect on desert dace or aquatic resources, when compared to the use of flagstone material.

Soils

Impacts would be similar to those identified for the proposed action. Development of additional camping spaces and more extensive kiosk and sign placement could result in approximately an

additional acre of soil disturbance.

Vegetation, including Special Status Plant Species

Impacts would be similar to those identified for the proposed action. Development of additional camping spaces and more extensive kiosk and sign placement could result in approximately an additional acre of vegetation disturbance.

Impacts on Soldier Meadows cinquefoil would be similar to those identified for the proposed action. Recovery and protection measures would be the same in the two alternatives and the additional visitor levels would still result in low overall visitation to the ACEC.

Livestock Grazing and Wild Horse and Burro Management

Impacts would be the same as described for the proposed action.

Realty and Public Access

Impacts would be the same as described for the proposed action.

Cultural

Impacts and mitigation measures would be similar to those described for the proposed action.

Native American Religious Concerns

As described under the proposed action, consultation with the Summit Lake Tribal Council (SLTC) was conducted. The SLTC expressed general concerns about potential impacts to natural and cultural resources as consequence of implementing this alternative.

BLM invited the tribe to participate in the development of educational materials for the site, which would help create an appreciation for the natural and cultural resources in the project area. At the conclusion of the meeting, the SLTC indicated that they would respond to the proposal in writing.

Noxious Weeds

Impacts would be similar to those identified for the proposed action. The development of additional camping spaces and more extensive kiosk and sign placement could result in approximately an additional acre of vegetation disturbance which would be offset by decreased disturbance on the several acres that would be restored to native vegetation communities.

Wildlife, including Special Status Terrestrial Species

Impacts would be similar to those identified for the proposed action. Development of additional camping spaces and more extensive kiosk and sign placement would result in additional visitation. However human impacts on terrestrial wildlife species would remain low because of the overall low visitation levels and because visitors would remain concentrated on a small

portion of the ACEC.

Recreation

Management decisions under this alternative would have similar impacts as those described for the proposed action. Overnight camping and interpretive opportunities would be increased.

Management actions to provide public information would have long-term impacts to resources in the ACEC and NCA as a whole. Increased efforts to provide public information with the development of an orientation site, kiosk, and interpretive panels would have a greater potential to detract from the undeveloped character in small portions of the ACEC, when compared to the other alternatives. However, improved long term protection of resources is expected with an increased understanding and appreciation for area resources. Increased opportunities to learn about the resources of the ACEC and NCA would benefit the recreation experience, while protecting significant resources.

The camping area and day use area proposed under this alternative would provide overnight and day use opportunities to approximately twice as many users as under the proposed action. Developing a greater number of campsites and larger day-use area would likely lead to long-term increases in visitor use. A greater number of people would be able to access area resources at one time for day and camping uses. Therefore, opportunities for solitude would be decreased under this alternative. Visitor displacement would be expected, since people seeking solitude may look in other areas or different locations in the NCA.

Greater opportunities for people with disabilities would be available when compared to the other alternatives, since all paths and roads would be constructed with crushed gravel.

Implementation of the proposed management actions would have long term benefits to the recreation environment and would provide long-term recreation opportunities for a greater number of visitors. Short-term impacts, mostly due to changes in access and camping areas would be off-set by improved resource conditions and additional opportunities available through interpretive information. Although some changes to the existing character would occur, long-term impacts to sensitive resources at desirable recreation areas would enhance the visitors perception of recreating in an area free from human disturbance.

Special Designations

Similar beneficial impacts as described for the proposed action would be expected under this alternative.

Visual Resource Management

Similar impacts as described for the proposed actions would be expected under this alternative. The proposed actions could still be implemented to meet VRM II requirements. However, additional campsites and interpretive signage proposed under this alternative would have greatest impacts to visual resources when compared to the other alternatives. Increased educational

efforts could also prevent in appropriate surface disturbing activities in the ACEC, which would aid in the protection of visual resources.

Wilderness

The proposed action would not involve actions within designated wilderness, therefore no direct impacts are anticipated. However, similar to the proposed action, educational efforts and boundary signing within the project area would benefit the protection of wilderness resources and the associated opportunities for primitive recreation.

Mitigation Measures

Water and Aquatic Resources Mitigation

The following Best Management Practices will be used to reduce the potential for sedimentation to desert dace and springsnail habitat when implementing the proposed actions that occur within 100 foot of aquatic resource habitats.

- 1) Use straw bales, straw mulch, grass-seeding, hydromulch, and other erosion control and re-vegetation techniques to complete the construction project.
- 2) Install surface drainage controls to remove stormwater from the roadbed before the flow gains enough volume and velocity to erode the surface. Route discharge from drainage structures into the sage brush so that water will disperse and infiltrate. Methods of road surface drainage include:

Broad-based Dip Construction. A broad-based dip is a gentle roll in the centerline profile of a road that is designed to be a relatively permanent and self-maintaining water diversion structure and can be traversed by any vehicle (Swift, 1985, 1988). The dip should be outsloped 3 percent to divert stormwater off the roadbed. Broad-based dips should be used on roads having a gradient of 10 percent or less. Proper construction requires an experienced bulldozer operator (Kochenderfer, 1970).

Road Outsloping and Grading. Grade and outslope roadbeds to minimize water accumulation on road surfaces (Kochenderfer, 1970). This practice minimizes erosion and road failure potential. Outsloping involves grading the road so that it slopes downward from the toe of the road cut to the shoulder. The slope should be about 3-4 percent (Rothwell, 1978). Outsloping the roadbed keeps water from flowing next to and undermining the cut bank, and is intended to spill water off the road in small volumes at many random sites. In addition to outsloping the roadbed, a short reverse grade should be constructed to turn water off the surface. Providing a berm on the outside edge of an outsloped road during construction, and until loose fill material is protected by vegetation, can eliminate fill erosion (Swift, 1985). The effectiveness of outsloping is limited by roadbed rutting during wet conditions. Also, berms may form along the edge of older roadbeds and block drainage (Swift, 1985). Therefore, proper maintenance of these structures is necessary.

Ditch and Turnout Construction. Ditches should be used only where necessary and should discharge water into vegetated areas through the use of turnouts. The less water ditches carry and the more frequently water is discharged, the better. Construct wide, gently sloping ditches, especially in areas with highly erodible soils. Ditches should be stabilized with rock and/or vegetation (Yoho, 1980) and outfalls protected with rock, brush barriers, live vegetation, or other means. Roadside ditches should be large enough to carry runoff from moderate storms. A standard ditch used on secondary logging roads is a triangular section 45 cm deep, 90 cm wide on the roadway side, and 30 cm wide on the cut bank side. Minimum ditch gradient should be 0.5 percent, but 2 percent is preferred to ensure good drainage. Runoff should be frequently diverted into culverts to prevent erosion or overflow (Rothwell, 1978).

3) Install appropriate sediment control structures to trap suspended sediment transported by runoff and prevent its discharge into the aquatic environment.

Methods to trap sediment within the project are could include:

Silt Fences. Silt fences are temporary barriers used to intercept sediment- laden runoff from small areas. They act as a strainer: silt and sand are trapped on the surface of the fence while water passes through. They may consist of woven geotextile filter fabric or straw bales. Silt fences should be installed prior to earthmoving operations and should be placed as close to the contour as possible.

Filter Strips. Sediment control is achieved by providing a filter or buffer strip between streams and construction activities in order to use the natural filtering capabilities of the floor and litter. The Streamside Management Area management measure requires the presence of a filter or buffer strip around all waterbodies.

Revegetate or stabilize disturbed areas

Cutbanks and fillslopes along roads are often difficult to revegetate (Berglund, 1978). Properly condition slopes to provide a seedbed, including rolling of embankments and scarifying of cut slopes. The rough soil surfaces will provide niches for seeds to lodge and germinate. Seed as soon as possible after disturbance, preferably during road construction or immediately following completion and within the same season (Larse, 1971). Early grassing and spreading of brush or erosion-resisting fabrics on exposed soils at stream crossings are imperative (Swift, 1985).

Cultural Resources Mitigation

Adverse impacts to cultural resources associated with the proposed action would be reduced through a program of in-field data collection of surface artifacts, limited collection of diagnostic materials, and avoidance of areas with the potential for subsurface deposits (see Mitigation Measures). The data recovery program would be developed and approved through consultation with the Nevada State Historic Preservation Office (SHPO) and local tribal groups.

Cumulative Impacts

The Council of Environmental Equality (CEQ) regulations implementing NEPA defines

cumulative impacts as: "...[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Past, Present, and Reasonably Foreseeable Future Actions.

The cumulative impact analysis areas for this EA are shown on map 4, which is located in Appendix 1. For analysis purposes, the cumulative impact area will be different for recreation, than for the other resources that are analyzed. For most resources the area of analysis, the Hot Springs Cumulative Assessment Area (CAA), includes desert dace and basalt cinquefoil habitat on public lands. The entire assessment area for these resources will be fenced in the summer of 2004. The Recreation CAA, which is the larger area depicted on the map encompasses the other hot springs in the area that could incur impacts.

Past Actions

The major past uses within both of the cumulative impact assessment areas are ranching, recreation, mineral exploration, livestock, wild horse and burro management, and wildlife management.

In the early 1990s, the Bureau of Land Management and the Nature Conservancy worked cooperatively to secure a conservation easement and to purchase private lands within and adjacent to the ACEC. These lands comprise significant portions of the the Hot Springs CAA. These purchased lands included the federally designated critical habitat for the desert dace.

With the designation of the NCA in 2000 the entire NCA, including the areas within the cumulative assessment areas, was withdrawn from mineral entry or development.

Although livestock grazing and wild horse and burro management were an important activity in years past, the entire ACEC will be fenced to exclude livestock and wild horses and burros in the June of 2004. Prescriptive grazing may be permitted in the future.

Legal access to the hot springs, as well as NCA and wilderness lands to the East and West of Soldier Meadows is not available without a considerable increase in driving time. Access from Soldier Meadows Road (Co. 200) crosses private lands that are not under easement.

Present Actions

Recreation is the major present use within the Hot Springs cumulative impact assessment area.

Recreation uses including camping, hot spring bathing, hunting, hiking, rockhounding, off highway vehicle (OHV) use, and commercial activities such as 4-wheel drive tours, and outfitter guide operations would continue within the assessment areas.

The RMP for the NCA recognized the need for protecting significant resources in the ACEC through active visitor use and resource management. The project area is within the designated Front Country Zone, which allows for continued use of the area resources and limited facility developments

Livestock and wild horse and burros would continue to be excluded from the Hot Springs CAA.

Recreation users continue to access the hot springs, as well as other NCA and wilderness lands without legal access from Soldier Meadows Road (Co. 200).

Reasonably Foreseeable Future Actions

Recreation would likely continue to be the dominant land use within the assessment areas, and visitation is expected to increase over time. Recreation management actions would be taken to restore and revive sensitive habitats. These include:

- Campsite Designations and Restrictions
- Road Construction, Closures, Reroutes, and Maintenance
- Increased Public Outreach Efforts
- Increased Management Presence

Livestock and wild horse and burros would continue to be excluded from the Hot Springs CAA.

Wildlife management activities would include efforts to restore desert dace, Soldier Meadows cinquefoil and the spring system ecosystem.

Summary

Recreation uses have in the past, and continue to be dominant in the assessment areas. With the passage of the NCA Act in 2000, a Resource Management Plan (RMP) was developed and will become final in the summer of 2004. The RMP includes management actions to address recreation and other resource uses within the NCA. New regulations and requirements imposed by the RMP will be implemented over the next 20 years.

Recreational use and vehicle travel will be managed to reduce impacts in the NCA. Increased attention will be given to special management units, such as ACECs, and other high use recreation attractions. Recreation facilities and restrictions, road improvements/downgrades or closures, which were not used in the past, may be developed to manage increased visitation and minimize use related impacts.

Impact Analysis

Unless otherwise specified the following cumulative impact analysis addresses all three alternatives.

Water Resources & Fisheries/Aquatic Resources/Special Status Species

Past Actions

Almost all of the Hot Spring CAA was on private land, which was managed primarily for the livestock production and indirectly as an irrigation water source. Livestock grazing caused deterioration of streambanks and loss of palatable plant species. After the acquisition of these lands by BLM livestock management considered aquatic resources or aquatic special status species, which subsequently led to the improvement of aquatic and upland conditions. The cooperative easement/acquisition of lands private lands in the Hot Springs CAA helped facilitate the increased protection of several sensitive species, one federally listed Threatened species of fish, and their habitats.

Past recreation use at hot spring locations throughout both assessment areas has caused impacts to water and aquatic resources. New campsites, roads, and the introduction of toxic substances into hot springs have impacted sensitive resources through increased sedimentation and direct contamination.

Although mineral activity in both of the CAAs has always been limited, the withdrawal from mineral entry in the NCA legislation eliminated the possibility of new mining related impacts in the assessment area.

Present

Although conditions have improved since the 1930s, portions of the analysis area continue to have adverse cumulative impacts to water resources and watersheds. These impacts are due primarily to concentrated livestock use in riparian areas, which reduces habitat diversity needed to sustain aquatic organisms by altering channel morphology, increasing sediment loads, and altering the natural water quality characteristics within areas. Other impacts are associated with recreational camping and bathing, which have impacted the aquatic biota of hot springs within the assessment areas.

The planned fencing of the entire Hot Springs CAA is expected to improve the health of aquatic systems in the CAA.

RFFAs

Implementation of the NCA RMP would include management actions to protect sensitive species and aquatic habitats. Elimination of livestock within sensitive areas, containing special status species, will lead to improvements to fisheries and aquatic habitats in the NCA and project area.

New restrictions in the Hot Springs CAA could be expected to cause visitor displacement to other hot spring resources, both on private and public lands. Similar impacts as described for past actions would be expected to occur at these other hot springs in the absence of management controls in those areas.

Summary

The incremental impacts from past, present and RFFA would result in an overall improvement of watershed condition. Although fisheries and aquatic habitats would maintain or improve in

overall condition over time, areas of small-localized impacts would be likely to continue.

Alternative 2

Impacts would be similar to those described for the Proposed Action. However, impacts related to visitor use in the project area would be displaced to other areas inside and outside of the NCA, including areas on private land. With the overall loss of hot springs camping opportunities, other hot springs in the region would be expected to receive increased visitation as a result of management action.

Alternative 3

Impacts would be similar to those described for the Proposed Action. However, under this alternative there would be approximately twice as many campsites designated as under the proposed action. The overall increase in overnight opportunities combined with increased visitation could result in greater impacts. Increased visitation would impede restoration efforts, which makes the springs more susceptible to sedimentation.

Soils

Past Actions

Past areas where recreational use and overgrazing from livestock and wild horses and burros combined with the introduction of invasive or exotic species has adversely impacted soils leaving them susceptible to erosion.

Present Actions

Increased recreation use continues to attribute to the adverse impacts described above.

Implementation of grazing management actions in 2004 would help ensure the attainment of the allotment specific objectives and Standards for Rangeland Health should improve soils throughout the assessment areas by requiring livestock management practices to prevent irreversible impacts.

Fencing habitats the sensitive habitats within the Hot Springs CAA would protect soils in that area from the impacts associated with trampling.

RFFAs

Recreation management decisions would minimize vegetation removal and soil compaction from OHV use and concentrated recreational uses. Efforts to designate use areas would and restore previously impacted sites would help achieve the Standards for Rangeland Health, and should limit soil erosion throughout the assessment area by increasing cover and diversity of vegetation.

Summary

Incremental impacts from past, present and RFFA to soils has varied over time from low to moderate depending on the degree of grazing intensity, size of wildfires, and recreation use. Minimizing impacts from recreation use would lead to an overall improvement of vegetation

condition, thereby reducing the potential for soil erosion. Implementation of fire rehabilitation efforts would further reduce soil erosion.

Vegetation/Special Status Species

Past Actions

Historic impacts to sagebrush steppe habitats occurred from overgrazing livestock at the turn of the century and recreational use in more current times. These impacts combined with the introduction of invasive species, such as cheatgrass led to a reduction in understory grasses and forbs. It also led to moderate to low ecological condition in the remaining sagebrush habitats. Recreation use has led to an increase in disturbance through the development of new roads and campsites. Small populations of sensitive vegetation communities have been impacted by recreation use, particularly in the Hot Springs CAA

The non-attainment of allotment objectives and the Standards for Rangeland Health within portions of the analysis areas adversely impacted upland/riparian habitat by reducing native species diversity and vigor.

Past mineral activity has resulted in two permanent mines, and several gravel pits in the Recreation CAA. Vegetation disturbance associated with mining affected small areas of upland sage brush communities.

Present Actions

Increased recreation use in both CAAs, has led to similar impacts as described for past actions. However, visitor conflict and competition for campsites has and will continue to increase in light of increased visitation. Occupation of upland areas immediately adjacent to the hot springs is the primary cause of visitor conflict.

Implementation of grazing management actions in 2004 would help ensure the attainment of the allotment specific objectives and Standards for Rangeland Health should improve vegetation communities throughout the analysis areas by increasing cover and diversity of vegetation.

Fencing habitats occupied by sensitive species of plants in the Hot Springs CAA would protect those species from the impacts associated with trampling.

RFFAs

Actions taken in the Hot Springs CAA to restore areas impacted by recreation use and concentrate use to appropriate areas will reduce existing disturbances and minimize new impacts from occurring. Soldier Meadows cinquefoil populations would be expected to recover in existing disturbed areas to occupy a larger portion of their potential habitat. Increasing visitor use to the main hot spring complex would maintain human disturbance, primarily from visitors stepping on individual plants, on about 5 percent of the occupied habitat.

Summary

Impacts from past, present and RFFAs to vegetation have varied from low to high. However, some areas near popular hot spring destinations have received an inordinate amount of use and associated impacts. These hot spring areas outside of the Hot Spring CAA, but within the Recreation CAA could be expected to receive increased visitation as a result of use restriction at other hot springs and other areas in the region. Vegetation associated with hot springs within the Hot Spring CAA would be expected to improve with the implementation of recreation management decisions.

Alternative 2: Impacts associated with displaced recreation users would be greater at hot springs outside the Hot Spring CAA under this alternative, since overnight use of the springs in the Hot Springs CCA would be eliminated.

Alternative 3: Impacts would be similar as those described for the proposed action. However, this alternative proposes more surface disturbance and provides for higher numbers of recreation users, which would be expected to have adverse impacts to vegetation communities in the Hot Springs CAA.

Realty and Public Access

Past Actions

No impacts have been identified due to the current lack of legal access to public lands from Soldier Meadows Road.

Present Actions

No impacts have been identified due to the current lack of legal access to public lands from Soldier Meadows Road.

RFFAs

Gaining legal access to public lands East and West of Soldier Meadows will provide long-term access to public lands users.

Cultural Resources/ Native American Values

Past Actions

Prior to the establishment of the National Historic Preservation Act of 1966 there was little management to protect cultural resources. Adverse impacts to these resources, associated with illegal collection and inadvertent site disturbance was common. Adverse impacts to cultural resources can be attributed to concentrated livestock use, wild horse and burros and recreational uses that cause surface disturbance, which exposes artifacts, and through direct physical damage.

Present Actions

Current conditions within the analysis area include areas where concentrated livestock, wild horses and burros, and recreational visitor activities have increased surface disturbance exposing cultural artifacts. These activities also remove Native American medicinal plants, thus limiting their availability. The potential for illegal collection and physical damage from trampling

resulted from these activities.

RFFAs

Implementation recreation management decisions, including limited campsite locations, cultural mitigation and data recovery, and road closures would further protect sensitive cultural properties. Eliminating vehicular access to the springs will provide opportunities for solitude, thereby enabling traditional uses of the springs.

Recent grazing decision that would contribute to the attainment of allotment objectives and the Standards for Rangeland Health , which would allow for overall improvement of vegetation cover and the elimination of large ungulates in the Hot Spring CAA, reducing adverse impacts to cultural resources in the long term and improve conditions in areas that are important or sacred to Native Americans. Fencing of sensitive habitats would also protect cultural resources that were previously subject to trampling or displacement by livestock or wild horses.

Summary

Incremental impacts from past, present and RFFAs to cultural resources has varied over time from moderate in the past to low at present. Present impacts remain low to moderate to cultural resources as concentrated activities continue in portions of the analysis areas. Implementation of the NCA RMP would help mitigate impacts to cultural resources from recreational activities. Effort to provide educational information that would raise awareness and appreciation for cultural resources would reduce inadvertent use-related impacts. Overall, cumulative adverse impacts to cultural resources and Native American resources would be minimal.

Alternative 2: Beneficial impacts from providing interpretive and educational information would not occur under this alternative.

Alternative 3:

Impacts would be similar to those under the proposed action. However, increased recreation use may lead to increase looting or physical damage to cultural resources.

Noxious Weeds

Past Actions

Noxious weeds were of little consideration in the past and no comprehensive weed management programs were developed. Historic overgrazing and recreational use has created disturbed areas that allowed for the introduction and spread of noxious weeds.

Present Actions

Recreation use and grazing allows increased areas of disturbance subject to noxious weed invasion, creating the future potential for monocultures of weed communities to develop.

RFFAs

Increases in noxious weed populations within the analysis areas could as a result of increased recreation use and grazing. However, impacts related to grazing would not occur in the Hot Spring CAA. Noxious weeds would continue to spread dependent on rates of increased areas of disturbance and the ability to treat infested areas.

Summary

Impacts from Past, Present, and RFFAs would incrementally increase the spread of noxious weeds over time consistent with levels of surface disturbance. These impacts would be minimized subject to the implementation of livestock management actions that would ensure Standards for Rangeland Health are achieved, the maintenance of wild horse and burros at AML, management of recreation uses, and implementation of cooperative efforts between BLM, State and Counties to control weeds.

Alternative 2:

Decreased new surface disturbance and the expected decrease in visitor use would minimize the proliferation of noxious weeds when compared to other alternatives.

Alternative 3:

Greater areas of new surface disturbance and the expected increase in visitor use under this alternative could contribute to the proliferation of noxious weeds when compared to other alternatives.

Terrestrial Wildlife/Special Status Terrestrial Wildlife Species

Past Actions

Human use of water sources and upland areas adjacent to water sources has adversely impacted wildlife and Special Status Terrestrial species throughout both assessment areas, due to habitat degradation and wildlife harassment.

Overgrazing by livestock and wild horses and burros coupled with introduction of invasive or exotic species adversely impacted habitat for cover and forage availability for wildlife prior to the application of livestock management practices designed to consider the need of terrestrial wildlife species and habitats.

Present Actions

Current conditions within the analysis area include areas where concentrated recreation and livestock use have caused degradation of wildlife habitat. This is estimated to occur on a small portion of both assessment areas

RFFAs

Increased visitation throughout both assessment areas may impact wildlife habitat. However, since camping would be limited in the ACEC, wildlife habitat would be recovered and stabilized in the Hot Springs CAA. Implementation of grazing management actions should also maintain or improve wildlife habitats throughout both assessment areas.

Summary

Impacts from past, present and RFFAs have varied from moderate to low for wildlife resources within the analysis area. Current and increased recreational use will continue to impact wildlife habitat, including habitat for sensitive species, in the NCA. However, management actions in the

RMP that would control visitor use could off-set increased visitation if effectively implemented. Exclusion of livestock from sensitive habitats and the attainment of Standards for Rangeland Health as a result of future grazing management decisions would maintain or improve overall habitat conditions for wildlife species, including special status species.

Reducing overnight camping opportunities in the ACEC is expected to decrease use and intensity of use in sensitive wildlife habitats within the Hot Springs CAA. Displaced use could cause additional adverse impacts in other areas of the Recreation CAA, including other hot springs, such as Black Rock Hot Springs, Trego Hot Springs, and Double Hot Springs, as well as previously undisturbed areas.

Recreation

Past Actions

Dispersed recreation use within the analysis areas were unconstrained prior to the 1970s and included camping, hot spring bathing, hunting, OHV riding, rockhounding, other outdoor activities. Upon passage of the NCA Act, vehicle travel was limited to existing routes, which minimized additional road proliferation. Commercial outfitters have used areas within the Hot Springs CAA to base their guiding activities, which leads to increased competition and conflicts among recreation users. Livestock grazing and associated developments have adversely impacted recreation uses in both assessment areas. Resource impacts caused by overgrazing and range developments, have reduced the perception of recreating in an undisturbed area. Adverse impacts have also stemmed from direct interaction between livestock and recreation users.

Present Actions

With the passage of the NCA Act, the BLM has developed the NCA RMP. The NCA RMP, will manage recreation uses to conserve resources and enhance specific recreational opportunities. The RMP further limited vehicle travel to designated routes, which will further limit road proliferation and restoration of closed roads and road segments. Commercial outfitters continue to use areas within the Hot Springs CAA to base their guiding activities, which leads to increased competition and conflicts among recreation users. Recreation use continues to grow along with the changing diversity of recreation use.

RFFAs

It is anticipated that recreation growth would expand within the larger NCA area. Commensurate with this growth will likely be increased limitations on recreational activities in accordance with multiple use management and the NCA RMP. However, visitation to the Hot Springs CAA is expected to remain relatively constant, since camping would be limited to designated sites and sites would be limited in quantity to protect resources and the recreation experience.

The other hot springs in the southern portion of the Recreation CAA and on those springs on private lands in Soldier Meadows, would be expected to receive some increased visitation as a result of visitor displacement from the public land hot springs. The areas adjacent to the ACEC and just outside of the Hot Springs CAA would also be likely to receive increased overnight use

as a result of limited camping opportunities in the immediate vicinity of sensitive habitats. Attainment of allotment objectives and the Standards for Rangeland Health will increase opportunities for wildlife related recreation in limited locations within both assessment areas. Commercial, Competitive and organized group uses authorized under special recreation permits would be limited in sensitive areas contained within both assessment areas. Commercial users of areas within the Hot Springs CCA would be adversely impacted by decisions to limit permitted uses to designated sites, away from hot spring resources.

Summary

Incremental impacts from past, present, and RFFAs to recreation use have varied over time from low to high, with most impacts being concentrated at or near hot springs. The implementation of recreation management decisions would allow for continued use that is consistent with protecting the sensitive resources of contained in both assessment areas.

Alternative 2: Proposed management actions taken under this alternative would greatly reduce overnight camping opportunities in the assessment areas. Impacts associated with displaced recreation use would be greatest under this alternative. Impacts to the recreation experience would be compounded by additional camping regulations that are expected for the hot springs in the southern reaches of the Recreation CAA. However, site restoration under this alternative would have a greater chance of success, which would enhance day-use recreation at the site by restoring the natural character of areas that have been impacted by recreation use.

Alternative 3:

Similar impacts as described for the proposed action would be expected under this alternative. However, impacts associated with displaced recreation use would be minimal under this alternative, but would still be expected if visitation continues to increase. Some traditional users would be displaced as result of a change in the social environment and undeveloped character of the area. The greater degree of facilities development proposed under this alternative would change the primitive character of the site. Restoration efforts would be impeded by increased visitation, therefore those beneficial impacts associated with restoring the natural character of the site would be less or would take longer to materialize.

Visual Resource Management (VRM)

Past Actions

Since visual resources were not considered when making land use decisions until the late 1970s, impacts such as road proliferation, campsite sprawl, range improvements, and intensive livestock grazing caused adverse impacts to the viewsheds within certain parts of the analysis areas.

Present Actions

The existing environment has existing campsites, roads, trails, user made facilities, signs, fences, abandoned line shacks and active ranches, all of which detract from the visual landscape. The Hot Spring CAA in particular has an abundance of secondary, user-made roads that break up the landscape. Current regulations allow camping immediately adjacent to the hot pools, which causes significant short term visual obtrusions during times of occupation. The protective

enclosure fence will create a minor visual obstruction where it crosses access roads.

RFFAs

Recreation management and grazing management actions taken together may negatively impact visual resources in certain locations, but would protect significant natural and cultural resources that are important to the historic landscape that is protected by the NCA. VRM class II requirements limit the extent or degree of development and visual intrusion that any project can have on the viewshed. Existing impacts to the viewshed would be reduced through road closures and rehabilitation efforts. User made facilities would be removed and in some cases replaced. All new recreation developments would be constructed to blend with the natural surrounding. Range improvement construction related to grazing within the analysis area would negatively impact VRM to some degree, due to the addition of man-made features on the landscape.

Summary

Incremental impacts from past, present and RFFAs on visual resources have been minimal, with the exception of areas where intensive recreation use or grazing have occurred. Existing use related impacts would be reduced and concentrated to acceptable areas through campsite and road designations in the Hot Spring CCA and certain locations in the southern reaches of the Recreation CAA. New road proliferation should not cause any additional visual impacts, since vehicle travel is restricted to designated routes. However, by restricting campsite locations in sensitive areas, displaced recreation users may create impacts in other previously undisturbed areas.

Alternative 2:

Similar beneficial impacts as described for the proposed action would be expected under this alternative, with the exception of those impacts that result from educational efforts. However, the potential for adverse impacts would be less, since no new signs, roads or parking areas are proposed. Better success in restoration activities would be expected due to the expected decline in visitor use under this alternative, which would reduce visual impacts in the Hot Springs CAA. Short-term impacts described in the proposed action for times of campsite occupation would not occur under this alternative.

Alternative 3:

Similar beneficial impacts as described for the proposed action would be expected under this alternative. However, the potential for adverse impacts is greater than under the other alternatives, due to the greater number of facilities that are proposed under this alternative.

Wilderness

No cumulative impacts are expected to wilderness areas as a result of recreation uses and management actions in either of the assessment areas, since neither assessment area contains designated wilderness.

Social & Economic

Past Actions

Historically, agriculture has steadily contributed to the economic base of Humboldt County. In the early 1980s, mining became a major contributor to the economy. There is little mining within the analysis area and impacts to social and economic resources have remained static.

Present Actions

Attainment of allotment objectives and the Standards for Rangeland Health may result in changes in authorized livestock use within the analysis area. Decreases in grazing would result in the ranch purchasing fewer agriculture related goods and services due to reduced ranch income. Conversely, increases in grazing would result in local economic growth for the opposite of the above described factors.

RFFA

With the implementation of the NCA Act, it is anticipated that recreation use would increase. There would likely be an economic gain to the private businesses in the vicinity of the assessment areas from providing goods and services to an increasing recreation population. Development of a cooperative agreement with Soldier Meadows Ranch could increase tourism revenues as result of accommodating overflow use from restricted camping areas. A small number of commercial permit holders that use areas within the Hot Springs CCA would be negatively impacted by decisions to limit permitted uses to designated sites, away from hot spring resources

Summary

Overall, past, present, and RFFAs impacts to socio and economic resources would be considered minor compared to the Humboldt County earnings base. While no major impacts are expected to existing commercial operations, substantial opportunities to provide recreation visitor services remain and could be pursued by private interests in the future.

Alternative 2:

Greater opportunities to provide recreation visitor services in the Soldier Meadows area would be expected under this alternative, due to the net loss of camping opportunities on public lands.

Alternative 3:

Same as described for the proposed action.

Persons/Agencies Consulted

US Fish and Wildlife Biologists (USFWS)
Summit Lake Paiute Tribe – Tribal Council

BLM Staff Specialists

David Lefevre, Outdoor Recreation Planner
Matthew Varner, Fishery Biologist

Roger Farschon, Ecologist
Mark Ennes, Archaeologist
Dave Valentine, Archaeologist
Bob Edwards, Non-renewable Supervisor
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Nevada Cattlemen's Association
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Elko, NV 89803

Nevada Woolgrowers Association
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- Swift, L.W., Jr. 1988. Forest access roads: design, maintenance, and soil loss. In: Swank, W.T.; Crossley, D.A., Jr., eds. Forest hydrology and ecology at Coweeta. New York: Springer Verlag.
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APPENDIX 1- Maps

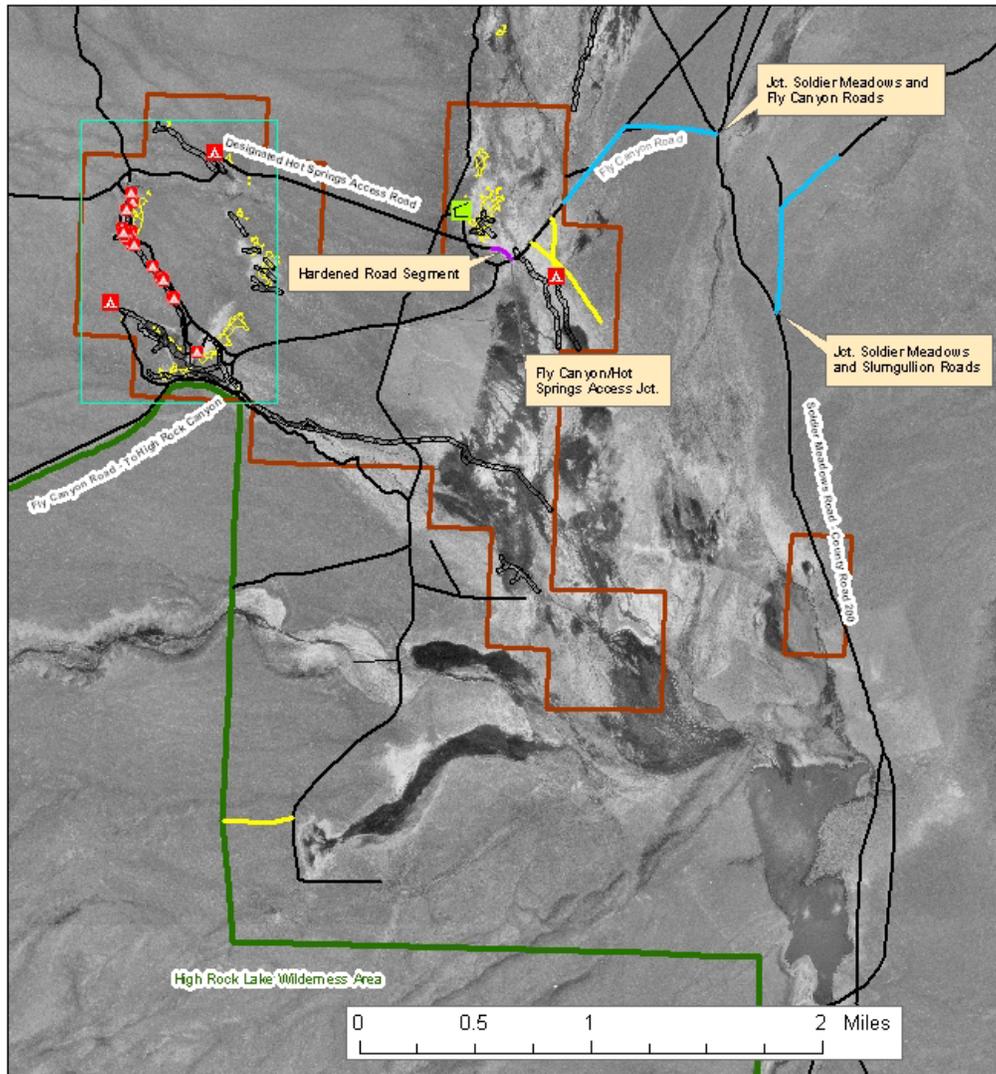
Map 1: Soldier Meadows Overview Map

Map 2: Hot Spring Inset Map

Map 3: Proposed Action Implemented

Map 4: Cumulative Assessment Area

Map 1 - Soldier Meadows Overview



Legend			
	Existing Vehicle Routes		Existing Campsites
	Proposed Easements		Cabin Site
	Proposed Road Closures		Basalt Cinquefoil Habitat
	Proposed Road Hardening		Desert Dove Habitat
	High Rock Lake Wilderness Boundary		ACEC Boundary
	Hot Spring Inset Map		

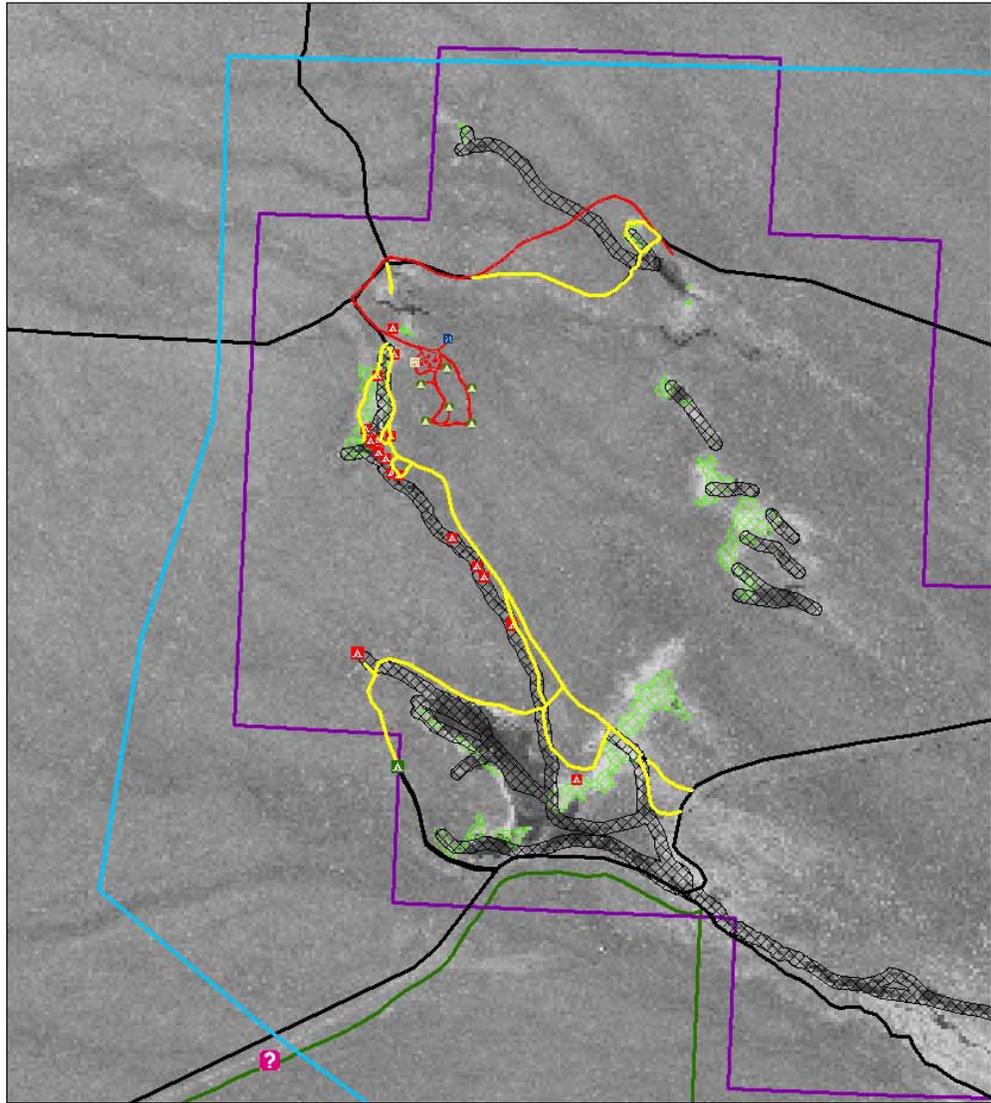


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate uses with other data.



Black Rock/High Rock WCA
 Soldier Meadows Hot Springs

Map 2 - Hot Springs Inset Map

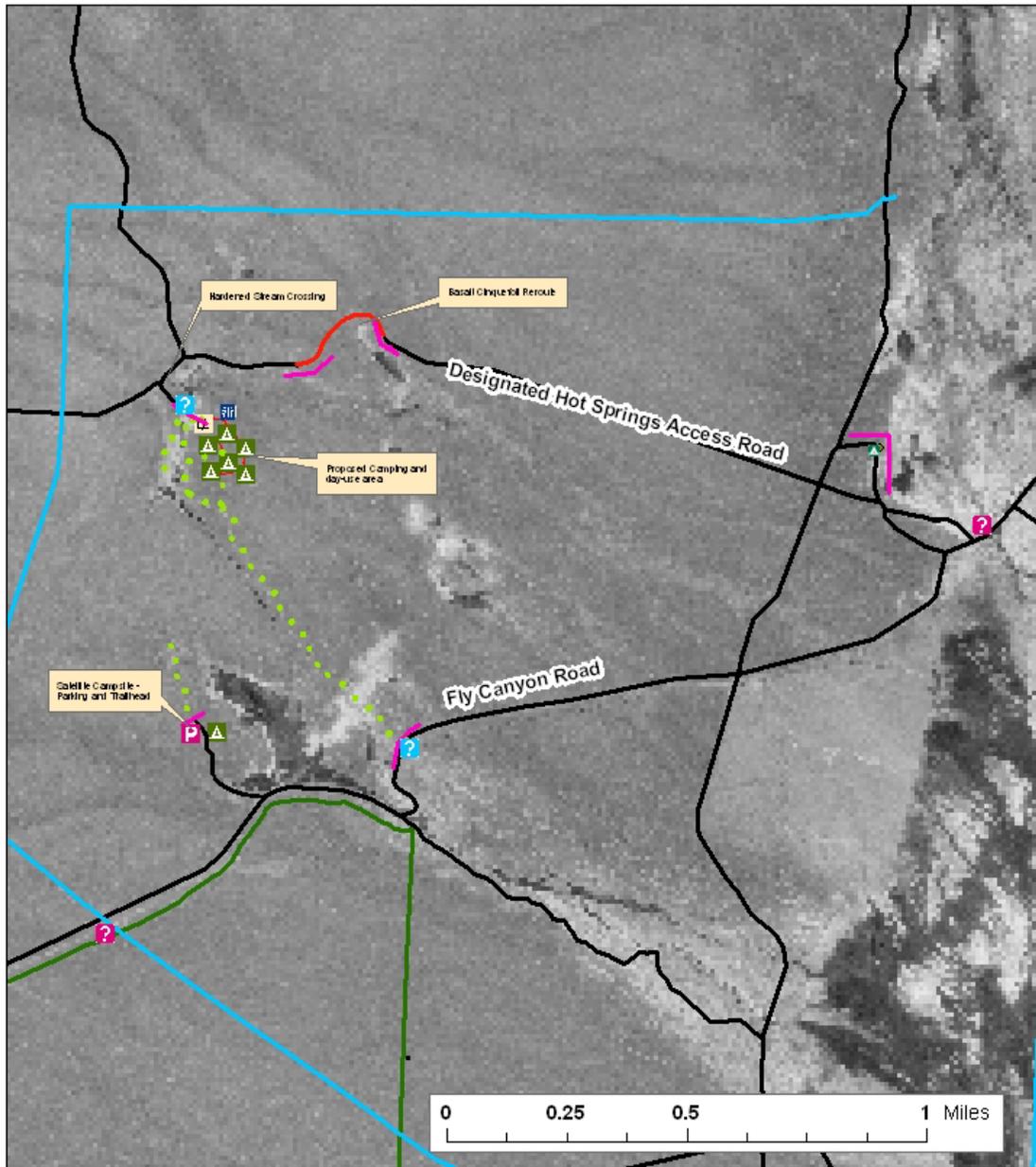


Legend			
	Designated Trails		Designated Campsite
	Used/Reliable Roads		Day-use/Recreation Area
	New Camping Loop and Road Remount		Wilderness Boundary
	Desert Dunes - Race Line		Desert Dunes Critical Habitat
	ACEC Boundary		Sagebrush Meadows Critical Habitat
	Existing Campsites (see table below)		Low-profile toilet
	Information blocks		



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.

Map 3 - Proposed Action Implemented

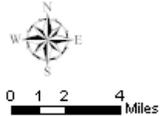
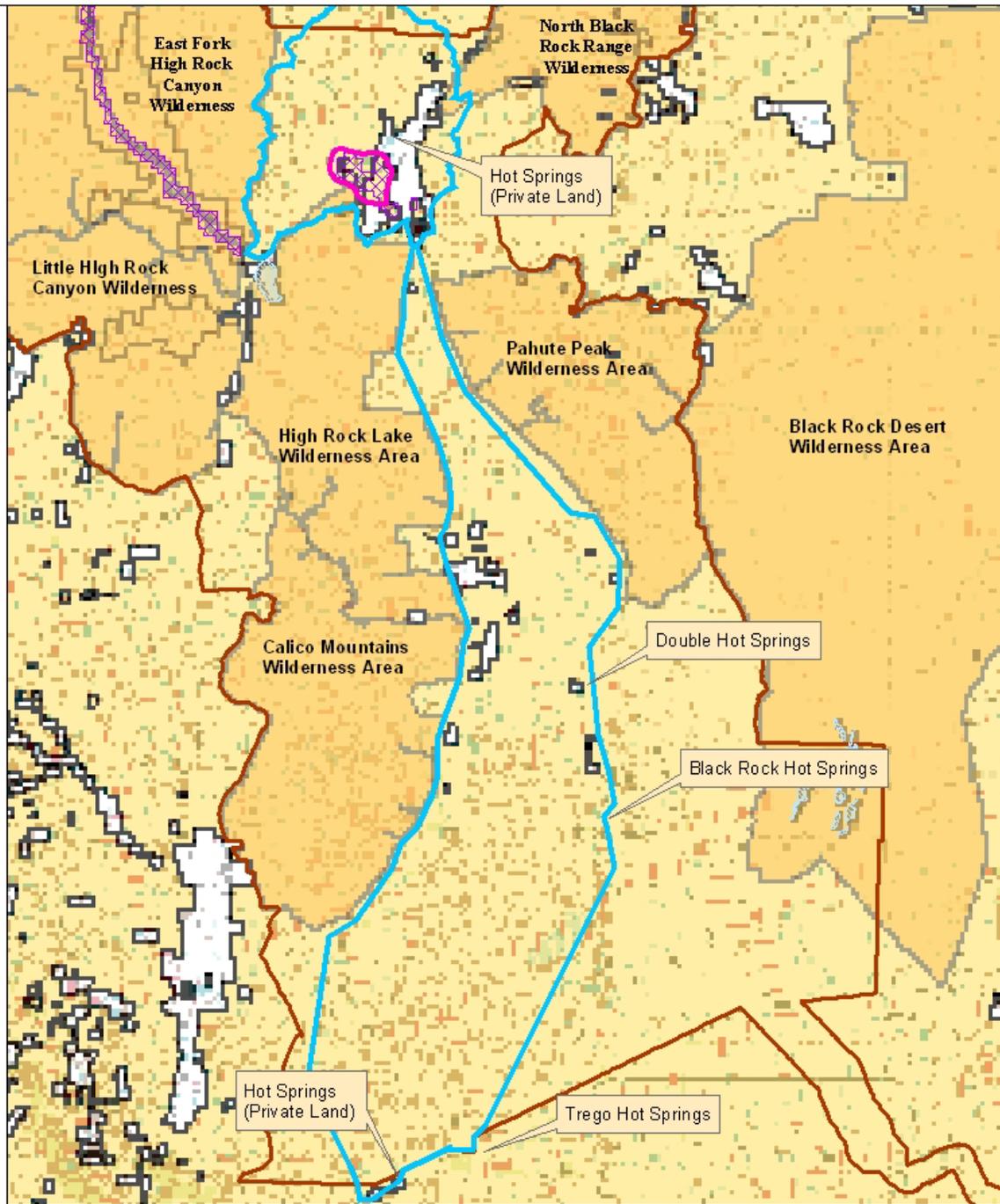


Legend			
	Designated Vehicle Trails		Lowprofile Litter
	New Camping Loop and Road Reroute/Hardening		Day-use/Interpretive Area
	Walking Trails		Wilderness Boundary
	Desert Daze - Fence line		Desert Daze Critical Habitat
	Information Kiosks		Soldier Meadows Cinqusetill
	Temporary Protect Signs		Barriers/Temp. Fencing
	Designated Campsite		



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.

Map 4 - Cumulative Assessment Areas



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

6/22/04

APPENDIX 2 – Facility Designs

Campsite Designs

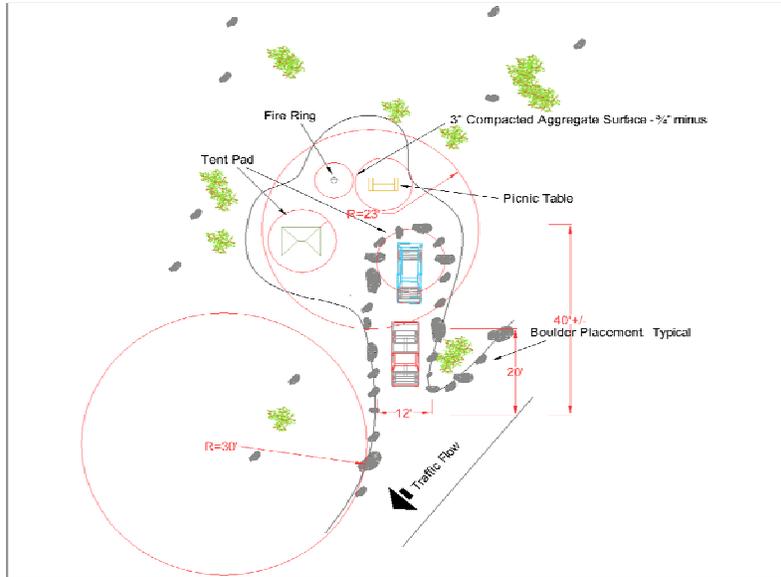
- Graphic 1: Individual Campsite – Top View
- Graphic 2: Individual Campsite – Profile View
- Graphic 3: Group Campsite – Top View
- Graphic 4: Group Campsite – Profile View
- Graphic 5: Walk-in Campsite – Top View
- Graphic 6: Walk-in Campsite – Profile View

Facilities Specifications

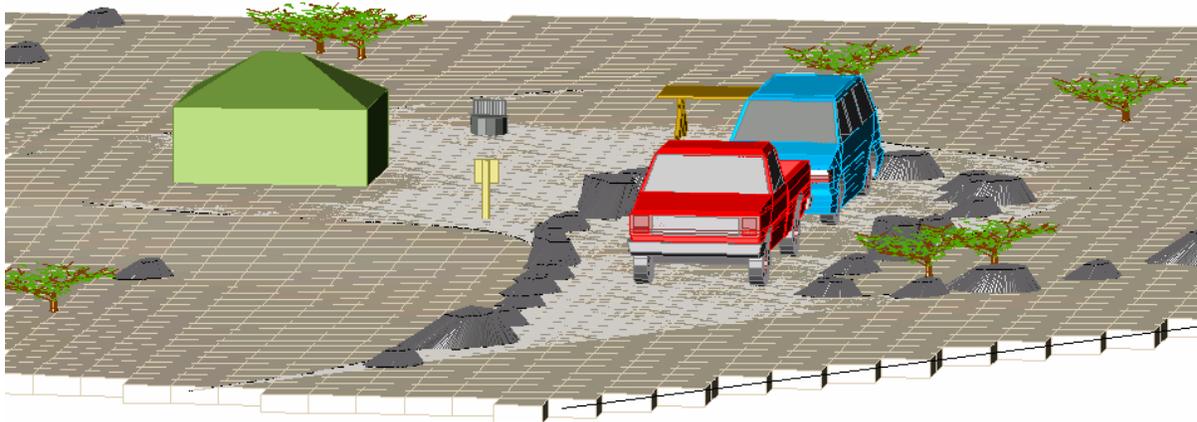
- Graphic 7: Interpretive Panel Sketch
- Graphic 8: Information Kiosk Sketch
- Graphic 9: Low-Profile Toilet Sketch
- Graphic 10: Standard Vault Toilet Sketch

Campsite Designs

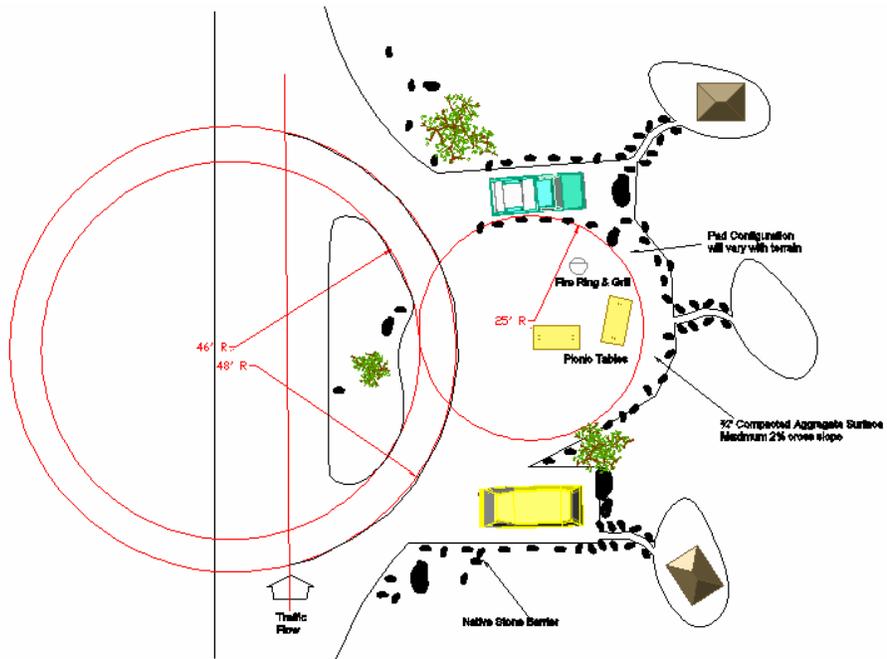
Graphic 1: Individual Campsite – Plan View



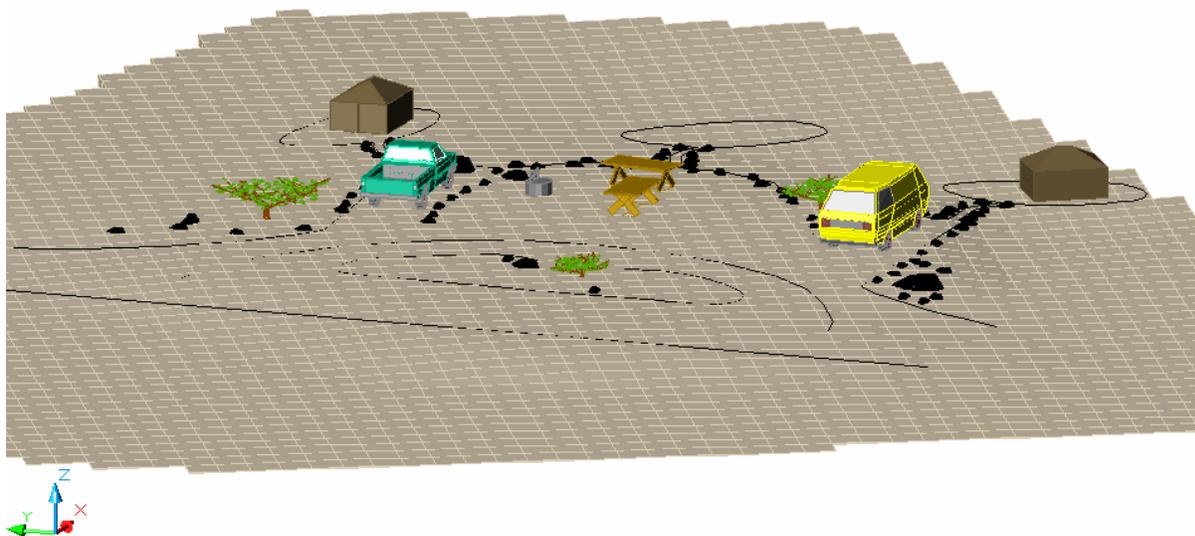
Graphic 2: Individual Campsite – Orthographic View



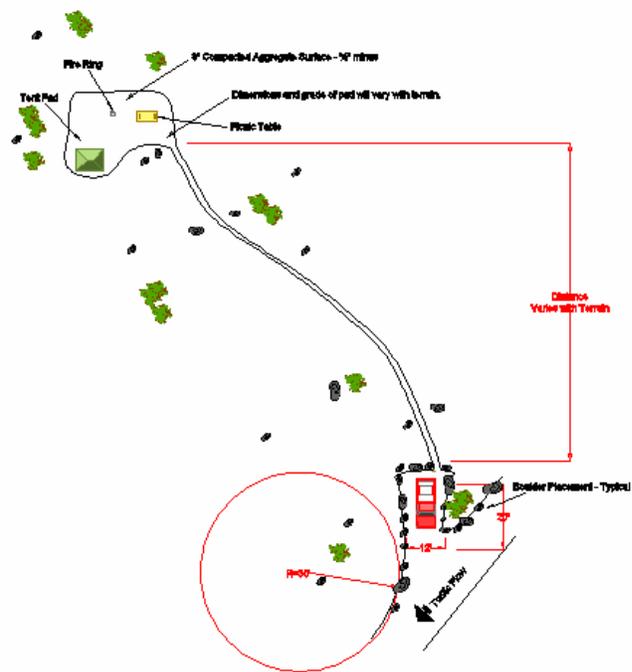
Graphic 3: Group Campsite – Plan View



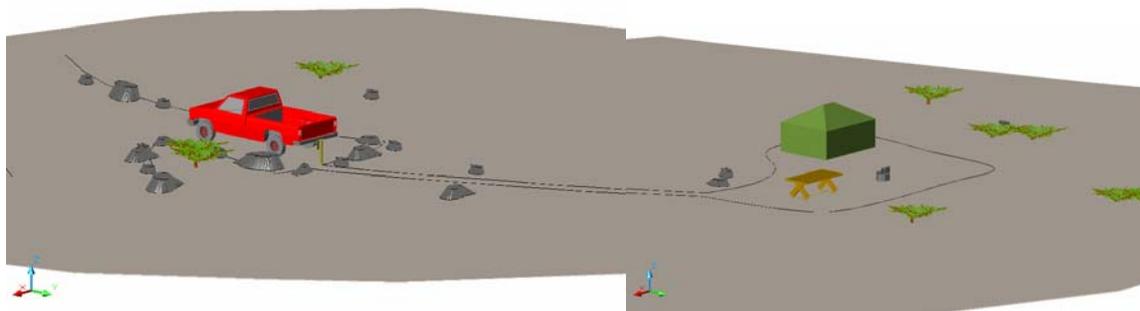
Graphic 4: Group Campsite – Orthographic View



Graphic 5: Walk-in Campsite – Plan View

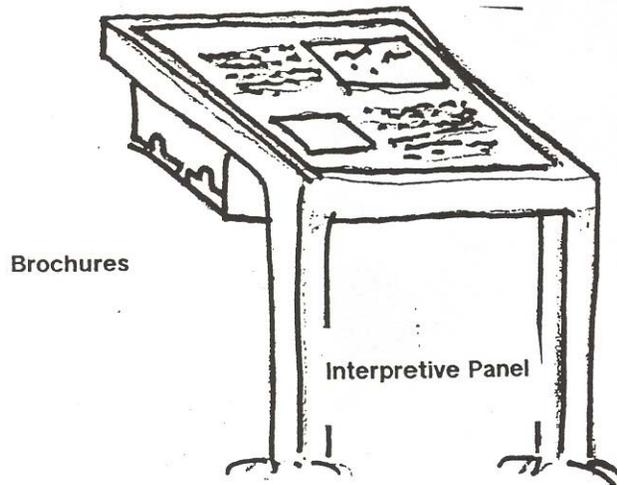


Graphic 6: Walk-in Campsite – Orthographic View



Graphic 7: Interpretive Panel Sketch

The following is a rough sketch of the proposed interpretive panel. The panel would illustrate the important resources found in the area and would also have brochure holders to disseminate information.



Graphic 8: Information Kiosk Sketch

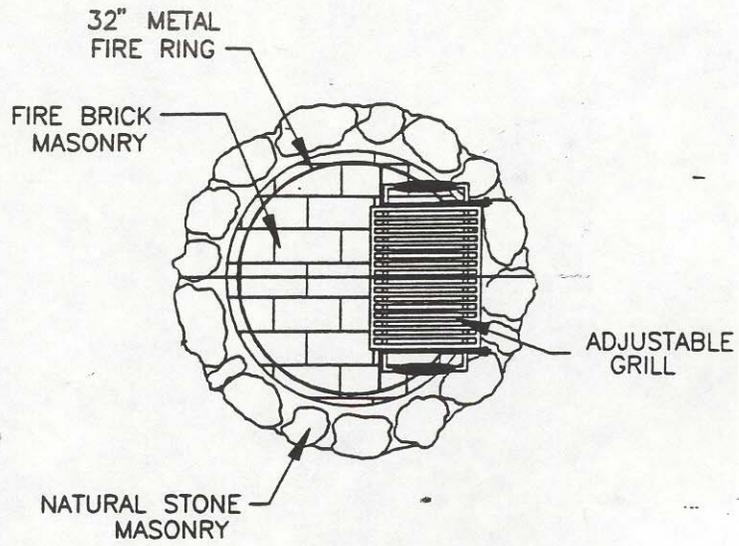
The visitor information kiosks that would be placed on the Fly Canyon access road, would be constructed as shown below. A map holder would be affixed to the outside of the lid.



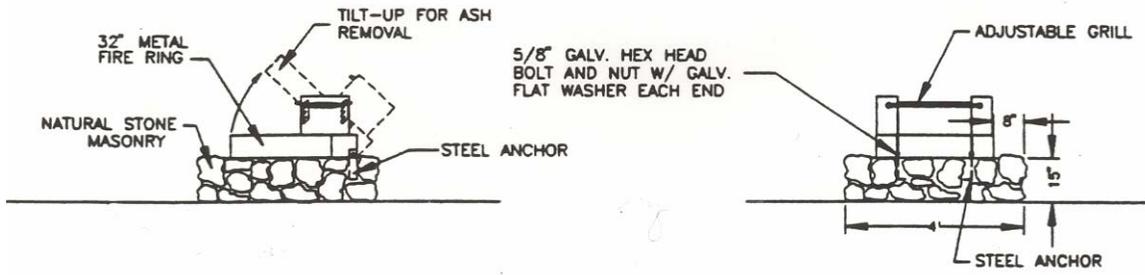
Graphic 9: Campfire Ring Sketch

Top View

Soldier Meadows Recreation Plan EA



Profile View



APPENDIX 3 – Alternative Summary Table

Topic/Action	Alternative 2-- Continued Management (No Action)	Proposed Action Alternative-- Management for Present Uses	Alternative 3-- Intensive Management
Transportation Management			
Access	Close or relocate seven roads that impact sensitive habitat. Access would be limited to existing designated routes (RMP). No alternate route would be established to the hot springs area.	Close or relocate seven roads that impact sensitive habitat. Access would be limited to designated routes. An alternate route and parking areas would be established near the designated camping area.	Close or relocate six roads that impact sensitive habitat. Access would be limited to designated routes. An alternate route and parking areas would be established near the designated camping area.
Easement across private property	Obtain easements for roads used to access hot springs site and providing access to Slumgullion Canyon.	Obtain easements for roads used to access hot springs site and providing access to Slumgullion Canyon.	Obtain easements for roads used to access hot springs site and providing access to Slumgullion Canyon.
Rehabilitate closed segments	Rehab all closed segments	Rehab all closed segments	Rehab all closed segments
Vehicle Use Barriers	<p>Vehicle barriers would be used only at closed road segments, and where campsite inventories indicate site sprawl or road proliferation (RMP).</p> <p>No fencing would be used.</p> <p>No barriers would be installed at the cabin site.</p>	<p>Vehicle barriers would be used to delineate all designated use areas, including camping areas, designated routes and parking areas.</p> <p>Temporary fencing would be used at junctions of major intersections that were closed to prevent driving around barriers.</p>	<p>Vehicle barriers would be used to delineate all designated use areas, including camping areas, designated routes and parking areas.</p> <p>Temporary fencing would be used at junctions of major intersections that were closed to prevent driving around barriers.</p>

		Steel bollards and cable or wooden split-rail fencing would be used at the cabin site to minimize vehicle impacts to springs and meadows.	Steel bollards and cable or wooden split-rail fencing would be used at the cabin site to minimize vehicle impacts to springs and meadows.
Road Type/Maintenance	Existing roads would be spot fixed and/or hardened in areas where roads create resource impacts (RMP).	New road development would be constructed 10 ft. wide with crushed gravel. Existing roads would be spot fixed and hardened in areas where roads create resource impacts	Maintain all existing roads and new road segments with a graveled and graded surface.
Intermittent Stream Crossing	No hardening would occur	Harden intermittent stream crossing near hot pools source.	Install a gabion basket or other device to contain rock at intermittent stream crossing near hot pools source.
Providing Public Information and Physical Presence			
Visitor Orientation	No orientation site(s) would be constructed. The existing visitor register and directional signs would be moved off of private land and maintained on public lands.	Two Visitor orientation kiosks would be developed at the three entrances into the ACEC. Orientation kiosks would be low-profile and located in areas already having range developments. They would provide : <u>A brochure box</u> – steel with lid, holds up to four brochures <u>Visitor Register Box</u> – Already in place, but would be moved off of	An orientation site would be constructed along Fly Canyon Road at the junction of the Hot Springs Access Road. It would include: <u>A covered orientation panel</u> - one low profile, 45 degree silkscreen imbedment panel. (SMAP). <u>A brochure box</u> – steel with lid, holds up to four brochures <u>Visitor Register Box</u> – Already in place, but

		private land to the Northeast entrance to the ACEC and set in concrete.	would be moved and set in concrete.
Written Literature	None Proposed.	Brochures and fact sheets would be used in combination with on the ground markers, composed of native materials to interpret specific on-site resources, their limitations and threats.	Brochures and fact sheets would be used in combination with on the ground markers, composed of native materials to interpret specific on-site resources, their limitations and threats.
Signage			
Regulatory Signage	Carsonite signs would be used to identify ACEC and wilderness boundaries.	Carsonite signs would be used to identify wilderness boundaries. Temporary signs would be placed at closed road segments and camping areas that explains the project and new requirements. Orientation kiosks would be used to identify ACEC boundaries, as well as special regulations that apply.	Carsonite signs would be used to identify wilderness boundaries. Temporary signs would be placed at closed road segments and camping areas that explains the project and new requirements. The Orientation Site would include regulatory information.
Interpretive Signage	None proposed.	Interpretive panel(s) would be used placed at the hot springs area.	Two interpretive signs would be placed; one at the hot pools site and one at the orientation site. The orientation site would include a covered orientation panel.
Campsite ID signs	Designated sites	Designated sites would	Designated sites would

	would be identified with signs constructed with native materials (RMP).	be identified with signs constructed with native materials (RMP).	be identified with signs constructed with native materials (RMP).
Directional signs	Maintain existing signage at the Fly Canyon/Soldier Meadows junction, but place on public lands.	Maintain existing signage at the Fly Canyon/Soldier Meadows junction, but place on public lands. Maps and directional information available at information kiosks.	<u>2 new signs – Standard BLM w/logo located at:</u> Soldier Meadows /Fly Canyon Fly Canyon/Hot Springs Signs would be erected at the North and South entrance to the ACEC to direct visitors to the central orientation site. Maps and directional information available at orientation site
Providing Physical presence			
Volunteers	Recruit and Train Volunteers to monitor use and provide educational, interpretive, and regulatory information.	Recruit and Train Volunteers to monitor use and provide educational, interpretive, and regulatory information.	Recruit and Train Volunteers to monitor use and provide educational, interpretive, and regulatory information.
Camp Host	Provide a camp host during busy weekends and seasons.	Provide a camp host during busy weekends and seasons.	Provide a camp host during busy weekends and seasons.
Increase LE presence	Coordinate increased patrols by BLM law enforcement. Partner with NDOW	Coordinate increased patrols by BLM law enforcement. Partner with NDOW and counties for	Coordinate increased patrols by BLM law enforcement. Partner with NDOW and counties for

	and counties for patrols.	patrols. Detail law enforcement during hunting season, based out of Soldier Meadows to monitor hot spring use as well as wilderness.	patrols. Detail law enforcement during hunting season, based out of Soldier Meadows to monitor hot spring use as well as wilderness.
Campsite and Day-use Facilities			
Camping designations	<p>No developed camping area, designate several existing and new low impact sites along main hot springs access road.</p> <p>Designated sites throughout the ACEC.</p> <p>No overnight use of satellite spring – drive in day use.</p>	<p>Develop a designated camping area with at least one group site in upland location near the hot springs site with 6-8 campsites.</p> <p>One site would be fully accessible by persons with disabilities and would accommodate trailer use.</p> <p>One group site at Cabin</p> <p>Walk-in camping at would be available at the satellite spring. The access road will be closed and converted to trail where it enters habitat for sensitive species. A designated campsite may also be developed at the trailhead for the satellite spring.</p> <p>Designate up to 2 additional campsites in the remainder of the</p>	<p>Develop a designated camping area with one group site in upland location near the hot springs site with 10-12 campsites. Camping areas would be accessible by persons with disabilities and travel trailers.</p> <p>Designate 2-3 additional group campsites in the remainder of the ACEC.</p> <p>One group site at cabin</p> <p>Drive-in access satellite</p>

		ACEC with at least one group sites.	
Camping facilities	No fire rings, tables, or tent pads constructed.	Fire rings at all sites in camping area and at the group site. Tent pads at all sites in the developed camping area. Native stone picnic table at one-half of the sites	Fire rings at all designated campsites in the ACEC Tent pads at all campsites Concrete picnic tables at all designated campsites.
Parking Areas	None established – 50 foot rule (RMP).	Day-use and camping areas – at least 300 foot from springs	Day-use and camping areas – at least 300 foot from springs
Day use area	None	A day use area containing the following features would be developed: <ul style="list-style-type: none"> • Parking for 5 vehicles • Stone Picnic Table • Interpretive Panel • Stone markers for self-guided interpretation w/brochures 	A day use area containing the following features would be developed: <ul style="list-style-type: none"> • Parking for 10 vehicles • Concrete Picnic Tables • Interpretive Panel • Stone markers for self-guided interpretation w/brochures
Time Limit on Stay	14 day limit	Time limits may be set for specific time periods based on monitoring. (ie. Chukar season, memorial day, etc.)	5 day limit
Trash Receptacles	Pack-it-in/Pack-it-out	Pack-it-in/Pack-it-out	Pack-it-in/Pack-it-out
Toilet	None proposed	One low profile toilet at Hot Pools Camping Area and one traditional vault toilet	Two traditional vault toilets-One at Orientation Site AND One at Camping Area

		at the cabin group-use site.	
Trails	No trails developed	Trails leading from day-use and camping areas to the hot pools. Trails would be constructed using existing materials and would be extremely challenging to people with disabilities.	Trails developed to and around the hot pools site. Trails would be graveled and graded to accommodate wheelchair use.
Species Recovery			
Bathing pools	Existing pools available for use.	Well used pools will remain intact and some margins would be hardened with flagstone, unless impacts to sensitive species is shown to increase beyond acceptable levels. New dam construction would be prohibited.	All pools would remain available for use. Boardwalks would be constructed at well used pools. New dam construction would be prohibited.
Soldier Meadow cinquefoil	Relocation and restoration of 5 road segments and undesignated campsites.	Relocation and restoration of 5 road segments and undesignated campsites.	Relocation and restoration of 5 road segments and undesignated campsites.
Inventory and Monitoring			
Soldier Meadows cinquefoil	Yes, complete inventory of potential habitats	Yes, complete inventory of potential habitats	Yes, complete inventory of potential habitats
Spring snails	Yes, complete inventory of potential habitats	Yes, complete inventory of potential habitats	Yes, complete inventory of potential habitats
Desert dace	population studies continued	population studies continued	population studies continued
All taxa	Annual monitoring consistent w/recovery plan	Annual monitoring consistent w/recovery plan	Annual monitoring consistent w/recovery plan
Recreation Monitoring	Monitor Types	Conduct yearly	Conduct yearly

	Number and Resource impacts of different recreation activities in the area.	<p>campsite assessments for at least the first five years.</p> <p>Monitor road conditions and the occurrence of newly pioneered routes.</p> <p>Monitor for new user built facilities including rock dams, toilets, fire rings, tent pads, etc.</p>	<p>campsite assessments for at least the first five years.</p> <p>Monitor road conditions and the occurrence of newly pioneered routes.</p> <p>Monitor for new user built facilities including rock dams, toilets, fire rings, tent pads, etc</p>
Traffic Counters	Maintain the one existing counter on the main hot springs access road.	Monitor all key access roads including Fly Canyon and Soldier Meadow Road.	Monitor all key access roads including Fly Canyon and Soldier Meadow Road
Aerial Surveillance	Conduct over flights of the area during periods of high use to monitor use in the ACEC.	Conduct over flights of the area during periods of high use to monitor use in the ACEC	Conduct over flights of the area during periods of high use to monitor use in the ACEC

APPENDIX 4 – Transportation Management

<u>Management Action</u>	<u>Linear Feet Affected</u>	<u>Acres Affected</u>	<u>Approximate Mileage</u>
Road Segments Closed and Rehabilitated	17,272	4.48 acres	3.27 miles
Existing Hot Spring Access Roads (main spring)	10,148	2.33 acres	1.7 miles
Satellite Spring Access Road	2,225	.51 acres	.25 mile
Rerouted Section	1,768	.41 acres	.33 mile
Three road segments impacting sensitive habitat	5,356	1.23 acres	1.01 miles
New Road Construction	4041	.93 acres	.77 mile
New Road Development (Camping Area)	2,020	.46 acres	.38 mile
New/Rerouted Section	1,361	.31 acres	.25 mile
Road Hardening/Turnpike	660	.15 acres	.13 miles