

**U.S. Department of the Interior
Bureau of Land Management**

Environmental Assessment

**Lost Fire Rehabilitation and Restoration Projects
DOI-BLM-CA-N070-2014-0001-EA
Surprise Field Office**

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management



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Prepared by
U.S. Department of the Interior
Bureau of Land Management
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Chapter 1. Introduction

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1.1. Identifying Information

1.1.1. Title, EA number, and type of project

Lost Fire Rehabilitation and Restoration Projects

DOI-BLM-CA-N070–2014–0001–EA

1.1.2. Location of Proposed Action

Lost Fire, in northern Washoe County, Nevada

1.1.3. Name and Location of Preparing Office

Surprise Field Office

602 Cressler Street

Cedarville, CA 96104

1.2. Background

The Lost Fire was ignited by lightning on August 5, 2012, and burned 61,537 acres of primarily sagebrush-steppe vegetation within the Bureau of Land Management (BLM) Surprise Field Office (SFO) area. The point of origin was approximately 21 miles east/southeast of the town of Eagleville, CA, and burned entirely within Washoe County, NV.

The Lost Fire burned large portions of six livestock grazing allotments: Bare, Denio, Duck Lake, Home Camp, Massacre Mountain, and Wall Canyon West. The Proposed Action does not include treatments in the Massacre Mountain allotment. The Lost Fire burned into the High Rock and Little High Rock Wilderness; however, the Proposed Action does not include treatments in the wilderness areas.

In the year following the Lost Fire, several emergency stabilization and burned area rehabilitation projects were completed, including broadcast seeding on dozer lines and targeted burned areas, seedling planting, fence construction and repairs, replacement of burned signs, and grazing closures. Additionally, loose rock structures were constructed in the Clover Creek drainage for erosion control. In July 2013, a flash flood occurred in the Clover Creek drainage, washing out most of the loose rock structures and depositing up to several feet of sediment in the lower portions of the drainage.

1.3. Purpose and Need for Action

The purpose of the Proposed Action is to stabilize, rehabilitate, and restore lands burned by the Lost Fire. These actions will reduce soil erosion, provide watershed stability, rehabilitate wildlife habitat, and facilitate regeneration of endemic plant species burned in the fire.

The need for the action is that portions of the burned area either are at risk of catastrophic loss of function or have lost extensive areas of important wildlife habitat. In the Clover Creek drainage, the wildfire and subsequent flash flood event created impacts that require emergency stabilization and rehabilitation actions. Elsewhere in the fire, monitoring results from 2013 suggest that shrub density remains extremely low in areas that previously provided important habitat and forage for wildlife species (including Greater sage-grouse). The fire consumed a sizable portion of the Massacre Population Management Unit for Greater sage-grouse, and the entire fire area was classified as Preliminary Priority Habitat.

1.4. Decision to be Made

This EA discloses the environmental consequences of implementing the Proposed Action. The FONSI describes the finding of the analysis in this EA. The BLM, Surprise Field Office Manager is the Authorized Officer. His decisions and the rationale for that decision will be stated in the Decision Record (DR). Based on the information provided in this EA, the Authorized Officer will decide whether to implement treatments designed to stabilize, rehabilitate, and restore land impacted by the 2012 Lost Fire.

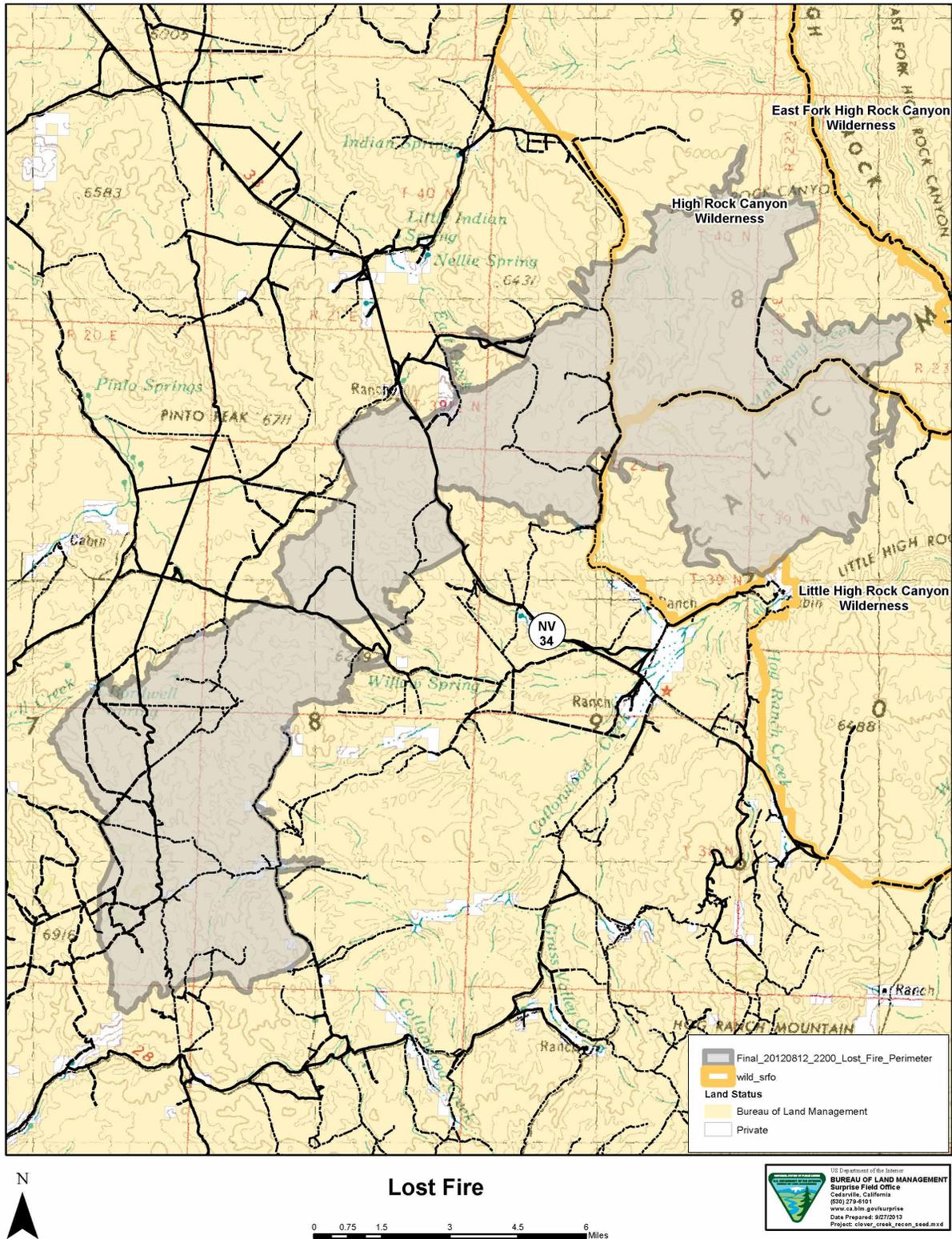


Figure 1.1. Lost Fire Perimeter

1.5. Summary of Proposed Action

The Proposed Action includes the following treatments:

1. **Clover Creek Erosion Stabilization:** In the Main Fork, repair existing in-stream stabilization structures, reconstruct a lower floodplain, hand-plant grass plugs and shrubs, and clean out culverts on approximately 10 acres; drill seed native grasses and forbs on approximately 14 acres. In the North Fork, repair existing loose-rock structures and extend the downstream aprons, construct additional structures, and drill seed native grasses and forbs on approximately 16 acres. In the South Fork, drill seed native grasses and forbs on approximately 30 acres.
2. **Aerial Seeding of Native Shrubs:** Aerial seed mountain big sagebrush and Wyoming big sagebrush on approximately 5,000 acres.
3. **Targeted Hand Planting and Seeding of Native Shrubs:** Hand-plant up to 200 acres with seedling plugs of antelope bitterbrush, big sagebrush, and curl-leaf mountain mahogany to provide cover and forage for wildlife. Use a low-impact rangeland drill to seed native shrubs at or near the hand-planting sites.

Table 1.1. Summary of Proposed Action

Location	Treatment Category	Treatments Proposed	Approx. Acres
Main Fork Clover Creek	Clover Creek Erosion Stabilization: In-Stream Erosion Control and Stream Bank Revegetation	Floodplain reconstruction; in-stream structure repair; and seeding/planting on new floodplain	10
	Clover Creek Erosion Stabilization: Stream Bank Revegetation	Drill seeding on historic floodplain; culvert clean-out	14
North Fork Clover Creek	Clover Creek Erosion Stabilization: In-Stream Erosion Control and Stream Bank Revegetation	Structure construction and repair; drill seeding on historic floodplain	16
South Fork Clover Creek	Clover Creek Erosion Stabilization: Stream Bank Revegetation	Drill seeding on historic floodplain	30
High elev, N slopes	Aerial Seeding of Native Shrubs	Aerial application of sagebrush seed	5000
Selected areas	Targeted Hand Planting and Seeding of Native Shrubs	Hand-plant seedling plugs and drill seed	200
Total acres:			5270

1.6. Conformance with BLM Land Use Plans

The Proposed Action is in conformance with the Proposed Surprise Field Office Resource Management Plan (RMP) and Final Environmental Impact Statement issued in May 2007 as adopted by the Record of Decision approved in April 2008 and can be found in the following sections of the RMP.

Section 2.2.2

*Chapter 1 Introduction
Summary of Proposed Action*

- Protect and preserve significant cultural resources. Ensure that these resources are available to present and future generations for appropriate uses. Manage legitimate activities in a manner that will ensure preservation and provide public benefits through education (including interpretation), research, public uses, and conservation for future generations.

Section 2.2.5

- Cultural resources will be managed in accordance with existing laws, regulations, executive orders, and Nevada and California State Historic Preservation Office protocol agreements (as amended).

Section 2.4.6

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

Section 2.10.5

- Ensure that all activities do not result in a net loss of soil mass or productivity from the management area.
- In degraded areas not making progress toward achieving soil health, reliance would be placed on vegetation manipulation and intensive planting of woody riparian species, plus bio-engineering in the form of exclosures, upland fencing, and in-stream structures.

Section 2.14.4

- Actions would minimize damage to the watershed and its soil, vegetation, air-quality or other resources of the public lands.

Section 2.15.5

- Locally gathered, native seed (or non-local native seed when local seed is unavailable) will be used for post-fire stabilization and rehabilitation, wildlife habitat restoration, forage augmentation efforts and other such projects.

Section 2.22.2

- Ensure that sufficient vegetation is retained around springs and other water sources, riparian areas, and wetlands to fulfill the needs of wildlife.

1.7. Relationship to Statutes, Regulations, and Other Plans

The proposed action is consistent with the following laws, regulations, and protocols:

- National Historic Preservation Act (NHPA) (1966), as amended.
- The Federal Land Policy and Management Act (1976), as amended
- Archaeological Resources Protection Act (1979), as amended

- Executive Order No. 11,593- Protection and Enhancement of the Cultural Environment, 1971
- BLM Manual 8100 – Cultural Resource Management
- Taylor Grazing Act (43 U.S.C 315 - 1934)
- Federal Land Policy and Management Act (43 U.S.C. 1701, 1976)
- Public Rangelands Improvement Act (43 U.S.C. 1901. 1978)
- Massacre PMU Sage-Grouse Conservation Strategy
- BLM Instructional Memorandum-2012-043
- American Indian Religious Freedom Act and Executive Order (E.O.) 13007
- Native American Grave Protection and Repatriation Act (NAGPRA)
- State Protocol Agreements between BLM Nevada and Nevada SHPO (2009c)
- State Protocol Agreements between BLM California and California and Nevada SHPO (2012)

In 2011, the BLM initiated RMP Amendments for Greater sage-grouse across the range of sage-grouse habitat managed by the BLM (western states) to ensure the long term conservation of the species and to avoid the need of listing the species under the Endangered Species Act of 1973. The completion date for the RMP Amendments is in 2015. This date corresponds to the USFWS timeline to evaluate the need for listing the species in light of the new conservation direction brought forth for Greater sage-grouse under the BLM RMP Amendments. BLM policy and direction in the interim period are outlined in BLM Instruction Memorandum (IM) No. 2012-043. In addition to this policy, the BLM released the National Greater Sage-grouse Conservation Measures/Planning Strategy Technical Team Report released on December 21, 2011. This report describes recommended conservation measures for Greater sage-grouse for each BLM land use or resource program area. The conservation measures relating to Range Management are described on page 14-17. BLM IM 2012-043 requires the BLM to designate Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) boundaries. PPH comprises areas that have been identified as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas would include breeding, late brood-rearing, and winter concentration areas. PGH comprises areas of occupied seasonal or year-round habitat outside of priority habitat. PPH and PGH boundaries within the Surprise Field office have been delineated by the BLM in coordination with respective state wildlife agencies (CDFW and NDOW).

1.8. Scoping, Public Involvement, and Issues

The BLM formally consulted with the Cedarville Rancheria on September 12, 2013, the Fort Bidwell Tribe on July 13, 2013, and Summit Lake Paiute Tribe on October 19, 2013 regarding this project. No issues or concerns were brought forth during these consultations.

On September 9, 2013 the BLM sent a scoping letter to interested parties for an 18-day public comment period. Scoping letters were received from the Nevada Department of Wildlife (NDOW) and Friends of Nevada Wilderness (FNW). Comments related to this project included:

- Management of livestock grazing and wild horse use to ensure the success of the proposed treatments
- Development of site specific objectives and monitoring plans to measure project success

Based on internal and external scoping, the following were identified as principle resource questions related to the proposed treatments:

- What are the effects of proposed projects on native wildlife species including Greater sage-grouse?
- What are the effects of proposed projects on riparian function and condition?
- What are the effects of proposed projects on livestock use?
- What are the effects of proposed projects on cultural resources?

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Chapter 2. Proposed Action and Alternatives

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2.1. Alternative 1 (Proposed Action): Implement Stabilization, Rehabilitation, and Restoration Treatments

The BLM would implement specific stabilization, rehabilitation, and restoration treatments to reduce the effects of the Lost Fire. All treatments would be implemented on BLM land, and no projects would take place in wilderness areas. Depending on funding availability, treatments may take place from 2013 to 2015. Cultural Resource surveys have been completed where required for all proposed treatment units. The proposed treatment specifications include the following actions:

2.1.1. Clover Creek Erosion Stabilization

Erosion stabilization efforts would be made within the Clover Creek drainage, which is in the Clover Creek pasture of the Bare Allotment. Moderate to high soil burn severity occurred on 46% of the Clover Creek watershed, and 13 loose-rock stabilization structures were installed in the North and Main Forks of Clover Creek in the fall of 2012 in response to perceived erosion risk. In-stream erosion stabilization structures are designed to control erosion caused by high velocity of water moving over the soil, sediment flow, and stream bank erosion. Installation of erosion barriers controls these erosional factors in burned areas by reducing uninterrupted slope length, increasing soil particle deposition, and improving opportunities for infiltration.

In July of 2013, a flash flood event occurred in the region; as a result of the high velocity water flow through Clover Creek, the majority of loose-rock structures in the Main Fork were washed out, the channel was incised in all forks, and several feet of sediment were deposited in the lower portions of the drainage.

2.1.1.1. *In-Stream Erosion Control*

In the Main Fork of Clover Creek, the BLM would repair existing loose-rock stabilization structures, extending the downstream aprons in order to reduce the channel slope and associated velocity of water flow. From the remaining structures to approximately 0.5 mile downstream, the BLM would excavate the channel walls, partially filling in the incised channel bottom while recreating a floodplain that would be accessible by relatively frequent flood events (see Fig. 2). This process would mimic the natural process of floodplain redevelopment in an incised channel, with the additional benefit of raising the bottom level of the channel. The filled-in channel bottom would be covered with 2-4 inches of gravel to minimize water and wind erosion. Water flow in Clover Creek is intermittent and no aquatic habitat exists, so temporary increases in sedimentation following this project would not be of concern for aquatic life.

The floodplain reconstruction project area would be rested from livestock and wild horse grazing for three years or until short-term resource objectives are met. Grazing rest in the project area would be accomplished with the installation of approximately 1.2 miles of temporary Liberty Fence.

In the North Fork, the BLM would repair seven existing loose-rock structures, extending the downstream aprons in order to reduce the channel slope and associated velocity of water flow. Where needed, dirt may be piled behind the structures to reduce the gradient of stream flow. Two to five additional loose-rock structures would be constructed downstream of the existing structures. The rock and dirt for the in-stream structures would be sourced on-site.

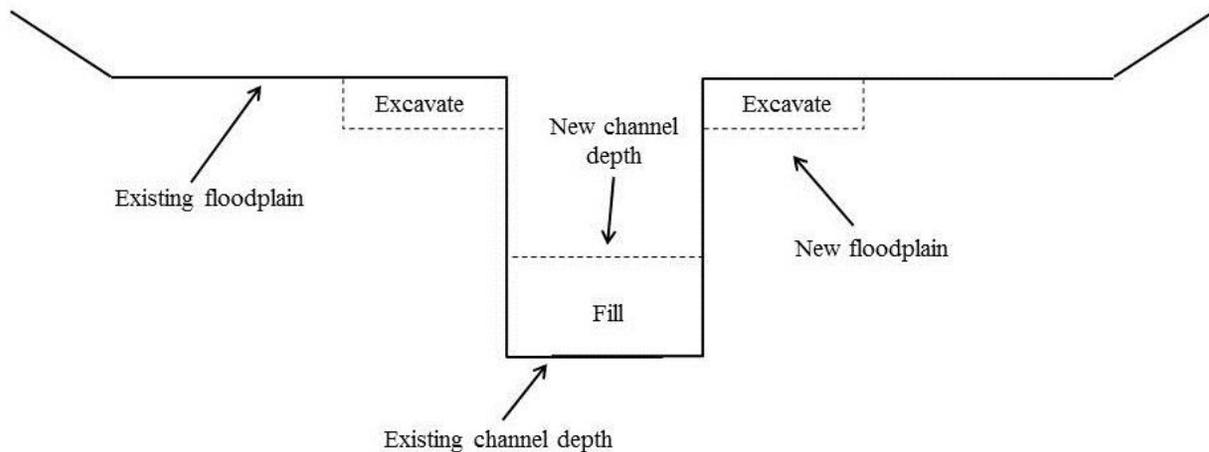


Figure 2.1. Cross-sectional schema of Clover Creek Floodplain Reconstruction Project

2.1.1.2. Stream Bank Erosion Control and Revegetation

In the Main Fork, approximately 10 acres within the floodplain reconstruction project would be seeded and planted with native perennial plants. Seeding on the new floodplain would be done either by broadcasting and dragging or using a low-impact Dewdrop drill. In order to quickly stabilize the new floodplain, the seed mix would include rhizomatous species such as creeping wildrye (*Leymus triticoides*) and western wheatgrass (*Pascopyrum smithii*). After seeding, the new floodplains would be covered with an erosion control cover (such as jute netting or straw matting). The BLM would also hand-plant bare-root and containerized seedling plugs of basin wildrye (*Leymus cinereus*), big sagebrush (*Artemisia tridentata*), and antelope bitterbrush (*Purshia tridentata*) within the new and existing floodplain terraces. The seedlings would reduce the velocity of overland water flows, improve infiltration rates, and provide cover and forage for wildlife species, including Greater sage-grouse, mule deer, pronghorn antelope, and migratory birds. Culverts within the Main Fork of Clover Creek would be cleaned of sediment and restored to functioning condition.

In the Main, South, and North Forks, the BLM would seed native perennial plants (grasses, shrubs and forbs) by drill seeding on approximately 60 total acres within the historic floodplains alongside the creek channel. These treatments would be implemented to reduce the velocity of water flowing into the Clover Creek stream channel, restore wildlife habitat, minimize invasion of cheatgrass (*Bromus tectorum*) and other exotic plants, and minimize topsoil loss due to wind and water erosion. Seed may be sown by rangeland drill on vehicle accessible sites where the slope is less than 30% rocks and other obstructions are minimal. Seed mixes would contain native species that would be expected at this site, such as: basin wildrye, bluebunch wheatgrass (*Pseudoroegneria spicata*), basin big sagebrush (*Artemisia tridentata tridentata*), antelope bitterbrush, and common yarrow (*Achillea millefolium*).

The seeded areas would be rested from livestock grazing for two growing seasons or until short-term resource objectives are met.

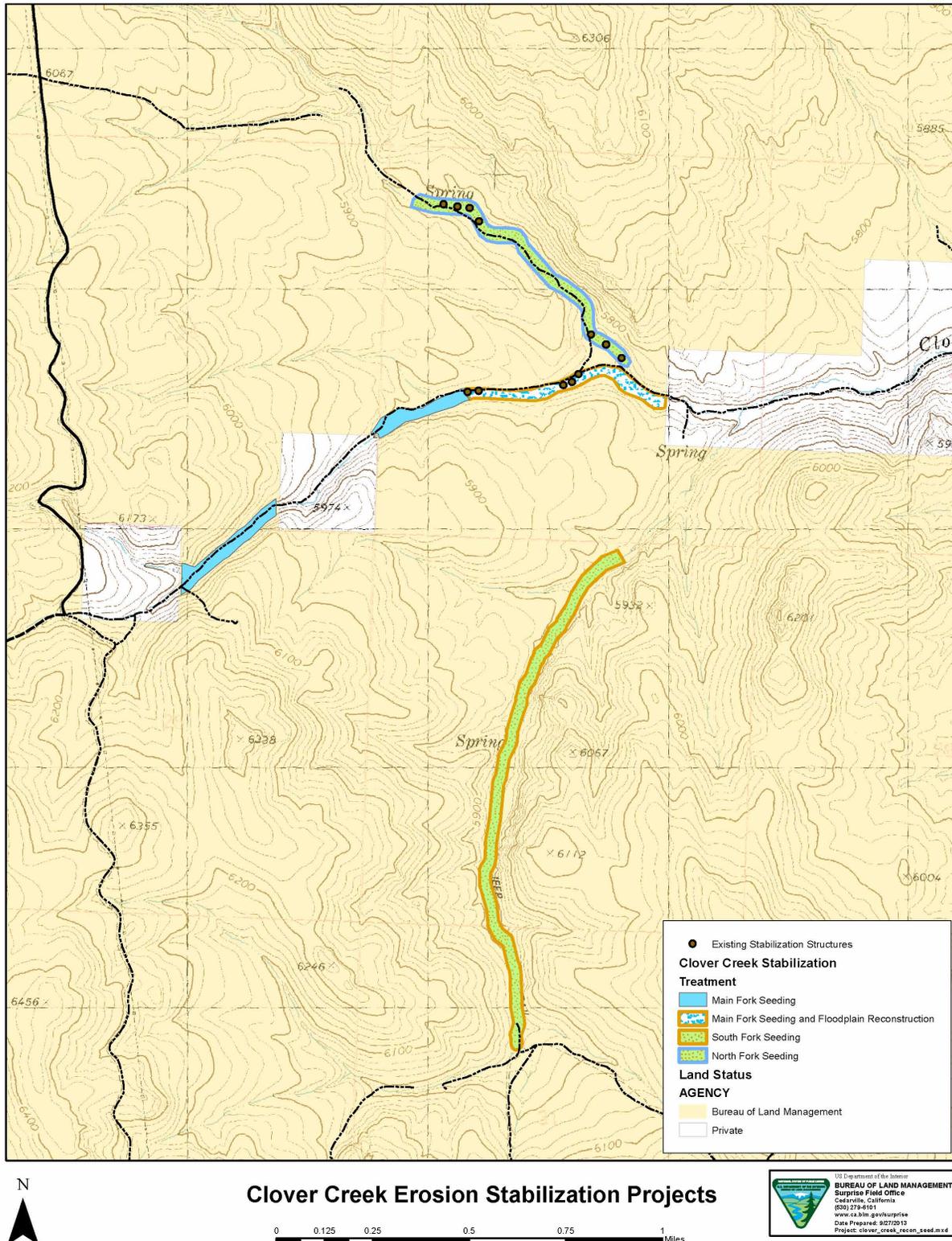


Figure 2.2. Clover Creek Erosion Stabilization Projects

2.1.2. Aerial Seeding of Native Shrubs

The BLM would aerially seed big sagebrush (*Artemisia tridentata*) on approximately 5,000 acres. Aerial seeding does not involve ground disturbance at the seeding site. Aerial treatments are designed to deliver seed to high-priority areas while maintaining ecological stability, minimizing soil impacts, and reducing the risk of invasion of cheatgrass and noxious weeds. Sagebrush seeds are particularly suited to aerial applications because the tiny sagebrush seeds do not typically require full burial in order to achieve adequate seed-soil contact for germination.

Seeding units would be limited to north-facing slopes and higher-elevation areas (greater than 6,000 feet), where the probability of revegetation success is greater. Seed would be accomplished by aerial application of seed by rotor aircraft. Seed would be applied concurrent with cool-season moisture (between November and April). Potential seeding sites are shown in Fig. 4. More than 15,000 acres meet the criteria for seeding; however, only up to 5,000 acres would be seeded under this EA.

There would be no required rest from grazing within the aerial seeding treatments.

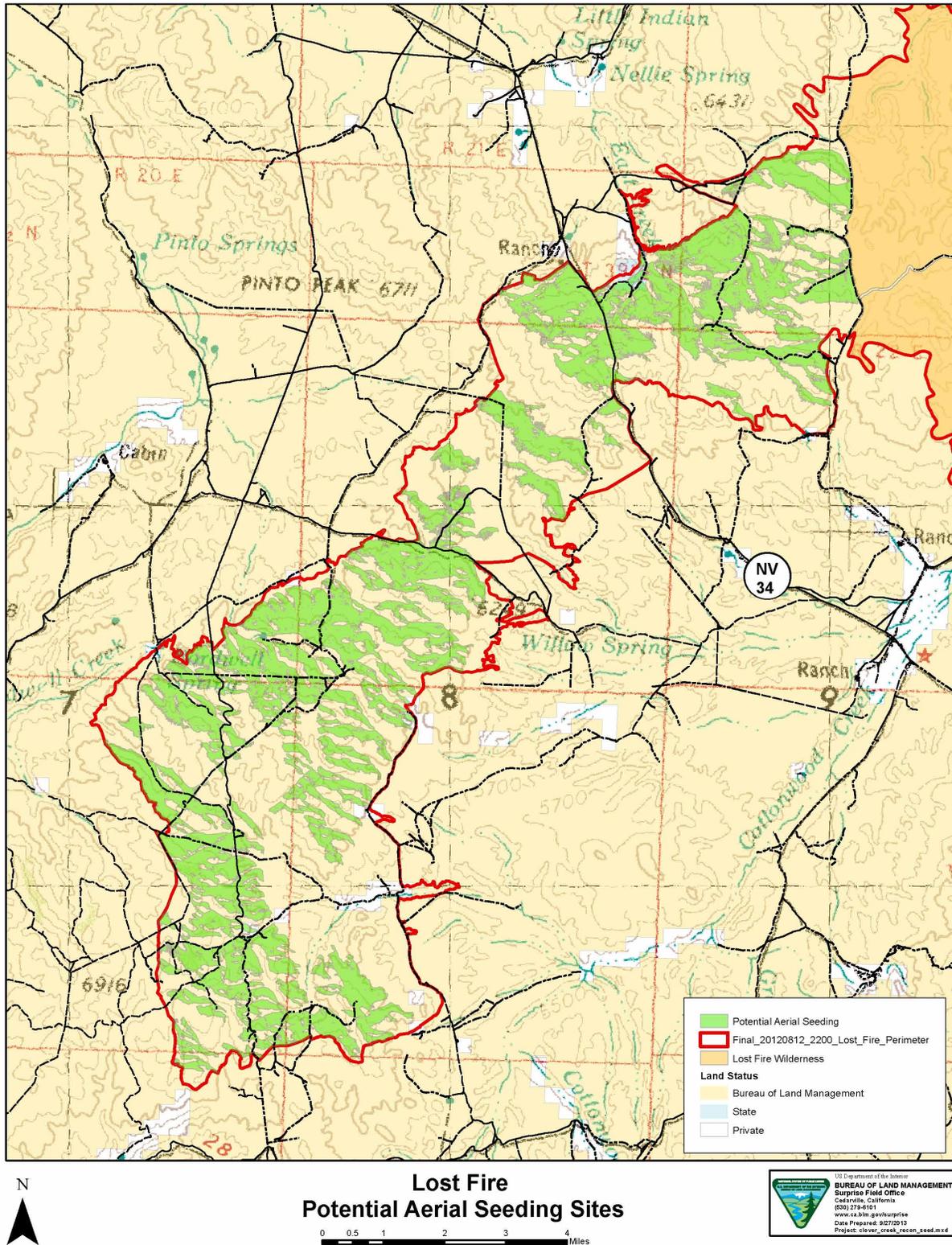


Figure 2.3. Potential Aerial Seeding Sites

2.1.3. Targeted Hand Planting and Seeding of Native Shrubs

2.1.3.1. *Hand-planting*

In order to restore important wildlife habitat, the BLM would hand-plant up to 200 acres with bare-root and containerized seedling plugs of antelope bitterbrush, big sagebrush, and curl-leaf mountain mahogany (*Cercocarpus ledifolius*). These seedlings would provide cover and forage for many wildlife species that inhabit sagebrush steppe habitats, including Greater sage-grouse, mule deer, and pronghorn antelope. They would also provide vegetative cover needed to reduce soil erosion and restore site dynamics. Seedling planting sites would be located on up to 200 acres within 1,384 acres of pre-determined planting units (see Fig. 5).

Seedling planting sites would be located primarily on north-facing slopes, and the species planted in each site would be chosen based on soil type (antelope bitterbrush and big sagebrush in ashy loams, big sagebrush only in ashy slopes, and mountain mahogany on mahogany savannas). Planting units would be located in burned portions of the Bare, Denio, Duck Lake, Home Camp, and Wall Canyon West allotments. No planting would be done in wilderness areas. Planting would take place in the late fall to early winter. Seedlings would be planted in a pattern designed to establish islands of cover, which would be expected to naturally fill in with plants over time. The islands would be planted with 6 rows of 6 seedlings at approximately 8-foot spacing. Islands would be separated from each other by approximately 15 feet, resulting in an overall planting rate of approximately 680 plants/acre.

The seedling planting areas would be rested from hot-season livestock grazing for two years or until short-term resource objectives are met. Where appropriate, livestock rest may be accomplished using grazing closures. Wherever possible, seedling planting sites will be selected in areas that do not typically receive livestock late in the grazing season (after July 1), since livestock would not be expected to utilize shrubs during the growing season for grasses.

2.1.3.2. *Seeding*

The BLM would seed antelope bitterbrush and big sagebrush at or near the hand-planting sites using a low-impact Dewdrop drill. These treatments would allow for shrubs to fill in between the planted seedlings, increasing shrub densities while maximizing the area covered by seedling plugs.

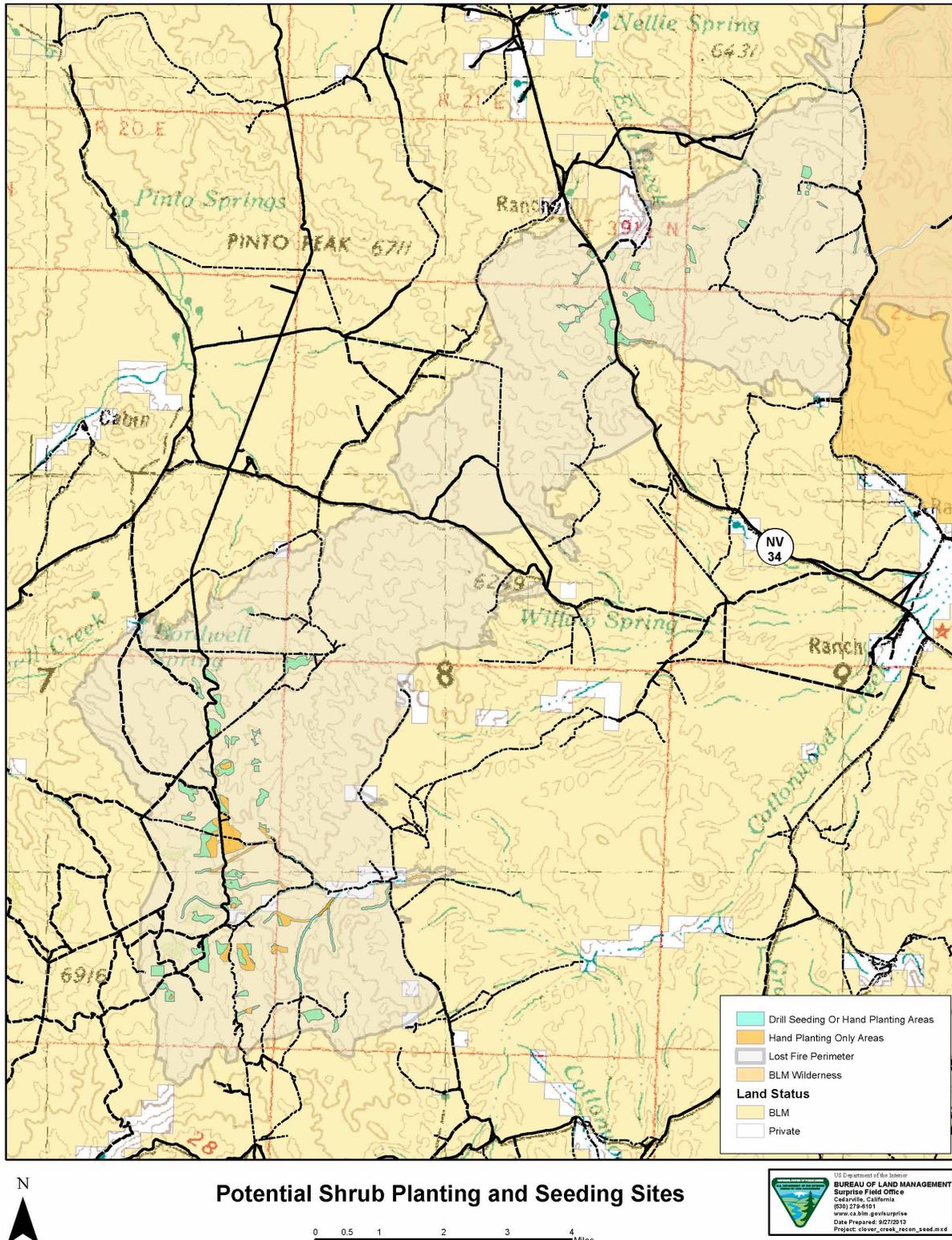


Figure 2.4. Potential Shrub Planting and Seeding Sites

2.1.4. Short-Term Resource Objectives

Post-fire grazing management, including the period of time needed for closure, would be determined based on coordination, cooperation, and consultation with the interested public, monitoring, and achievement of site specific resource objectives. Beyond the two growing seasons rest, grazing management practices may be adjusted using the adaptive management process to encourage vegetation recovery. Resumption of livestock grazing could occur when the following short-term objectives have been met:

Clover Creek Floodplain Reconstruction

- Streambank and floodplain erosion is less than one centimeter in each of two consecutive years.
- Channel incision height does not increase more than 10 centimeters in each of two consecutive years.

Clover Creek Seeding

- Approximately 66% (2/3) of native perennial grass plants are vigorous as demonstrated by production of full seed-heads.
- Approximately 66 % (2/3) of native perennial plants root systems are vigorous as demonstrated by plants not able to be pulled out by the roots (excluding *Poa* species).
- Establish an average density of 3 perennial grass plants/m².
- Minimum of 50% total site cover (of all native species, including rocks and litter).

Hand-Planting and Seeding of Shrubs

- Hot season grazing (after July 1) is not authorized on planted areas for two years, or until it is determined the treatment was unsuccessful and additional treatments are not proposed for the unit.

2.1.5. Long-Term Resource Objectives (10+ years)

Clover Creek Floodplain Reconstruction

- Maintain an elevation difference of no more than one meter between the bottom of the stream channel and the top of the reconstructed floodplain throughout the project area.

Clover Creek Seeding

- Minimum of 70% total site cover (of all native species, including rocks and litter).
- Limit cheatgrass establishment to no more than 5% of total plant community composition on historic floodplain.

Aerial Seeding of Shrubs

- Establish 0.5 plants/m²

- Site-level sagebrush cover greater than 10% on appropriate ecological sites.

Hand-Planting and Seeding of Shrubs

- Site-level total shrub cover greater than 10%.

2.1.6. Monitoring

For seeding and seedling planting treatments, vegetation monitoring sites would be established within each of the treatment areas. Monitoring methods would include line-point intercept, gap intercept, soil aggregate stability, photo points, density quadrats for grasses and forbs, and density belt transects for shrubs. The selected methodology is based upon the AIM Terrestrial Monitoring Protocol (Taylor et al. 2012), with adaptations for post-fire sites (based on Wirth and Pyke 2007).

Erosion pins would be installed immediately after the Clover Creek floodplain reconstruction project is completed, in order to monitor erosion in the streambank and floodplain. A laser level or meter sticks would be used to monitor incision height.

2.1.7. Standard Operating Procedures

1. Drill seeding activities would occur when the ground is dry or frozen. Vehicles and equipment would be cleaned prior to entry to the site for work to prevent the spread or introduction of weeds.
2. Planting and seeding would take place in the late fall to early spring. Seeding during the season of greatest moisture maximizes the probability of revegetation success.
3. The SFO archaeologist would be notified when excavation work is occurring in Clover Creek, and would have the option of being present in the event sub-surface cultural resources are exposed.
4. Drill seeding in Clover Creek would be limited to the flat areas in the historic floodplain. No drill seeding would be permitted on the adjacent hillsides in identified cultural resource sites.

2.2. Alternative 2 (No Action): Do Not Implement Stabilization, Rehabilitation, and Restoration Treatments

Under the No Action Alternative, the BLM would not implement the proposed treatments. All natural resources would be left to the process of natural rehabilitation.

2.3. Alternatives Considered but not Analyzed in Detail

Full re-engineering of original stabilization project, using erosion control structures in all forks of Clover Creek. This alternative was dismissed because it was determined that local rock sources were insufficient to provide adequate energy dissipation in the Main Fork, and importing non-local rock was unfeasible given existing road conditions.

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Chapter 3. Affected Environment

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The following resources have been evaluated to determine if they may be impacted by the Proposed Action. All resources that are rated as “Present and Affected” are discussed and analyzed in the following chapters.

Table 3.1. Resource Issues

Critical Element	Not Present	Present Not Affected	Present and Affected	Comment
Air Quality/ Global Climate Change		X		The Proposed Action may involve some future contribution of greenhouse gases, but contributions would not have a noticeable or measurable effect.
Areas of Critical Environmental Concern (s)	X			There are no ACEC's located within the Project Area.
Cultural Resources			X	See Sections 3.1 and 4.2
Environmental Justice	X			The Proposed Action would not disproportionately affect low income or minority populations.
Essential Fish Habitat	X			There is no Essential Fish Habitat located within the Project Area.
Farmlands, Prime and Unique	X			There are no Prime or Unique farmlands located within the Project Area.
Floodplains	X			There are no FEMA-mapped 100- or 500-year floodplains within the Project Area.
Invasive, Non-native Species			X	See Sections 3.2 and 4.3
Livestock Management			X	See Sections 3.3 and 4.4
Native American Religious Concerns	X			No Native American Religious Concerns were expressed during consultations.
Recreation		X		The Proposed Action would not affect recreation.
Social and Economic Values		X		Potential socioeconomic impacts are discussed in the Livestock Management section.
Soils			X	See Sections 3.5 and 4.5
Vegetation and T&E Vegetation Species			X	See Sections 3.6 and 4.6
Visual Resource Management			X	See Sections 3.7 and 4.7
Wastes, Hazardous or Solid	X			The Proposed Action would not result in hazardous/ solid waste exposure to people or the environment.
Water Quality		X		Implementation of the Proposed Action would not affect water quality.
Wetlands /Riparian Zones	X			There are no wetlands or riparian zones within the Project Area.
Wild and Scenic Rivers	X			There are no designated Wild and Scenic rivers within the Project Area.

Critical Element	Not Present	Present Not Affected	Present and Affected	Comment
Wilderness (lands with wilderness characteristic)	X			There would not be effects to Lands with Wilderness Characteristics.
Wild Horse and Burros			X	See Section 4.4
Wildlife and T&E Wildlife Species			X	See Sections 3.8 and 4.8

3.1. Cultural Resources

In 2012 the Surprise Field Office contracted a private cultural resources management firm to conduct a cultural resources survey in order to comply with Section 106 of the National Historic Preservation Act (NHPA) for this proposed project. The inventory is designed to identify any cultural resources that may be affected by the proposed action. As a result of the inventory, the contract firm identified 37 cultural resource sites within the Area of Potential Effect (APE). Three sites are deemed eligible for listing on the National Register of Historic Places (NRHP). One cultural resource site is deemed ineligible for listing on the NRHP. The remaining 33 cultural resource sites have not been evaluated for listing on the NRHP and will be treated as eligible until such an evaluation is made.

3.2. Invasive and Non-Native Species

The Lost Fire area has only a couple of known bull thistle sites as documented in the SFO GIS Noxious Weeds database and from personal observations from resource specialists. Some small patches of cheatgrass are also documented in the lower elevation Wyoming sagebrush sites. Although the area was fairly free of invasive and noxious weeds, there is a very high risk for new infestations within the fire perimeter on both public and private lands to become established due to the large amount of acres burned. Generally, cheatgrass increased in density in some areas within burned areas but if perennial grasses are a major component of the site and perennial grasses are allowed to recover, perennial grasses begin to dominate the area. Following the Lost Fire in 2012, the Surprise Field Office Weeds Crew surveyed the entire Lost Fire for Noxious weeds and discovered a Hoary Cress population that had established in the Clover Creek drainage. No other noxious weeds were detected. Cheatgrass was noted throughout the fire but in higher densities in the wilderness and in the Massacre Mountain and Denio Allotments. Invasive plants and weed assessments will be conducted in 2014 for Early Detection and Rapid Response (EDRR) on any new infestation located within the fire perimeter. All noxious weed treatments will be in compliance with BLM Policy and the Integrated Weed Management Program, BLM Lands, Surprise, and Eagle Lake Field Offices, Nevada Lands Portion, Environmental Assessment (EA) #CA370-04-05, April 2004, DNA #CA-370-07-02.

3.3. Livestock Management

The Lost Fire affected ten grazing operators on the following allotments: Bare, Denio, Duck Lake, Home Camp, Massacre Mountain, and Wall Canyon West (See Lost Fire Burn Map). The total active AUMs on the 6 allotments are 35,682. The season of use varies by allotment, but is generally from April through September.

To assist with post-fire vegetative and soil recovery, current grazing permits for the ten operators were temporarily modified for all allotments for a minimum of two growing seasons and the term of the permit modification will depend on the seeding/seedling establishment in the Lost Fire and natural re-vegetative recovery of the burned area. The permits were modified through separate grazing decisions.

An evaluation of the vegetative recovery criteria in the burned areas will be conducted in consultation and coordination with Allotment permittees, state agencies, and other interested publics following the 2014 growing season. This evaluation would determine if the criteria for wildfire recovery are being met. If through this evaluation it is determined that the wildfire recovery criteria have been met or that future managed livestock grazing would not impede recovery, the Lost Fire burned area would be authorized to livestock grazing in accordance with the terms and conditions of current grazing permits. If the recovery criteria have not been met, then livestock grazing will not resume until those criteria have been met. The following is the current management summary for each allotment effected by the Lost Fire.

Bare Allotment

The Lost Fire burned 6.7% of the Bare Allotment. The permittee, Estill Ranches LLC, operates under a modified grazing schedule for a minimum of two growing seasons. The entire Clover Pasture and Lost Creek Pasture were rested in 2013. However, this change was consistent with the existing seven pasture management plan for the Bare Allotment, and no reductions in permitted use were required in 2013.

In 2014 grazing use may be adjusted, including a reduction of permitted AUMs, and/or season of use in the remaining pastures to meet resource objectives under the existing allotment management plan. A separate livestock management decision would be issued in 2014, prior to the grazing season addressing permit modifications for the second year growing season rest requirement.

Denio Allotment

The Lost Fire burned 39% of the Denio Allotment. The permittee, Ed & Alan Berryessa, operate under a modified grazing schedule which closed the 12,000 acre North Pasture of the Denio Allotment. Permitted active use of 966 AUMs is temporarily suspended for the term of the grazing decision for a minimum of two growing seasons based on the carrying capacity and grazing schedule of the North Pasture closure area. The allotment boundary fences damaged by the Lost Fire were repaired in 2013.

Duck Lake Allotment

The Lost Fire burned 4.9% of the Duck Lake Allotment. The permittee, Duck Lake Ranch, LLC, operates under a modified grazing schedule for a minimum of two growing seasons. The grazing closure area is the East Pasture. This closure area affects 6,435 acres or approximately 17% of the East Pasture acreage. Consequently, 17% of the permitted active use in the East Pasture is temporarily suspended for the term of the grazing decision. Since there are no physical barriers to control cattle grazing near the Lost Fire burned area, the permittees are responsible to ensure cattle do not enter the closure area. In 2013 the entire allotment was rested.

Home Camp Allotment

The Home Camp Allotment permittees, Jim Cockrell, Robert Cockrell, Betty Cockrell and Grove Brothers, operate under a modified grazing schedule for a minimum of two growing seasons.

Although 8,597 acres (5.9%) were burned in the Home Camp Allotment, 14,154 acres is closed to grazing due to the location and design of the 7.5 miles of protection fence. The area closed represents 13.5 percent of the acres in the 3 turnout pastures. The reduction in permitted AUMs is based on the acreage in the closure area as a percentage of total acres in the turnout pastures. The closure area is referred to as the Hart Camp use area. All Home Camp Allotment grazing permits were modified with a 13.5% reduction of active use for the period of April 1 to July 1. The 7.5 miles of protection fence was constructed in the eastern portion of the Hart Camp use area that borders the Denio Allotment; the boundary fence between the two allotments damaged by the fire was also rebuilt. A small portion of the burned area in the northeast corner of the allotment within the High Rock Canyon Wilderness Area was not fenced. This part of the allotment has historically received little grazing use due to a lack of water; however, permittees are responsible for actively monitoring the area and removing any cattle during the closure period.

Massacre Mountain Allotment

The Lost Fire burned 12.6% of the Massacre Mountain Allotment. The permittees, John Bunyard and Copper Cattle Company, operate under a modified grazing schedule for a minimum of two growing seasons. Because there are no physical barriers to control cattle grazing within Yellow Rock and Little High Rock use areas, the closure area affects 39,996 acres or approximately 27 % of the Massacre Mountain Allotment. The reduction in permitted AUMs is based on the acreage in the closure area: the Yellow Rock and Little High Rock use areas were closed to cattle use. The Copper Cattle Company permit was modified with a 27% temporary suspended of active use for the term of the grazing decision.

Allotment boundary fences damaged by the Lost Fire were repaired. The Little High Rock fence was also damaged by the Lost Fire, and is no longer needed for livestock management. This project was abandoned and the fence material will be removed.

Wall Canyon West

The Lost Fire burned 20% of the Wall Canyon West Allotment. The permittees, John & Ruth Still and Estill Ranches LLC, operate under a modified grazing schedule. This change includes closing the entire East Pasture of the Wall Canyon West Allotment for a minimum of two growing seasons. The 2013 Lost Fire Grazing Decision also temporarily suspended active use by 1,551 AUMs for the duration of those decisions. The remaining active AUMs are shared among the two permittees for the Wall Canyon West Allotment. Grazing use in the West and Seeding pastures were adjusted to meet resource objectives under the existing allotment management plan.

Existing allotment boundary and pasture fences damaged by the Lost Fire were repaired in 2013. The permittees are now responsible for normal fence maintenance as per the Cooperative Range Improvement Agreements.

3.4. Native American Religious Concerns

The Lost Fire is within the territorial boundaries of the Northern Paiute and belonged to one of three bands, or perhaps shared by both: the Kidütökadö, and the Aga'ipaninadökadö. Many members of the Kidütökadö continue to reside at the Fort Bidwell Reservation while many members of the Aga'ipaninadökadö members continue to live at the Summit Lake Paiute Reservation and surrounding areas. The BLM Surprise Field Office conducted government to government consultation with the Fort Bidwell Tribal Council regarding the Lost Fire in

July 2013, with the Cedarville Rancheria in September 2013, and with the Summit Lake Tribal Council in October 2013. During these meetings no tribe expressed concern regarding proposed or on-going projects in the Lost Fire. Therefore, no known impacts are expected to the tribes, and this issue will not be further discussed in this EA.

3.5. Soils, Hydrology, and Watershed Resources

The areas burned by the Lost Fire are characterized by mountains, plains and canyons that are comprised of steep to gentle rolling hillslopes with gravelly, cobbly, and stony surfaces. The dominant geographic features are Cherry Mountain, Hart Mountain, and Mahogany Mountain. The geomorphic region consists mainly of mountains and structural basins of the Great Basin. The mountains are igneous in nature and consist of various basaltic and andesitic parent material (USDA, NRCS,2004).

Soils

The NRCS soil survey was developed in an orderly pattern that is related to the geology, landforms, relief, climate and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. (USDA, NRCS, 2004). There are 38 soil mapping units within the burn area. The majority of these units are associations, which means there is more than one soil type in the unit. The following is a brief mapping unit descriptions of the dominant general soil associations that occur within the Lost Fire:

- Ashtre-Nutzan-Ashdos association (25% of the fire): Well-drained very gravelly ashy loams on 4 to 30% slopes. This association occurs on mountains and plateaus developed from volcanic rock. Runoff is high.
- Devada-Reywat-Bitner association (10% of the fire): Well-drained cobbly and very stony loams on 2 to 30% slopes. This association occurs on mountains developed from volcanic rock. Runoff is high to very high.
- Wylo-Bucklake-Rock outcrop association (7% of the fire): Well-drained very stony and gravelly loams on 2 to 50% slopes. This association occurs on plateaus and ridges developed from volcanic rock. Runoff is high to very high.
- Cavin-Nutzan-Tusune association (6% of the fire): Well-drained very gravelly ashy loams on 4 to 50% slopes. This association occurs on mountains and footslopes developed from volcanic rock. Runoff is low to very high.
- Devada-Rock outcrop complex, 4 to 15 percent slopes (6% of the fire): Well-drained cobbly and very stony loams on 4 to 50% slopes. This association occurs on mountains developed from volcanic rock. Runoff is high.
- Chalco-Saraph-Tuffo association (5% of the fire): Well-drained very gravelly loams on 4 to 75% slopes. This association occurs on hills developed from tuff. Runoff is very high.

Hydrology

The Lost Fire falls within the High Rock Lake watershed (209,359 acres), which flows into Mud Meadow Creek-High Rock Desert watershed. Within this major watershed boundary, several subwatersheds have been identified. The Clover Creek subwatershed (18,878 acres) flows into

Cottonwood Creek subwatershed, which flows into the Little Mahogany Reservoir subwatershed, which flows into the High Rock Lake subwatershed. The Clover Creek subwatershed is a headwater system, which means that no other subwatersheds flow into it.

Watershed runoff and erosion potential has increased in watersheds as a result of the fire. The most significant increases will occur in areas where soil burn severity was moderate, where slopes are steeper, and where burned stream channels/floodplains/terraces are downstream within the larger burned watersheds. In the Clover Creek watershed, moderate soil burn severity occurred on 46% of the watershed. Yellow Rock Canyon and Mahogany Creek experienced 21% and 13% moderate soil burn severity, respectively. With normal or greater precipitation, the effects of the Lost Fire on watershed resources are expected to include: 1) initial flush of ash and sediment, 2) gully and rill erosion on steep slopes and in drainages with moderate burn severity, and 3) increase in average winter/spring storm runoff. Due to expected increases in runoff, the Clover Creek watershed is the only area where values-at-risk within or downstream of the Lost Fire were identified. These values include perennial springs, riparian and semi-wet meadow vegetation, the road system, and sage-grouse brood-rearing habitat, all associated with the Clover Creek channel/floodplain/terrace environment.

3.6. Vegetation, T&E Species, and Special Status Plant Species

The Lost Fire consumed 61,537 acres of predominantly upland sagebrush steppe vegetation. Typical pre-fire vegetation within the burn included the following community types: mountain big sage/Idaho fescue, low sagebrush/Idaho fescue-needlegrass, low sagebrush/bluebunch wheatgrass, Lahontan sagebrush/Thurber's needlegrass, and Wyoming big sagebrush/bluebunch wheatgrass/Thurber's needlegrass. The fire also consumed pockets of curl-leaf mountain mahogany and extensive areas of antelope bitterbrush.

A portion of the fire burned high elevation big sagebrush communities that are important nesting habitats for sage-grouse. Approximately 16,500 acres (27% of the burned area) experienced moderate to high vegetation top kill on non-sprouting shrubs; plants burned all the way to ground with stems/stubs less than 6 inches tall. About 27,700 acres received low to moderate top kill on shrubs. The remaining acreage had low to no vegetation top kill. Based on field assessments, approximately 9,000 to 10,000 acres had moderate to high vegetation top kill on perennial grasses. The primary concern is the loss of mountain big sagebrush, Wyoming big sagebrush, Lahontan and low sagebrush, and antelope bitterbrush in the 16,500 acres with moderate to high levels of vegetation top kill and the resultant loss of nesting, wintering and brood-rearing habitat for sage-grouse.

Severe drought conditions for consecutive years have greatly compounded the effects of the Lost Fire on native vegetation and forage. The Juniper Springs weather station, which is located approximately 4 miles from the southwestern edge of the fire, recorded only 2.8 inches of precipitation from October 2011 through June 2012, 66% of the 21-year average. From October 2012 through June 2013, only 3.4 inches were recorded, 79% of average. BLM Range staff have estimated that native grass production at low elevation sites were reduced by up to 50% from normal in 2012 and 2013, primarily due to inadequate precipitation. These drought conditions have substantially reduced the forage available for livestock, wild horses, and wildlife, and continue to affect forage growth in unburned islands.

Decreased precipitation and insect outbreaks have slowed the process of natural regeneration within the fire. With the exception of re-sprouting shrubs (such as green rabbitbrush

[*Chrysothamnus viscidiflorus*]), all regeneration is dependent on successful seed germination and subsequent seedling establishment. Since soil seed banks in sagebrush steppe vegetation are unable to withstand fire (Allen et al., 2008), seeds must come from remnant pre-fire plants or from previous years' seed buried in unburned soil. However, seed production rates in 2012 and 2013 were extremely low. Many of the unburned Wyoming big sagebrush plant associations within and outside of the Lost Fire perimeter experienced an outbreak from the sagebrush defoliator moth (*Aroga websterii*). Since 2012, outbreaks have been noted in NE California, NW Nevada, SE Oregon, and SW Idaho. On-the-ground assessments in 2012 revealed that leaves of Wyoming big sagebrush plants in unburned areas adjacent to the Lost Fire were dead or extremely dry. No flowering stalks were found on plants attacked by the defoliator moth.

Based on monitoring data collected in 2013 (based on the AIM terrestrial monitoring protocol), burned areas are characterized by large patches of bare ground. Within the fire perimeter, perennial grass densities have exceeded objectives (average 6 plants/m², excluding *Poa* species). However, shrub densities remain extremely low (<0.25 plants/m²), and post-fire seedlings of big sagebrush and antelope bitterbrush, important species for wildlife habitat, have not yet been detected.

Cheatgrass invasion is a concern at all elevations within the fire perimeter but is a particular risk at lower elevations and on south-facing slopes. Cheatgrass was commonly present in the pre-fire understory at these sites, and following high overstory mortality, it now dominates ecosystem dynamics in many areas.

No threatened or endangered or special status plant species are known to exist in or adjacent to the project area, and based on soil mapping there is a low probability of occurrence.

3.7. Visual Resource Management

BLM's Visual Resource Management (VRM) system provides a way to identify and evaluate scenic values to determine the appropriate levels of management. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings. The VRM system is categorized as follows:

- Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- Class IV Objective: To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Visual Resources in the project area are generally and historically associated with recreational activities which include: driving for pleasure, viewing historic sites, hunting and watchable wildlife opportunities. Much of the area is at higher elevations and affords excellent panoramas and vistas of the adjacent higher mountain peaks and surrounding landscapes.

The Lost Fire occurred entirely within VRM Class IV. Class IV objectives are to provide for management activities which require major modifications of the existing character of the landscape. The Lost Fire caused a high level of change to the existing characteristics of the environment, removing vegetation and creating new trails and roads from fire suppression. The level of change to the characteristic landscape Class IV was high.

3.8. Wildlife, T&E Species, BLM Sensitive Species, and Migratory Bird Species

The Lost Fire burned portions of habitats for three BLM Sensitive Species and habitat for locally important wildlife species including mule deer and pronghorn antelope. A field office wide Pygmy rabbit survey in 2006 detected pygmy rabbits in two locations within the fire perimeter. In addition, many of the high elevation mountain big sagebrush sites and big sagebrush drainage bottoms that were not surveyed contain suitable habitat characteristics for pygmy rabbits. 31,000 acres of occupied and/or potential California bighorn sheep habitat burned within the Lost Fire. Most notably was bighorn sheep habitat within the range of the High Rock bighorn sheep population. The fire burned throughout occupied summer range habitat for pronghorn antelope. 20,226 acres of crucial mule deer summer habitat burned, mostly on the southwest portion of the fire and 3,715 acres of crucial mule deer winter habitat burned on the eastern portion of the fire.

Sagebrush was the dominant vegetation type within the fire perimeter with mountain big sagebrush, low sagebrush and Wyoming big sagebrush occurring in similar amounts. In addition to these dominant habitat components, large inclusions of antelope bitterbrush and mountain mahogany in the uplands and basin big sagebrush in drainage bottoms provide important habitat for a myriad of sage-steppe obligate species, including Greater sage-grouse, pygmy rabbit, bighorn sheep, mule deer and pronghorn antelope. Large wildfires and subsequent habitat changes from shrub dominated habitats to grass dominated habitats within northern Washoe County are a major risk due to the loss of sagebrush cover and the potential conversion of sagebrush habitats to exotic annual grasslands. In general, shrub composition and cover provides the most meaningful and important habitat components for sage-steppe obligates in the area and loss of the shrub layer, if permanent, represents a long term reduction in the habitat quality in the area. The following wildlife species of concern and their respective habitats were identified as occurring within the Lost Fire perimeter:

Table 3.2. Wildlife Species of Concern within the Lost Fire Perimeter

Species	Scientific Name	Status
Greater Sage-grouse	Centrocercus urophasianus	Federal Candidate; BLM Sensitive
Mule Deer	Odocoileus hemionus	Locally important
California Bighorn Sheep	Ovis canadensis californiana	Locally Important, BLM Sensitive
Pygmy Rabbit	Brachylagus idahoensis	BLM Sensitive
Pronghorn	Antilocapra americana	Locally important

The BLM recently designated Priority Habitat for sage-grouse. Priority Habitat comprises areas that have been identified as having the highest conservation value to maintaining sustainable sage-grouse populations. These areas include breeding, late brood-rearing and winter concentration areas. These areas have been identified by the BLM in coordination with State agencies. The Lost Fire is located entirely within Greater Sage-grouse Preliminary

Priority Habitat (Sage-grouse Priority Habitat). The Lost Fire is located within the Massacre Sage-grouse Population Management Unit (PMU). BLM lands within this PMU are managed with recommendations from the associated conservation strategy.

The goals of the Massacre Conservation Strategy include: 1) promoting habitat conditions that support wintering, breeding, nesting, and brood-rearing success, 2) providing secure sage-grouse winter, breeding, and nesting habitat with minimal disturbance and harassment, and 3) minimizing habitat losses resulting from natural disturbances such as wildfires. The Massacre PMU encompasses almost 2,000 square miles of sage-grouse habitat in north central Washoe County, Nevada. The Lost Fire burned approximately 4.9% of occupied sage-grouse habitat within the PMU. The PMU provides year-round habitat for a fairly stable population of sage-grouse. Sage-grouse seasonal habitat types were well distributed and connected throughout the PMU prior to the Lost Fire. Large wildfires and changes within this PMU were identified as a major risk in the Massacre Conservation Strategy due to the loss of sagebrush cover and potential conversion of sagebrush habitats to annual grasslands and the fact that it is undetermined how the sage-grouse population is currently maintaining itself and what impact a major change would have on sage-grouse within the PMU. Two active sage-grouse lek sites were “burnt over” within the Lost Fire boundary and there are 2 leks within 0.5 miles, 5 leks within 2.0 miles and 2 leks within 3.0 miles of the Lost Fire boundary.

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Chapter 4. Environmental Effects

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This section describes the environmental consequences of implementing either the Proposed Action or No Action (as described in Chapter 2) on resources affected by the Lost Fire. This section describes the Direct and Indirect Effects, and Cumulative Effects for all resources that may be impacted from the alternatives.

The alternatives are analyzed for the environmental consequences of implementing or not implementing stabilization, rehabilitation, and restoration treatments that would be applied to a post-fire landscape. This analysis of effects is based on the premise that all standard operating procedures found in the Appendices, and other BLM requirements will be followed during the implementation of the Proposed Action. Design features that are intended to avoid or minimize environmental harm and have been incorporated into the Alternative 1 and are treated as an inherent part of the Proposed Action. The assessment of environmental consequences is tiered to the Surprise Field Office RMP/EIS, 2008. The analysis is based on the best available information.

For the purposes of analyzing cumulative impacts on all affected resources, the following list describes the past, present, and reasonably foreseeable relevant actions within the Project Area. The cumulative assessment area (CAA) for the purpose of evaluating cumulative impacts is the Project Area, except for the following resources: for livestock grazing it is the entire five grazing allotments within the Project Area, and for greater sage-grouse it is the Massacre Population Management Unit boundary.

4.1. Past, Present, and Reasonably Foreseeable Relevant Actions

Past Relevant Actions

1. Livestock grazing has occurred in this area for at least 150 years.
2. In the 1970's the BLM has reduced the amount of livestock grazing in the area by approximately 15-40% (including the numbers reduced to help abate unauthorized grazing). Livestock grazing management has been implemented to reduce impacts to vegetation and cultural sites though coordination with the grazing permittees.
3. Wild horses are managed in the Clover pasture of the Bare Allotment -Fox-Hog Herd Management Area, and the Little High Rock Home Range of the High Rock Herd Management Area (HMA). When populations of wild horses have exceeded the established AML range, disturbance to vegetation and to cultural resource sites often occurs.
4. Since 1976 the BLM has conducted approximately 6 gathers and removals of wild horses in order to remove excess animals and to manage the population size within the established AML ranges. The excess animals removed have been transported to short-term corral facilities where they were prepared for adoption, sale (with limitations), long-term pasture, or other statutorily authorized disposition.
5. The last gather conducted on the Fox Hog HMA and High Rock HMA was in 2011. The BLM completed an inventory in 2012 and estimated 55 wild horses in the Clover pasture of Fox Hog HMA, and 33 wild horses in the Little High Rock Home Range of High Rock HMA where the appropriate management level is 48-80 wild horses.
6. Several important vegetation communities, riparian/wetland areas, or cultural resource sites, have been fenced or partially fenced from livestock grazing and from wild horse

and burro use. These include Lower Meadow Spring, South Fork Spring, Wagon Tire Spring and others.

7. The BLM has conducted Integrated Weed Management since 1997 to monitor and treat infestations of noxious weeds and invasive species.
8. In the early 1970s, an above-ground high-tension power line was built, which crosses the western portion of the Lost Fire. The power line is owned and maintained by Los Angeles Water and Power.
9. Some areas have been impacted by off-highway vehicle use that has occurred off of established roads and trails. The Surprise RMP (2008) has limited all off-highway vehicle use to designated trails.
10. Recreation use has occurred mainly in the form of wilderness recreation, hiking, camping, and hunting. Activities that have occurred with very low frequency are wildlife observation, nature study, and archaeological sightseeing.
11. Channel stabilization gabion structures were installed in Clover Creek in the 1980s, and twelve loose-rock structures were installed in 2012. In July 2013, a flash flood occurred in the Clover Creek drainage, washing out most of the loose rock structures and depositing up to several feet of sediment in the lower portions of the drainage.

Present and Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action

1. Over the next 10-20 year period, reasonably foreseeable future actions include gathers of wild horses about every 4 years, in order to remove excess animals to manage the population size within the established AML ranges. The excess animals removed would be transported to short-term corral facilities where they would be prepared for adoption, sale (with limitations), long-term pasture, or other statutorily authorized disposition.
2. Livestock grazing would continue after the post-fire monitoring objectives for each allotment have been met. The BLM would continue to authorize permits that require livestock to be grazed under specific terms and conditions that are designed to achieve, or make significant progress towards achieving Land Health Standards, and resource objectives.
3. The Surprise Field Office is developing proposed management actions to protect the Greater sage-grouse from habitat degradation through a multi-state BLM effort. These management actions will be included in BLM Resource Management Plan Amendments for Sage-grouse due to be completed in 2014. In the meantime the Surprise Field Office has mapped out Priority and General Habitat for sage-grouse within the field office boundaries, and is following Interim Management Measures as outlined in Instruction Memorandum No. 2012-043 for any projects to be completed before the RMP Amendments are finalized. Sage-grouse lek (breeding ground) counts will continue, to assist in contributing to population data and to monitor habitat conditions. In addition, telemetry studies are planned to track sage-grouse movements and use of the fire area and surrounding intact habitat.
4. It is predicted that additional wildfires will occur in the future, and the lands affected may have emergency stabilization or rehabilitation efforts implemented on them.
5. The BLM will continue to monitor and treat infestations of noxious weeds and invasive species using Integrated Weed Management.

4.2. Cultural Resources

Effects of Proposed Action

In 2012 the Surprise Field Office conducted a cultural resources survey in order to comply with Section 106 of the National Historic Preservation Act (NHPA) for this proposed project. The inventory is designed to identify any cultural resources that may be affected by the proposed action. As a result of the inventory, 38 cultural resource sites were identified within the Area of Potential Effect (APE). The types of sites include numerous prehistoric lithic scatters (the remnants of stone tool production), prehistoric obsidian quarries, and a historic refuse scatter. Three sites are deemed eligible for listing on the National Register of Historic Places (NRHP). One cultural resource site is deemed ineligible for listing on the NRHP. The remaining 34 cultural resource sites have not been evaluated for listing on the NRHP and will be treated as eligible until such an evaluation is made.

The Proposed Action includes four tasks that have varying effects to cultural resources: aerial seeding native vegetation, constructing stabilization structures in Clover Creek, hand-planting native vegetation, and drill seeding native vegetation. The aerial seeding and hand-planting of native vegetation will not affect cultural resources. The construction of stabilization structures in Clover Creek will not affect the cultural resource sites and will greatly reduce erosion in the drainage which could negatively impact the site. Impacts from drill seeding include the vertical and horizontal displacement of artifacts and features and possibly artifact breakage from heavy equipment running over the site. Consequently, NRHP eligible and unevaluated sites will be avoided during drill seeding. Overall, the Proposed Action has no adverse effects to cultural resources and will help to reduce future erosion in the cultural resource sites.

Effects of No Action Alternative

Under the No Action alternative impacts to the cultural resource sites, such as erosion, would continue to occur which could result in loss of integrity and degradation to many of the sites. The two cultural resource sites in the North Clover Creek drainage would continue to erode, affecting these sites and the sites downstream.

Cumulative Impacts to Cultural Resources

Previous disturbances to the cultural resources are a result of natural processes and human-induced actions such as erosion and effects from cattle and wild horses (e.g. trampling of artifacts, the displacement of artifacts from trailing and wallowing, soil churning, artifact collecting, and the creation of two-track roads through sites). An above-ground power line was previously built across a portion of the APE, affecting cultural sites in the area through the construction of towers and access roads. At least one wild fire (the 2012 Lost Fire) is known to have affected the sites. The impacts from a wildfire can include artifacts spalling and breaking due to the intense heat and increased erosion due to the denuded vegetation. In July 2013, an unusually intense weather system caused a flash flood within the Clover Creek drainage. This flood washed away portions and covered other portions of two cultural resource sites.

Cumulative impacts under the Proposed Action include continued disturbance by livestock and wild horses to cultural resource sites. Planting native vegetation and stabilizing the stream bank in Clover Creek would reduce natural erosion which consequently would reduce the chance of increased trailing and soil loss throughout cultural resource sites.

Cumulative impacts under the No Action alternative include continued disturbance by livestock and wild horses and a greater chance of severe erosion to cultural resource sites.

4.3. Invasive and Non-Native Species

Effects of Proposed Action

The objectives of invasive non-native plant treatments under the Proposed Action are to prevent nonnative plants from colonizing and establishing in areas disturbed by fire or fire suppression activities. Early detection and control of non-native plant infestations within or adjacent to the burned area are critical in preventing the establishment of these undesirable species and preserving native plant biodiversity.

The Proposed Action is designed to stop the spread of undesirable plant species from the initial area of disturbances after fire as a result of chemical and manual treatments and detection. These actions would reduce the likelihood of invasive non-native plant species becoming established and out-competing native plants for available resources as a result of

revegetation after seeding and planting. The planned treatments including seeding and planting, which are designed to increase revegetation of burned areas with native plant species, would reduce the potential for invasive species concerns. This will reduce the likelihood of invasive non-native plant species becoming established and out-competing native plants for available resources. Treatments of weeds would maintain ecosystem integrity in the long term, and promote native plant communities adapted to the natural fire regime.

Effects of No Action Alternative

The No Action Alternative would not implement early detection and control of invasive plants within or adjacent to the burned area. Without detection and treatment these species could become established and could spread rapidly. Ground disturbing activities during fire suppression (e.g. dozer lines) also present a great potential for new infestations. Hitchhiking propagules could have been picked up from existing infestations or brought in from the fire equipment's original location and spread along fire routes. Native plant communities would be at risk of losing their biodiversity and productivity over time without detection and treatment of these weed species.

Cumulative Impacts

The Proposed Action would result in beneficial cumulative effects related to noxious weed invasion potential. Weed treatments would help prevent areas from becoming dominated by invasive species following the fire. Treating weeds would lessen the impacts to native plants, thus allowing them to better recover from the fire, and to better compete with non-native annual grasses such as cheatgrass and medusahead. In the long term, cumulative benefits would be expected as the burned area would recover to native vegetation and provide higher values for wildlife, livestock and wild horses.

The No Action Alternative would result in slightly negative cumulative effects as a result of not completing inventory and treatment of noxious weeds. Plant communities that been impacted in the past by disturbances and historic livestock grazing would be vulnerable to noxious weed invasion due to the high amount of surface disturbance and trampling. If sites were invaded by noxious weeds, they could transition from plant communities dominated by native perennials to ones dominated by invasive annuals such as cheatgrass. The biodiversity and production

of these sites would decrease, and the chance of sites recovering to native vegetation would be reduced. In the long term, invaded areas within the burned area may not recover to native vegetation and provide the higher values for wildlife, livestock and wild horses that the Proposed Action would provide.

4.4. Livestock Management and Wild Horses

Effects of Proposed Action

Upland vegetation conditions are expected to improve in the short and long term under the proposed action. In the short term plant vigor and litter are expected to increase. In the long term, establishment of new perennial grasses is expected. These actions would benefit livestock grazing by increasing forage production and by providing more dependable forage sources, when compared with annual grasses. The channel stabilization treatment in Clover Creek and recovery of vegetation in riparian areas and drainages would improve vegetation cover, and would also benefit livestock and wild horses by increasing forage production.

Hand planting up to 200 acres with seedling plugs of bitterbrush and mountain big sagebrush is not expected to have an effect on livestock and wild horses, because of the relatively small acreage of the planting. However, may graze bitterbrush, particularly in the fall. Consequently additional rest from wild horses and livestock grazing may be necessary to assist with the establishment of new plants.

Extending the closure period would have a negative economic impact on permittees. The economic impacts would vary by allotment and permittee, and changes would vary from adjustments of season of use and/or reductions in livestock numbers and AUMs. Permittees that rely on forage on the effected allotment would have to locate other grazing land and forage for their livestock. The availability, location and cost of other livestock grazing forage are unknown, but fees for private pasture has escalated, and is expected to cost the operator considerably more than public land forage.

The decision to open an allotment to grazing would be based on an evaluation to determine if the criteria for wildfire recovery are being met. If through this evaluation it is determined that the wildfire recovery criteria have been met or that future managed livestock grazing would not impede recovery, the Lost Fire burned area would be authorized to livestock grazing in accordance with the terms and conditions of each grazing permit. If the recovery criteria have not been met, then livestock grazing will not resume until those criteria have been met.

Effects of No Action Alternative

The No Action Alternative would not improve the degraded conditions on the 150 acres in the Clover Creek drainage. There would be an increased risk of soil loss and deposition from overland water flows. Accelerated erosion rates along with vegetation communities would likely be dominated by annual grasses and forbs in the Clover Creek basin, which would have a negative effect on forage production. Approximately 5,200 acres of proposed shrub seeding and planting would not likely impact livestock and wild horses grazing use. But overall, the No Action Alternative would result in adverse cumulative effects to vegetation resources within the Project Area. The biodiversity land health standard would probability not be met under the No Action. Not meeting land health standards could result in other changes to grazing management grazing permit renewal process.

Cumulative Impacts

Revegetation and land treatments would accelerate post-fire recovery, and would benefit livestock and wild horse grazing use by providing additional dependable forage sources, while improving land health conditions. The rest period may need to be extended by at least one growing season, from the current minimum of two growing seasons of rest from grazing following wildfires, to assist with post fire vegetation and soil recovery.

4.5. Soils, Hydrology, and Watershed Resources

Effects of Proposed Action

Under the Proposed Action, the BLM would construct channel stabilization structures in Clover Creek and implement seeding and seedling planting on up to approximately 5,200 acres. Overall, these actions would have beneficial effects to watershed and soil stabilization and general ecological conditions.

The channel stabilization structures in Clover Creek will help to trap sediment and reduce stream bank erosion, thereby creating a more stable system that transports less sediment downstream. Elongating the aprons of the existing structures will promote smoother flow over the structures with less slope following the structures and less scouring downstream of the structures. The re-creation of a floodplain in the downstream portion of the Clover Creek project area will allow for flood waters in relatively frequent events to access the floodplain, dissipating flood flows and flood energy, and replenishing soil moisture in the floodplain. This will help restore a more natural flood regime for the stream and riparian area with a disturbance frequency that helps promote native riparian plant species and reduces encroachment by upland plant species including cheatgrass. Because there is no perennial water in the project area or immediately downstream of the project area, there is no need for concern regarding aquatic ecosystems and fish. In the first year or two following re-construction of the floodplain, the construction disturbance will likely cause a slight increase in sediment transport downstream. However, in the long term, sediment generation will be reduced due to stabilized stream banks and dissipated flood energy. This short-term risk for increased sediment will be lessened by the addition of gravel in the newly formed stream bed. The gravel will also help prevent future incision of the channel since it is more stable in high flows than the native soil currently in place.

Revegetation actions adjacent to the Clover Creek and its tributaries will help reduce erosion and trap sediment transported from the watershed before it can reach the stream and cause excessive deposition downstream. Increased vegetation adjacent to the drainageways will also help stabilize the soil during flood events. Seeding actions throughout the burned area will similarly help reduce soil movement and erosion, which will promote the establishment of native perennial plant species and overall soil and watershed health and proper functioning.

Effects of No Action Alternative

The No Action Alternative would result in adverse effects to Clover Creek and its adjacent floodplain, as well as the watersheds affected by the fire.

In the Clover Creek drainage basin, there would be an elevated risk of flash flooding in the future, leading to excessive soil loss and deposition along the stream channel and impeding the establishment of native grasses, forbs, and shrubs. In the long term, continued down-cutting within the channel would lead to a drop in the water table, reducing the already limited water resources

available for plant use. The floodplain would remain disconnected from the stream during relatively frequent floods, and upland vegetation including invasive annuals would likely increase in the floodplain area. Flood flows would not be able to access the floodplain due to incision, and the flood energy would be greater within the channel, worsening bank erosion and incision. Erosion throughout the burned area would continue, worsening watershed conditions and causing soil loss. Failure to repair the existing stabilization structures will cause continued scouring and erosion downstream of the structures, and eventually the structures will be washed away.

Cumulative Impacts

Implementation of the Proposed Action is not expected to cause negative cumulative impacts to soil, hydrology, or watershed resources.

Implementation of the No Action Alternative would result in further degradation of the stream banks and increased soil loss throughout the burned area. These impacts would be worsened in the event of overgrazing by wild horses and livestock. With grazing on unstable soils on steeper slopes that do not have well-established vegetation, soil loss would be exacerbated. Without stable stream banks, hoof action will contribute additional erosion and make the banks more vulnerable during flood events.

4.6. Vegetation, T&E Species, and Special Status Plant Species

Effects of Proposed Action

Under the Proposed Action, the BLM would construct channel stabilization structures in Clover Creek and implement seeding and seedling planting on up to 5,200 acres. Overall, these actions would have beneficial effects to watershed and soil stabilization and general ecological conditions.

In Clover Creek, the combination of channel stabilization and revegetation efforts within the drainage basin is expected to be highly effective in increasing the resiliency of the ecosystem during low-probability rain events. Drill seeding and seedling planting would increase vegetation cover and density in the short term, accelerating the process of natural reestablishment of important species for wildlife habitat. In the long term, seeding and planting would prevent soil erosion and deposition, providing an opportunity for further natural colonization of native plant species.

Outside of Clover Creek, the proposed seeding and seedling planting would be expected to be highly effective at reestablishing shrub cover. Reestablishing shrub cover of non-sprouting species can take decades (Baker 2007; Cooper et al. 2007), so seeding and planting desired species can jump-start the slow process of habitat recovery. While north-facing slopes are usually not a priority for reseeding native grasses (Kulpa et al., 2012), they should be prioritized for treatments involving hard-to-establish shrub species when treatment objectives are to establish habitat refugia and connect intact habitat. Focusing treatments on these moister sites will likely result in greater treatment success.

Aerial seeding would promote sagebrush reestablishment in the burned area without damaging the perennial grasses that have already become established in high densities. Sagebrush seeds are particularly suited to aerial applications because the tiny sagebrush seeds do not typically require full burial in order to achieve adequate seed-soil contact for germination.

In specific areas that are well-suited to the survival of sagebrush and bitterbrush seedlings, hand-planting and targeted dewdrop drilling will provide pockets of habitat refugia for wildlife species as well as seed sources for further regeneration within the fire. Prioritizing north-facing slopes, where snow pockets provide critical spring soil moisture, will improve the success of seeding and planting efforts.

Rest from livestock is essential for successful post-fire regeneration. Grazing newly established plants risks damage to regenerating vegetation in several ways: germination is decreased by soil disturbance from hoof action, new seedlings with inadequate root development can be pulled from the soil during grazing, and defoliation leaves insufficient leaf area for photosynthesis in small seedlings. It generally takes two years or longer to successfully establish a new seedling, especially when establishing native plants in an arid environment. During years of below-normal precipitation or drought, longer rest periods from livestock grazing may be needed to meet the goals and objectives. Unauthorized livestock use occurred in multiple allotments within the Lost Fire in 2013, and thus some regenerating areas have not yet been rested from grazing.

The combination of treatments in the Proposed Action would be expected to be highly effective at promoting the long-term sustainability of productive, healthy, and resilient upland plant communities within the Lost Fire perimeter.

Effects of No Action Alternative

The No Action Alternative would result in adverse effects to some vegetation resources.

In the Clover Creek drainage basin, there would be an elevated risk of flash flooding in the future, leading to excessive soil loss and deposition along the stream channel and impeding the establishment of native grasses, forbs, and shrubs. In the long term, continued down-cutting within the channel would lead to a drop in the water table, reducing the already limited water resources available for plant use. Vegetation in the drainage basin would likely be dominated by annual grasses (such as cheatgrass) and forbs (such as mustards).

In sites that burned at high severity, native shrubs would be expected to take decades to reestablish. The time needed for shrub reestablishment would be even longer in sites farther from the burn perimeter, due to the absence of seed sources within the burned area. In the short to medium term, these sites would no longer provide forage or cover for wildlife, and the burned area would be a barrier between adjacent patches of habitat.

Cumulative Impacts

Implementation of the Proposed Action is not expected to cause cumulative impacts to vegetation resources. Other impacts to upland and riparian vegetation that have occurred within the Project Area include historic livestock and wild horse grazing, Clover Creek channel stabilization projects from the 1970s, Clover Creek loose rock structure construction following the Lost Fire in 2012, and the flash flood in the Clover Creek drainage in 2013. If livestock grazing within the Project Area is not temporarily closed to allow seeded plants and planted seedlings the ability to establish, the positive impacts of the treatments may be negated, and the cumulative impacts would be neutral. If, however, the Project Area is rested following implementation of the proposed projects, the cumulative impact is expected to be beneficial to vegetation.

Implementation of the No Action Alternative would result in degradation to approximately 150 acres in the Clover Creek drainage, due to an increased risk of soil loss and deposition from

overland water flows. In the Clover Creek basin, erosion paired with livestock grazing would likely result in a vegetation community dominated by annual grasses and forbs. In approximately 5,040 acres proposed for shrub seeding and planting, No Action would result in the continued absence of shrub cover for many decades. Overall, the No Action Alternative would result in adverse cumulative effects to vegetation resources within the Project Area.

4.7. Visual Resource Management

Effects of Proposed Action

Impacts to visual resources as a result of seeding are associated with two-track route being created by seeding equipment which relates to concerns in: visual quality, aesthetics and travel management concerns. However these routes would be low impact and would be covered with new vegetation if seeding is successful. Planting native vegetation would restore the project area back to its existing VRM character and could prevent the landscape from being permanently scarred from the fire.

The level of change to the characteristic landscape could be high in the Clover Creek stabilization area with the construction of new and existing flow structures; however the effects would be negligible and allowable under the VRM system.

In the short term, these management activities may dominate the view in some areas and be the major focus of viewer attention. However, every attempt has been made during the project design process to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Effects of No Action Alternative

The impacts of no rehab or restoration projects would provide a continual decline in native vegetation which relates to the loss of visual diversity. No beneficial effects to visual quality would occur in the seeding areas and the landscape would take longer to recover.

Cumulative Impacts

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse grazing, recreational use, off-highway vehicle use and range management throughout the CAA. It is not anticipated that continued livestock grazing and range management actions, recreational use, or wild horse grazing would contribute to cumulative effects related to visual resources. Off-highway vehicle use has the potential to result in degraded vegetative community compositions and densities, as well as ground disturbance and erosion.

Over time, implementation of the Proposed Action is not expected to cause cumulative impacts to visual resources.

Implementation of the No Action alternative could cause cumulative impacts to visual resources. By not seeding and restoring vegetation to the burn area the visual resource would change considerably with new color and form of non-native vegetation. Even though high levels of change are allowable under the Class IV designation, every attempt should be made to minimize the impact. Potential cumulative effects to visual resources resulting from the No Action Alternative are considered low to moderate.

4.8. Wildlife, T&E Species, BLM Sensitive Species, and Migratory Bird Species

Effects of Proposed Action on Native Wildlife

The Proposed Action would result in beneficial direct and indirect effects to native wildlife. There would be a short-term period when associated wildlife habitat values would be low following completion of treatments such as seeding and planting and for the first year. Low vegetation density and temporary ground disturbance associated with these treatments could affect wildlife's need for food, nesting, or cover and could result in disturbance effects to many sage-steppe obligates. However, given that the affected environment is a burned area, these pre-existing habitat values will already be low, and conditions will improve substantially a few years following the implementation of these treatments. Once the burned areas are revegetated, new seasonal growth would provide palatable forage and a better diversity of native perennial grass, forbs, and shrub species. Over time, mosaics of mature shrubs and grasses would provide suitable habitat for those species of wildlife dependent on late seral stage plant communities. During implementation, ground and aerial seedings would likely temporarily displace mobile wildlife, but long-term benefits of these treatments would offset these temporary impacts.

The channel stabilization treatment in Clover Creek would benefit those species dependent on the recovery of vegetation in upland meadow areas and drainages with high vegetation cover. The recovery of native vegetation would reduce the risk of post-wildfire flooding and land sliding that could impact availability of prey species and cover. Revegetation with native species would benefit most wildlife species in the long-term by maintaining ecosystem integrity and promoting continuation of the natural fire regime.

Hand planting up to 200 acres with seedling plugs of bitterbrush and mountain big sagebrush would provide cover and forage for a myriad of wildlife species that inhabit sagebrush habitats including sage-grouse, mule deer, pronghorn antelope and migratory birds. These treatments would improve the biodiversity of plant communities over time and would provide an immediate increase in plant production that would become available for wildlife forage and cover. These treatments would result in some temporary displacement of wildlife due to noise associated with the treatment and human activity. This impact is expected to be slight due to the short duration of the treatments and the declined habitat values and use as a result of the fire.

Effects of Proposed Action on Sage-grouse Habitat

The Proposed Action would result in beneficial direct and indirect effects to sage-grouse habitat through seedings and plantings due to increases in shrub cover that would provide foraging, hiding and nesting cover. Sage-grouse are characterized as a landscape-scale species, inhabiting large, interconnected expanses of sagebrush (Connelly et al. 2011). While the unburned islands within the fire area should provide a seed source for the reestablishment of vegetation, it is unlikely that they are large enough to allow persistence of nesting at pre-burn levels. Seeding of native grasses and sagebrush would assist in the prevention of conversion to annuals, and would decrease the recovery time overall. Forage and cover are predicted to increase as a result if the proposed action, resulting in improved habitat for sage-grouse and other wildlife.

Effects of No Action Alternative on Native Wildlife and Sage-grouse Habitat

*Chapter 4 Environmental Effects
Wildlife, T&E Species, BLM Sensitive Species, and
Migratory Bird Species*

The No Action Alternative would result in adverse impacts to sage-grouse and other sage-steppe species including mule deer and pronghorn antelope because no seedings or plantings would be undertaken. While the unburned islands within the fire area should provide a seed source for the reestablishment of vegetation, it is unlikely that they are large enough to allow persistence of nesting at pre-burn levels. Wyoming big sagebrush habitats may take as long as 35 years to more than 50 years to recover. Areas that were preferred habitat for mule deer and pronghorn would not be reseeded to bitterbrush and other shrubs, thereby reducing important browsing vegetation. Without treatments for the control of noxious weeds and invasive plants, much of the sage-grouse habitat within the fire perimeter would be at risk of conversion to weeds or annual grasslands.

Cumulative Effects on Native Wildlife and Sage-grouse Habitat

The Proposed Action is not expected to degrade wildlife habitat from its current condition. Other impacts to sage-grouse and other wildlife habitat that have occurred within the area include historic livestock grazing and previous wildfires. Livestock grazing within the burned area would be temporarily closed to allow native plants the ability to recover from being burned. After monitoring objectives have been met, the allotments would continue to be managed in compliance with land health standards and livestock grazing standards and guidelines and no negative cumulative impacts are expected to occur.

The No Action Alternative would result in only natural recovery of the burned area without any additional treatment inputs such as seeding or planting. This alternative would be expected result in less valuable wildlife habitat in the long term compared to current conditions. This would result in adverse impacts to sage-grouse and other sage-steppe obligates including mule deer and pronghorn antelope because no seedings or plantings would be undertaken. Livestock grazing within the burned area would be temporarily closed to allow native plants the ability to recover from being burned. After monitoring objectives have been met, the allotments would continue to be managed in compliance with land health standards and livestock grazing standards and guidelines and no negative cumulative impacts are expected to occur as a result of grazing however overall habitat quality for wildlife within the burned area would be reduced under this alternative due to no other treatments occurring.

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Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted

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Table 5.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
NDOW	State agency responsible for wildlife resources	Comments received and incorporated into EA
Fort Bidwell Tribe	Native American Tribe	No concerns expressed
Cedarville Rancheria	Native American Tribe	No concerns expressed
Summit Lake Paiute Tribe	Native American Tribe	No concerns expressed
Alan and Ed Beryessa	Permittee	No comments received
John Bunyard	Permittee	No comments received
Betty Cockrell	Permittee	No comments received
Dean Cockrell	Permittee	No comments received
Jim Cockrell	Permittee	No comments received
Robert Cockrell	Permittee	No comments received
Will and Debra Cockrell	Permittee	No comments received
Robert R. Depaoli	Permittee	No comments received
Estill Ranches LLC	Permittee	No comments received
Grove Brothers	Permittee	No comments received
Mel & Judy Hein	Permittee	No comments received
Todd Jaksick	Permittee	No comments received
Johnny and Ruth Still	Permittee	No comments received
Western Watersheds Project	Interested Party	No comments received
Sean Curtis, Chairperson, Modoc/Washoe ESP	Interested Party	No comments received
Bill Phillips	Interested Party	No comments received
Friends of NV Wilderness	Interested Party	Comments received and incorporated into EA
Friends of Black Rock High Rock	Interested Party	No comments received
Nevada Bighorns Unlimited	Interested Party	No comments received
Nevada State Clearinghouse	Interested Party	No comments received
Meghan L. Brown, Rural Representative for Congressman Mark Amodei	Interested Party	No comments received
Nevada Cattlemen's Association	Interested Party	No comments received
Modoc Cattlemen's Association	Interested Party	No comments received
Samuel Hough Luebben & Johnson	Interested Party	No comments received

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Chapter 6. List of Preparers

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Table 6.1. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Roger Farschon	Ecologist	EA Preparation and Review
Elias Flores	Supervisory Natural Resource Specialist	EA Preparation and Review
Landon Gryczkowski	Hydrologist	Soils, Hydrology, and Watershed Resources
Jennifer Rovanpera	Archaeologist	Cultural Resources
Dan Ryan	Lands/Realty/Recreation Specialist	Visual Resource Management
Scott Soletti	Wildlife Biologist/Noxious Weeds Coordinator	Wildlife, Migratory Birds, T&E Fauna, Invasive and Non-Native Species
Steve Surian	Sup. Rangeland Management Specialist	Livestock Management
Alexandra Urza	Natural Resource Specialist	Lead EA Preparation, Vegetation, T&E Flora, Special Status Plant Species

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Chapter 7. References

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